

THE UNIVERSITY OF CHICAGO

THE ARCHITECTURE OF DEFENSE: FORTIFIED SETTLEMENTS OF THE
LEVANT DURING THE MIDDLE BRONZE AGE

VOLUME ONE

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PREFACE

While the present thesis may present itself as an immediately recognizable problem in the field of Levantine archaeology that is worthy of analysis, its birth was the result of an unexpected combination of factors. In my final year of coursework I had approached my advisor, David Schloen, with a quite different topic, namely an analysis of Middle Bronze Age trade in the Levant as an important but often overlooked precursor of the more thoroughly studied Late Bronze Age trade. Although a part of the proposed work was intended to provide some consideration of the role that these fortifications played in Middle Bronze Age trade, realizing the overwhelmingly textual emphasis that such a dissertation would necessarily require and yet desiring to salvage the core of my interest in the Middle Bronze Age Levant, he suggested that I should pursue a topic that exclusively addressed the issue of MB fortifications. I was to learn afterwards that this had recently become an issue of renewed interest to the director of the excavations at Ashkelon, Lawrence Stager (Harvard University). In the preceding months as the *National Geographic* illustrators sought to prepare a painting of the MB gateway at Ashkelon (ca. 1850 B.C.) for a forthcoming article (see Gore 2001:72), several inquiries were made as to the accuracy of the illustration. Out of this process came the renewed realization by both Lawrence Stager and David Schloen that the issue of MB fortifications in the Levant remained inadequately explored.

While I had recognized the need for such a work, I had not previously considered it a potential thesis. However, given my interest in ancient warfare, numerous papers I had researched on Middle Bronze Age material culture, and a recent M.A. paper on Early Bronze Age fortifications, in addition to several years of excavation experience at Ashkelon, the suggestion was gladly welcomed. Without hesitation, therefore, I accepted

what had developed into an offer to use the excavation records of the MB gateway and rampart from the Leon Levy Expedition to Ashkelon as part of my research.

For steering my interests towards a dissertation that suited me best while addressing a void in archaeological research of the Levant, as well as for his countless hours of gracious advising, I would like to thank J. David Schloen. I would also like to thank Lawrence E. Stager (Harvard University) for the offer to use Ashkelon's excavation records and his willingness to participate as a committee member. McGuire Gibson's keen insights and his thorough command of Mesopotamian and Syrian archaeology were also immensely helpful in the preparation of this work. Without the help of these three individuals this dissertation would not have taken its present form and may have remained incomplete until many years later. It goes without saying, however, that any errors that may have crept into this work are only the fault of the author.

Finally, since it is my intent to publish the present work with corrections and additions, comments and corrections are welcomed from scholars and excavators. I can be contacted at: **aaburke@alumni.uchicago.edu**

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I must also thank a number of faculty, staff, and students at the Oriental Institute who contributed in various ways to the improvement of this work. In addition to those

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ABBREVIATIONS

<i>AEL</i>	<i>Ancient Egyptian Literature</i> , 3 vols. M. Lichtheim. (Berkeley 1973–80)
<i>AHW</i>	<i>Akkadisches Handwörterbuch</i> , ed. W. Von Soden. 3 vols. (Wiesbaden, 1965–1981)
Akk	Akkadian
<i>ANEP</i>	<i>Ancient Near East in Pictures Relating to the Old Testament</i> , 2nd ed. with suppl., ed. J. B. Pritchard (Princeton, 1969a)
<i>ANET</i>	<i>Ancient Near Eastern Texts Relating to the Old Testament</i> , 3rd ed. with suppl., ed. J. B. Pritchard. (Princeton, 1969b)
Ar	Arabic
ARET	Archivi reali di Ebla, Testi
ARM	Archives royales de Mari
<i>ASI</i>	<i>Archaeological Survey of Israel</i> , Israel Antiquities Authority, Jerusalem
ASL	Above sea level
AT	Alalakh texts
<i>CAD</i>	<i>The Assyrian Dictionary of the Oriental Institute of the University of Chicago</i>
<i>COS</i>	<i>Context of Scripture</i> , 3 vols., ed. William H. Hallo. (Leiden 1992–2002)
DN	divine name
EA	el-Amarna text (for translations see Moran 1992)
<i>EAEHL</i>	<i>Encyclopedia of Archaeological Excavations in the Holy Land</i> , 4 vols., ed. M. Avi-Yonah (1975)
ED	Early Dynastic period
EB	Early Bronze (Age)
Fr	French
Gk	Greek
GN	geographical name
<i>DUL</i>	<i>A Dictionary of the Ugaritic Language in the Alphabetic Tradition</i> , 2 vols., G. del Olmo Lete and J. Sanmartín. (Leiden, 2003)
HSS	Harvard Semitic Studies
LB	Late Bronze (Age)
MB	Middle Bronze (Age)
<i>NEAEHL</i>	<i>New Encyclopedia of Archaeological Excavations in the Holy Land</i> , 4 vols., ed. Ephraim Stern, (New York, 1993)
OA	Old Assyrian
OB	Old Babylonian
PN	personal name
<i>RA</i>	<i>Revue d'assyriologie et d'archéologie orientale</i> , Paris
<i>RGTC 12/2</i>	<i>Répertoire Géographique des Textes Cunéiformes, Band 12/2: Die Orts- und Gewässernamen der Texte aus Syrien im 2. Jt. v. Chr.</i> , J. A. B. Marín. (Wiesbaden, 2001)
<i>RIA</i>	<i>Reallexikon der Assyriologie</i> , ed. G. Ebeling et al. Berlin 1932–
<i>RIMA 1</i>	<i>Royal Inscriptions of Mesopotamia, Assyrians Periods</i> , vol. 1: Assyrian Rulers of the Third and Second Millennia B.C. (to 1115 B.C.). A. K. Grayson (Toronto, 1987)

- RIME 2* *Royal Inscriptions of Mesopotamia: Early Periods*, vol. 2: Sargonic and Gutian Periods (2334–2113 B.C.). D. Frayne (Toronto, 1993)
- RIME 3/2* *Royal Inscriptions of Mesopotamia: Early Periods*, vol. 3/2: Ur III Period (2112–2004 B.C.). D. Frayne (Toronto 1997)
- RIME 4* *Royal Inscriptions of Mesopotamia: Early Periods*, vol. 4: Old Babylonian Period (2003–1595 B.C.). D. Frayne (Toronto, 1990)
- SARI* *Sumerian and Akkadian Royal Inscriptions I: Presargonic Inscriptions*, Jarrold S. Cooper. (New Haven, 1986)
- StEb* *Studi Eblaiti*, Rome
- Sum Sumerian
- ZDPV Zeitschrift des Deutschen Palästina-Verein

INTRODUCTION:
PREVIOUS SCHOLARSHIP ON MIDDLE BRONZE AGE FORTIFICATIONS IN THE LEVANT
AND THE PRESENT STUDY

CHAPTER ONE:

THE STUDY OF MIDDLE BRONZE AGE FORTIFICATIONS IN THE LEVANT

If all the city walls and gates of the Middle Bronze Age which have been discovered were adequately published, it would be possible to describe the evolution of the art of fortification in considerable detail.

William Foxwell Albright (1960:87)

Although the Levant during the Middle Bronze Age can on the one hand be characterized by a unique assemblage of artifacts, it can on the other hand also be characterized by unique architectural remains. The best known of these remains are the massive earthen rampart fortifications still visible at numerous Levantine settlements. The impressive preservation of these structures, which often includes their earthen ramparts, revetments, glacis, fosses, towers, and portions of their mudbrick town walls, attests to the massive quantity of material and labor required of the inhabitants of the Levant at that time. The sheer volume of these features is demonstrated by the fact that the remains of these fortifications have in many cases survived over 3,500 years of exposure to the elements! Because the construction of fortification systems with various combinations of architectural elements were the most common form of monumental construction during the Middle Bronze Age (MB) in the Levant, scholars have always desired to establish their origin, geographic distribution, function, and the terminology that should be employed for different elements of MB fortification systems. For these reasons it is necessary to provide a diachronic review of the study of Middle Bronze Age fortifications in the Levant, while attempting to understand the major questions which have been asked at different stages of this research.

While there is no shortage of material on the subject of Middle Bronze Age fortifications, there has been to date no attempt to provide a comprehensive synthesis of the results of various studies on the topic and the relevant publications of sites where such fortifications have been identified. The present work, therefore, attempts to review as much of the archaeological and historical evidence as possible in order to answer many of the questions that have been raised concerning fortifications in this period. These questions include, for example: should these structures be identified as fortifications? If so, why were they built? How were they built? Can they be classified into distinct types? Who or what group(s) was/were responsible for initiating their construction? If they are fortifications, what characteristics distinguish them from Early or Late Bronze Age fortifications? How long did such structures take to build? How long were they intended to function? Who was involved in their construction? What is the extent of the region where such structures were found? Where did they originate? And ultimately, did they achieve the purpose for which they were constructed? This introductory chapter, therefore, will address how this study has been organized, the geographical and chronological scope of this work, and, finally, will review the most important scholarly contributions on the subject that have been published prior to the completion of research for the present work.

A. THE ORGANIZATION OF THIS STUDY

The approach of this work, though straightforward, represents a multifaceted attempt to provide the appropriate context for the consideration of fortification strategies during the Middle Bronze Age in the Levant. For this reason in addition to a general description of fortification systems and their construction various other aspects of warfare and society during the period between ca. 2400 and 1500 B.C. are addressed in this work. In order to be able to consider the particular types of weapons and strategies against which these fortification systems may have been built, in chapter two a review of the

evidence for siege warfare in the Levant during the Early and Middle Bronze ages is presented. Based upon the data collected in the construction of the catalogue of fortified Middle Bronze Age sites a thorough discussion of various fortification strategies in this period is provided in chapter three along with a proposed evolution of the development of these strategies. With an archaeologically based evolution of these fortification systems in mind the question is set in its broader historical context in chapter four in an attempt to establish what if any particular historical circumstances might account for the unique development of Middle Bronze Age fortifications. Finally, the socio-economic role of these fortification construction projects are assessed in chapter five through various lines of evidence for the duration of these projects and the resources required for them.

Despite these attempts to contextualize this study, the core of this work remains the primary data upon which the conclusions that have been presented are based. Research began, therefore, with the creation of a catalogue of all fortified Middle Bronze Age sites in the northern and southern Levant, which could be identified at the time of writing, by means of a thorough examination of relevant reports and various other sources, including personal communications with a number of scholars (Appendix B). Realizing that contemporary sites in regions adjacent to the Levant such as northern Mesopotamia, and the Egyptian Delta, in particular, would be equally relevant to the question of origins, sites in these regions have also been included insofar as possible (e.g., Appendix A). The catalogue entries consist of a summary of the elements of the fortifications of these sites noting major defensive features, both natural and artificial, and their specific characteristics. The purpose of this catalogue was, first, to facilitate comparison between features at different sites and, second, to provide a resource for future scholarship. The details contained in these summaries have supplied the basis for the analysis of the major elements of MB defensive architecture discussed in chapter three. With regard to the terminology used for fortifications throughout this work it

should be noted that a primary reason for the detailed discussion of the individual architectural elements of MB fortifications in chapter three is, in fact, to define the most appropriate terms for the main architectural features identified through excavation.

B. THE GEOGRAPHICAL AND CHRONOLOGICAL SCOPE OF THIS STUDY

The first issue to be addressed in a work of this scope is, of course, the geographical and temporal limits of the research. Although in the initial stages of research on this topic it was necessary to remain relatively free with regards to both of these variables, as research progressed logical limits emerged. With regards to the geographical scope of this work, the core area of research concerns the entire Levant for the basic reason that it has for quite some time been recognized that MB fortifications in this region shared basically the same characteristics (see chapter 3). Furthermore, since sites within this region also shared various other cultural traits during the Bronze Age, this region merits treatment as part of a single cultural sphere. For the purposes of this work, therefore, the Levant is frequently referred to with respect to the main regional divisions as often identified in scholarship today, either as the northern Levant, which includes Lebanon, western Syria, and the 'Amuq Valley in Turkey, or as the southern Levant, which includes Israel, the occupied territories, and Jordan.

Since the areas immediately adjacent to the Levant were of potential significance because these neighboring regions may have played a role in the process of the transmission of fortification styles during the MB, they are also often discussed in this work. Neighboring regions include the Egyptian Delta to the south, Anatolia to the north, and northern Mesopotamia to the northeast. Nevertheless, due to the great number of sites in the Levant that have already been examined for this work, no attempt has been made to exhaustively address Middle Bronze Age fortification strategies in these other regions. Instead, effort has been made to address specific fortified settlements in these regions

which have been sufficiently explored and which appear to bear directly upon the question of the origin or development of Middle Bronze Age fortifications in the Levant.

In regards to the chronological scope of this research nearly the opposite types of considerations have prevailed. To best contextualize the MB it was recognized at the outset that it would be necessary to examine no less than the evidence for fortification strategies during the Early Bronze IV (EB IV). As will be demonstrated in this work, evidence from fortified centers in the northern Levant and northern Mesopotamia reveals that the tradition of EB IV fortifications in this region was directly related to that of the Levant during the MB (see esp. chapter three, section D.2). Limited evidence for fortification strategies from the Early Bronze Age (EB), before the EB IV, has also been discussed when relevant.

Although at times references are also made to historical events or archaeological data from the Late Bronze Age (LB), given the breadth of the present work it was, of course, much easier to consider this later data selectively since it obviously does not bear upon the development of MB fortifications. Evidence from the LB, for example, can really only address how well such fortifications held up over time, which is important but, nevertheless, is not a main focus of the present work. In the end, despite the fact that the focus of this work is MB fortifications the conclusions presented here provide a picture of the evolution of fortifications in the Levant from around 2400 to 1500 B.C.

Aside from the fact that the two halves of the Levant discussed above possessed slightly different artifact assemblages during various historical periods, this geographic division also serves to emphasize the slight differences in the chronological schemes for the EB and MB in these regions which have been employed by scholars (see Table 1 below). Therefore, the EB IV is referred to in this work by the divisions which are familiar to the northern Levant when data are sufficient (i.e., EB IV A and B), since there are a dearth of fortified sites in the southern Levant to warrant use of the tripartite

division of the EB IV proposed by William Dever (1980). Likewise, the MB is divided in half, also following conventions used in the northern Levant, by referring to the first half as MB I (i.e., MB IIA south) and the second part as MB II (i.e., MB IIB–C south).¹ When archaeologists have suggested more precise chronological phases within these two parts of the MB their dates and/or terminology are provided in parentheses and I have employed the modifiers “early” and “late” with my own terminology (see Table 1 below). For example, since many working in the southern Levant have subscribed to a division of the second half of the MB in order to distinguish early and late phases of the MB II (e.g., MB IIB and IIC), I have chosen to refer to these periods, when necessary, as “early” and “late MB II” with the designations IIB or IIC in parentheses (e.g., late MB II (IIC)). While on the surface this system may appear unnecessary, it in fact guarantees that a standard terminology can be employed while maintaining regionally distinct and potentially meaningful subdivisions of the MB which may be supported by evidence from a particular excavation.

Unless considerable uncertainty already existed it has been considered unnecessary to reevaluate the archaeological phasings offered by the excavators for the fortifications of these sites for three main reasons. First, often insufficient ceramics have been published from the excavations of the defenses from which to enable a reassessment of the dates which have been provided. Second, and perhaps more importantly, there are too few ceramic sequences established (and published) for the northern Levant (particularly north of Hama) by which it would be possible to suggest a more precise dating of their defensive features. Third, since no large-scale regional overview of the

¹Since, to my knowledge, no sites in the northern Levant have used further subdivisions of the MB chronology (i.e., MB IA and IB, IIA and IIB) in their discussion of the development of fortifications, it has been unnecessary to employ more specific terminology (as advanced, for example, by L. Nigro 2002b). Similarly, in the southern Levant it has not been possible, beyond the attempts made by excavators, to provide more than a relative phasing of fortifications within the MB I (IIA) or MB II (IIB–C).

question of fortifications has been previously attempted, one of the purposes of the present work is to set forth an *initial* comparative framework for the study of defensive strategies throughout the Levant during the MB that can be fine-tuned using synchronized ceramic sequences once they become available.

Table 1. Terminology and chronology for the periods discussed in this work.

Approximate Dates	South (Traditional)	South (Recent)	North (Present)	Terms used in this work
2400/2300–2200 B.C. [†]	“Intermediate”	EB IVA	EB IVA	EB IVA
2200–1950/25 B.C. ^{††}	Bronze Age EB IV/MB I	EB IVB EB IVC	EB IVB	EB IVB
1950/25–1700 B.C.	MB IIA	MB I	MB IA MB IB	Early MB I Late MB I
1700–1600 B.C.	MB IIB	MB II	MB IIA	Early MB II
1600–1500 B.C.	MB IIC	MB III	MB IIB	Late MB II

[†]The difference in dates for the start of the EB IV relate to the different chronologies used in the northern and southern Levant, respectively.

^{††}The difference in dates between the end of the EB IV and the start of the MB reflect an attempt to account for the later onset of the MB in the south which is now usually assumed.

C. ISSUES RELATED TO CHRONOLOGY IN THIS STUDY

The exact dates used in this work are based on the low chronology for the southern Levant and by necessity the low chronology for Mesopotamia. The latest evidence for the low chronology for the southern Levant comes as a result of collaboration between Manfred Bietak and Lawrence Stager as a part of the SCIEM 2000 project (“The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium B.C.”, see Bietak 2002; Stager 2002). The latest version of Lawrence Stager’s chronology, which is based on excavation of Ashkelon’s MB fortifications, is the specific version that has been adopted (see Table 25 on p. 495 in Appendix B). The decision to adopt the low chronology for the southern Levant has necessitated the adoption of the low chronology for Mesopotamia (and by extension the northern Levant),

in order for the chronological framework to remain internally consistent, even though not a single dated event is shared between the two chronologies during the Middle Bronze Age (see comments in Dever 1992a:10f.). The growing support for a lower chronology for Mesopotamia (e.g., Gasche, et al. 1998) also seems to affirm the results arrived at for the southern Levant and Egypt for this period.²

The site of Hazor serves as the only link between the chronologies for these two regions, which are most relevant to the present work. As seen in Table 2 below the adoption of the dates suggested by the low chronology for the southern Levant prohibits acceptance of the dates dictated by the middle and high chronologies for Mesopotamia that would place the destruction of Mari at or before 1760 B.C. The clearest evidence of this is the relationship that existed between the settlement at Hazor and the Mari texts. The Mari texts, which make reference to Hazor, were deposited as a result of the destruction of Mari by Ḫammurapi. This sequence of events reveals the very basic fact that the large fortified MB II (IIB–C) settlement of Stratum XVII at Hazor (or at the latest the following stratum) is most likely the settlement mentioned in the Mari texts. Thus, the Mari texts and the related settlement at Hazor must *antedate* the destruction of Mari. But according to the low chronology for the southern Levant adopted in this work, Stratum XVII at Hazor would not have begun until ca. 1700 B.C. Thus, there exists a minimum discrepancy of sixty years between the destruction of Mari (and the Mari texts mentioning Hazor) according to the middle chronology for Mesopotamia and the start of MB II (IIB) settlement at Hazor according to the low chronology for the southern Levant! If the low chronology for the southern Levant is employed, then a later date for the

²It should be noted that W. F. Albright was the first scholar to suggest the adoption of a low chronology for Mesopotamia and the Levant (1964; 1965; 1966), which was very comparable to the low chronology that many Levantine archaeologists are now adopting. For a summary of his chronology see fig. 1, p. 3 in Dever (1992a); this work also provides an excellent bibliography for the chronology of the Levant in the second millennium B.C.

destruction of Mari is required in order to provide a consistent chronology (see, for example, Malamat 1992). Such a date is available if the low chronology for Mesopotamia is adopted where the destruction of Mari can be dated to ca. 1696 B.C.³

Table 2. MB sites in the Levant and Mesopotamia that allow correlations between the low chronologies for these regions.

Period	Aphek	Ashkelon	Hazor	Mari	Approximate start dates
MB I (IIA)	Ph. 1	—	—		1925 B.C.
	Ph. 2	Ph. 14 (Gate 1)	—		1850 B.C.
	Ph. 3	Ph. 13 (Gate 2)	—		1800 B.C.
	Ph. 4	Ph. 12 (Gate 3)	Pre-XVII		1750 B.C.
MB II (IIB)	Palace III	Ph. 11 (Gate 4) Ph. 10	XVII	↑ <i>Mari Texts</i>	1700 B.C.
	↓	↓		DESTRUCTION	1696 B.C.
MB III (IIC)		Ph. 10–9	XVI	—	1600 B.C.
LB I	Palace IV	—	XV	—	1525 B.C.

While this addresses one problem, the next problem encountered involves which of the proposed low dates for the destruction of Babylon by Muršili, between 1531 and 1499 B.C., should be adopted. While work by Gasche et al. (1998) has provoked consideration of the merits of a lower chronology, discrepancies regarding the means by which their date of 1499 B.C. for this destruction has been arrived at suggest that the exact dates advanced by these scholars are unreliable. As this work is not focused upon advancing a new chronology or evaluating existing chronologies, only one reasonable solution remains. This solution is simply to take the difference of 64 years between the accepted versions of the middle and low chronology dates for the fall of Babylon as our standard deviation for all historical dates for the periods and events which are under

³I realize that this date only solves the problem regarding the synchronism between Hazor and the Mari texts by four years, however, this may be the result of an insufficient lowering of the Mesopotamian chronology (i.e., it may need to be lowered further) and/or the proposed date for the start of the MB II (IIB) is slightly later than it should be.

consideration here. Thus, I have chosen to adopt the low chronology date of 1531 B.C. for the fall of Babylon.

Dates aside, the structure of the argument and relative sequence provided for rampart fortifications are, however, unaffected by which chronology is adopted (see, for example, chapter three, section D). The use of dates from the low chronology should not in any way, therefore, be construed as an endorsement of any of the methods employed by Mesopotamian archaeologists or historians in the production of the low chronologies that have emerged for Mesopotamian history. If any questions are to be raised concerning the dates cited in this work, these questions must first address the appropriateness of the downwards revision of MB chronology for the southern Levant that has necessitated the adoption of a lower chronology for Mesopotamia.

D. PREVIOUS SCHOLARSHIP ON MIDDLE BRONZE AGE FORTIFICATIONS IN THE LEVANT

Numerous discussions of Middle Bronze Age fortifications, wherein nearly every scholar has expressed one or another opinion about their function, can be found in the general literature on the MB Levant (e.g., Albright 1960; B. Mazar 1968;1970; G. E. Wright 1971; Kenyon 1973; Dever 1976; 1977:84–89; Kenyon 1979:148–179; Dever 1987; A. Mazar 1990:174–231; Dever 1992b; Kempinski 1992d; Ilan 1995:esp. pp. 316f.; Joffe 1997; Pitard 1998). However, since the works of only a handful of these and various other scholars have introduced unique concepts and/or approaches to the study of MB fortifications, only such treatments are reviewed in this chapter. Unfortunately, the review literature for the EB IV and MB in the northern Levant which includes a discussion of architecture is almost non-existent, and most observations on this subject have remained trapped within various preliminary reports in multifarious journals and the few final reports available for sites in the northern Levant. Classic contributions to the MB archaeology of the northern Levant include, of course, the excavations of Alalah by

Sir Leonard Woolley, Byblos by Maurice Dunand, and Ugarit by Claude Schaeffer, to mention just a few of the best known excavations.

Since the study of this particular topic, like so many others, can be quite easily viewed through a series of distinct phases in the history of scholarship, in the following sections I have attempted to identify the major themes that have been the subject of research through the years since W. F. Albright's pioneering work. By and large these themes are quite recognizable in scholarship during each of these periods. The broader themes include the issue of the association of these fortifications with chariot driving Hyksos and Hurrians (from 1920's–1960's), attempts to provide functional explanations for their development (from 1940's to 1960's), efforts to establish their architectural and stylistic classification (from late 1960's and 1970's), and most recently endeavors to place these structures within the broader socio-economic context of the Middle Bronze Age in the Levant (from late 1980's on).

1. THE HYKSOS, THE HURRIANS, AND THE ORIGIN OF RAMPART FORTIFICATIONS

All of the earliest conclusions as to the origins of the massive earthen fortifications of the southern Levant during the MB sought connections with cultures to the north, in particular with the Hurrians to whom the Hyksos of the late MB were thought to have been related. This was undoubtedly in large part due to the influence of William Foxwell Albright's earliest treatment of the topic where he stated that, "there is no escape from the conclusion that the Hyksos came from a land of tumuli and earthen ramparts, that is, from the plains of Eurasia" (1922:123). Despite a lack of additional evidence for a direct connection between the Hyksos and this region, Albright was led to seek sites and architectural parallels in "Russia and Central Asia". Yet even this far-reaching explanation did not obscure Albright's own alternative regarding the most immediate forerunners of Middle Bronze Age fortifications in the Levant. This particular view of Albright's, which has basically prevailed in scholarship to the present day,

acknowledged that it was “more likely that there was a gradual extension of the Mesopotamian art of fortification through Syria, toward the south, perhaps under the influence of fresh Amorite energy” (ibid., 136).

Despite the fact that Albright had not yet realized the implications of this assertion, he continued to advance his view of a “Central Asian” origin for rampart style fortifications (1926:252ff.). He did so by calling attention to the massive enclosures discovered in Turkestan (modern Turkmenistan) at Ghiaur Kalah, which were explored by Raphael Pumpelly (1908:187ff.), and at Kirk Tepe. Although these enclosures, which measured 1,800 m by 2,100 m at Ghiaur Kalah and more than 300 m square at Kirk Tepe, appear to have featured thick walls of sun-dried mudbrick construction, preliminary assessments of the dates of their constructions did not, even at the time of Albright’s writing, support comparisons with ramparted sites in the Levant. The bulk of the datable evidence from Ghiaur Kalah, as suggested by coins and ceramics, was Seleucid and later in date.

Albright’s attempt to draw parallels between these distant regions, however, was not without criticism at that time. Harry R. Hall, for one, did not agree with Albright’s suggestion and favored instead a less radical conclusion.

Northern Mesopotamia is just as much a land of “tumuli and earthen ramparts” as is Transcaspia, and the Hyksos, if they are to be connected with these forts, need not have come from farther north than North Syria and Mesopotamia, where indeed the knowledge of earthen walls and mounds is more likely to have passed to Transcaspia than the reverse. (H. R. Hall 1923:171, n. 1)

But Hall’s comments were relegated to a footnote, and perhaps for this reason elicited no response from other scholars except Albright himself (1926:252, n. 9).

Still, as G. R. H. Wright noted in his summary of Albright’s comments on this topic between 1922 and 1932, Albright retained his conclusion that it was likely that people of Indo-European or Indo-Aryan stock were responsible for the introduction of this type of fortification to the Levant (1969:24f.). Nevertheless, Albright remained

convinced that the connections between these regions remained the most plausible explanation for the diffusion of rampart defenses into the Levant. Furthermore, William M. Flinders Petrie's conclusions based on his work at Tell el-Yehudiyeh (1908:3–10), as Albright summarized them, that “earthwork ramparts were intended to protect chariotry, which could not find any room at all in a typical Canaanite fortress or town” only reified such connections and Albright, therefore, continued to advance what he thought to be the evident progression of “rectangular earthworks” from “Central Europe or Transcaspia” (1935:224).

The picture that Albright and Petrie had painted in the 1920's and 30's, namely that Hyksos “chariot-warriors” from the north armed with the composite bow descended southwards founding these settlements to protect their horses and chariots, gained a considerable foothold in the years that followed. This northern origin for MB culture in the southern Levant, Albright went on to suggest, was further strengthened by the introduction of the Anatolian practice of using “sloping revetments in fortress walls” in MB fortifications (1935:230). This hypothesis, related to the Central Asian origins of the Hyksos, only gained greater strength as later studies such as Robert M. Engberg's *The Hyksos Reconsidered* continued to identify the Hyksos as composed of at least some Hurrian and Indo-Iranian ethnic groups (1939). Basically, this viewpoint remained unchanged until it was demonstrated that the material culture of the capital of the Fifteenth Egyptian Dynasty at Avaris (Tell ed-Da'ba), was predominantly of a southern Levantine (or Amorite) character and not in the least Hurrian.

2. THE CHARIOT AND THE BATTERING RAM

At the time of Albright's initial appraisal of MB rampart fortifications very few sites in the Levant had been excavated that could be included in the discussion. These excavations did, however, include Tell Beit Mirsim (1926–32), Tell el-Far'ah South (1928–29), and Jericho (1907–09, 1930–36) in Palestine, as well as preliminary

exploration at a handful of sites in Syria, and Tell el-Yehudiyeh (1905–06) in Egypt. But in the years that followed excavations at a number of other sites provided further data by which the merit of Albright's hypothesis could be assessed. The results of archaeological work at Tell el-'Ajjul (1930–34, 1938), Lachish (1932–38), Jericho (renewed 1952–58), Hazor (1955–58), and Shechem (1956–73) in the southern Levant, and at Qatna (published 1935), Ugarit (since 1929), and Alalakh (1937–49) to the north, as well as Mari (since 1933) in Mesopotamia, which were available in least preliminary form, all contributed to the continued development of the understanding of MB fortifications in the Levant.

One of the earliest publications from the excavations of these sites that actually addressed the functional aspects of the construction of MB ramparts and walls without reference to chariot riders from the north was John Garstang's (1940) popular book on Jericho. In this work he summarized his excavation of Jericho's rampart and revetment wall and made the following novel observations.

While the whole conception of this new rampart was majestic, its construction was equally imposing. Solidly built of large, rough-hewn stones, laid and set with surprising regularity, it was provided with special features for defensive purposes. All around, about half way up its slope, a "string course" of stone projected slightly, in order to cause a missile launched from above to bound outwards against the attackers...Nearer the bottom, again, where the size of the building stones was proportionately larger, one course in particular was constructed of enormous blocks each more than a ton in weight. This girdle was clearly designed to resist the battering ram. (Garstang and Garstang 1940:91f.)

Although this idea did not gain widespread popularity among archaeologists (e.g., B. Mazar 1970:180) until Yigal Yadin repeated this suggestion and reiterated the ineffectiveness of chariots against walls (see discussion below), from this statement it is clear that John Garstang was, in fact, the first to propose that ramparts were intended to deter the use of the battering ram.

Despite Garstang's proposal, Albright's interpretation of MB fortifications remained relatively unaltered until he suggested in the first edition of *The Archaeology of Palestine* that the "battered wall and glacis types of construction came from Asia Minor to Palestine" (1960:89).⁴ This was illustrated according to him by the earlier dates of the Middle Bronze Age fortifications of sites such as Alalakh and Ugarit in Syria, although the dating of the fortifications of Ugarit would prove to be later than he was aware. But more enduring than this suggestion was Albright's observation in this work regarding the characteristic number of gateways within a gate complex, usually two or three, that were "flanked by a pair of massive piers" each of which was "the same size and...symmetrically disposed in two parallel alignments" citing those at Mari, Shechem, and Megiddo. He interpreted these developments in gate construction as "closely connected with the introduction of horse-drawn chariots" since the narrowest gates "were wide enough for a single chariot, and the widest ones known were spacious enough to permit two chariots to pass in the doorways" (ibid., 89f.). Undoubtedly, Albright's relating of these features to chariots was part and parcel of his assumption that Hyksos culture, as essentially Hurrian, was closely linked to the use of chariots, and that not only ramparts but also gates would, of course, have been constructed with chariots in mind.

Originally Kathleen Kenyon also held to Albright's hypothesis, though perhaps only contra Garstang whom she eventually followed as excavator of Jericho (1952–8).

This new type of constructing defences indicates a new type of warfare, for it is axiomatic in military science that new defensive methods are devised in reply to new methods of attack...and it seems very probable that the strengthening of the walls by these sloping defences is in fact against chariotry, which would thereby be prevented from rushing up to the foot of the walls. (Kenyon 1952:71)

⁴Albright's acknowledgment that his hypothesis concerning the Indo-Iranian origin of rampart fortifications was "not demonstrated" can only be found in a footnote in his publication of the Bronze Age remains of Tell Beit Mirsim (1938b:28f., n. 2).

From this statement we must conclude that Kenyon either disagreed with Garstang's interpretation or, though less likely, that she was completely unaware of it.

Nevertheless, it was only after Yadin suggested that the "new methods of attack" to which Kenyon referred related specifically to the introduction of the battering ram (1955b), that Kenyon was persuaded to adopt this interpretation of Jericho's defenses (1979:165f.). Yadin had criticized the idea that chariot forces had been deployed against ramparted fortifications as categorically false, since "the characteristic features of the chariots were essentially different from those of modern tanks...they could not have been used for any purpose connected with direct attack on a fortified city" (1955b:28). Although he surmised that the fear of having walls breached, instead of their being scaled or undermined, was the primary motivation for the new type of defense, the strength of his argument came from his incorporation of textual evidence from the second millennium, particularly from Mari, attesting to the increased use of the battering ram.⁵

3. *EARLY TYPOLOGIES OF RAMPART FORTIFICATIONS*

In the same article in which Yadin had suggested that the introduction of the battering ram was the main impetus for MB rampart fortifications, he proposed the first clear typology of MB defenses (1955b:25ff.). In it he distinguished two main types of fortifications with different functions, although they employed similar construction techniques. The first type he defined as "fortified camps" or "enclosures", terminology that had already been used by Albright and others. Such features were usually large, rectangular, and surrounded by huge ramparts said to have been constructed of *terre pisée*.⁶ Their function he asserted, following Albright, was to protect chariot forces from

⁵Yadin cited ARM I 131 and 138, and ARM II 7, *The Siege of Urshu*, and illustrations of siege in the Beni Hasan tombs (1955b:30 f.).

⁶For a discussion of why this term should not be applied to earthen ramparts see section A.1.b in chapter three.

attack. Excavations, such as those at Hazor, would later demonstrate that the large enclosed areas within the ramparts were, in fact, lower towns and not merely “enclosures” for chariotry. The second type of fortifications, which he referred to as “beaten-earth fortified towns”, were employed to defend existing tells. In this type two predominant techniques were identified: the *terre pisée* technique, adopted from the techniques used in rampart construction, and the construction of battered stone-walls (ibid., 26). These two techniques “were intended to add further protection to the already existing fortifications by thickening their lower parts and exposed slopes” (ibid., 28). Although sometimes both of these techniques were used together at a fortified tell as at Jericho and Lachish, Yadin observed that most often only one or the other was employed.

Yadin’s observation that inhabitants of “beaten-earth fortified towns” borrowed techniques such as *terre pisée* construction from the inhabitants of “fortified camps” (1955b:26f.) was essentially an early manifestation, with special attention to the construction of MB fortifications, of what later would be known as the “Amorite hypothesis”.⁷ Yadin also concluded that the introduction of battered stone-walls, the second construction technique known at sites with late MB fortifications, indicated that *terre pisée* construction “proved inadequate in the process of developing the weapon against which the glacis were built”. Unfortunately, because Yadin was convinced that such fortification types were unknown during the MB I (IIA), his typology was limited to

⁷One must remember the milieu in which Yadin’s scholarship was conducted. Although notions of invading groups from the north had been advanced for some time by W. F. Albright and others, K. Kenyon had not yet written her famous work *Amorites and Canaanites* (1966). In this work she proposed two distinct phases of Amorite ingress into the Levant at the start of the EB IV and MB I (IIA), which could be according to Kenyon related to specific destruction levels. But none of the scholars who adhered to this notion before its canonization by Kenyon appear, however, to have held such a chronologically limited view of the cultural influence from the north which was clearly manifest in ways other than just the destruction of sites, starting in the EB IV and continuing throughout the MB. Yadin’s suggestion, therefore, can be viewed as merely an early manifestation of the notion of foreigners from the north living alongside the native population. In this context it meant attributing the introduction of “fortified camp” architecture to cultural developments among the new population at the start of the MB II (IIB), namely the Hyksos.

the second half of the Middle Bronze Age. Despite his thorough treatment of warfare in *The Art of Warfare in Biblical Lands* (1963), Yadin did not modify the typology that he had proposed.

Years after Yadin's typology had been published Kenyon, however, continued to avoid using terms such as *glacis* and *fosse* because they were borrowed from the study of Medieval fortifications expressing that they created a false certainty about the function of these elements in MB fortifications (1966:67). Nevertheless, she did not feel it necessary to abandon the use of the equally evocative term *rampart* to refer to the mounded earthwork defenses surrounding Qatna, Khan Sheikhoun, Ugarit, Carchemish, Hazor, Gerisa, Jericho, 'Ajjul, and Lachish (Kenyon 1966:67–72).⁸ Eventually, however, she abandoned this line of argument and freely employed the term *fosse* (for Hazor see Kenyon 1973:100). However, the appropriate terminology for these features would only be agreed upon following Jacob Kaplan's work (1975), as noted in the discussion below. Kenyon also asserted along with Albright that one could "with some certainty ascribe to the Hyksos" this type of defense. While an overview of how these various terms for MB fortifications were employed may seem pedantic, the differences in terminology reveal the gradual emergence of a glossary for these archaeological features, their function and their historical context, as they were increasingly studied.

4. THE ORIGINS OF RAMPARTS REVISITED

Although many questions had been addressed in earlier scholarship with regard to MB fortifications, Peter Parr's (1968) article on *The Origin of the Rampart Fortifications of Middle Bronze Age Palestine and Syria* was the first which sought to directly address

⁸Kenyon also followed suit with the misidentification of Tell el-Yehudiyeh as another example of a site with earthen rampart fortifications (1966:70). Regardless, her conclusions concerning the spread of Amorite culture into the Egyptian sphere are no less significant given what we know today from the combined evidence of excavations at Tell el-Yehudiyeh, Mashkuta, and Avaris.

the issue of the origin of rampart fortifications and put an end to their seemingly unfounded identification as the product of exogenous groups.⁹ While Parr noted that Albright had seemingly changed his opinion on their origin, no longer suggesting their “Indo-Aryan” origin though maintaining that they originated in the north, he desired to rectify the influence that Albright’s speculation about their northern origin continued to have upon the scholarship of this question. He also wanted to eliminate what he considered to be Yadin’s misconception that the techniques used in later fortified, rampart settlements were adopted by the older tell settlements, since direct evidence to support this suggestion was lacking.

Parr felt that Yadin’s suggestion that *terre pisée* techniques preceded battered stone walls was “highly dubious” (1968:20). Evidently, although Yadin’s argument was based on excavations by Albright at Tell Beit Mirsim, further clarification of the MB defenses at Lachish and Jericho indicated that the chronology proposed in his hypothesis did not hold (see section 7 below). Furthermore, Parr made the important observation that the *terre pisée* technique was, in fact, often used contemporaneously with a battered stone glacis and that, “Local conditions and requirements no doubt dictated the type [of defense] which individual cities adopted” (ibid., 21). A site-by-site analysis of a limited number of examples of EB and MB fortifications in the southern Levant and an examination of Anatolian forebears all seemed to support his re-evaluation and to suggest several important conclusions. For example, Parr concluded that MB defenses were not

⁹P. Parr’s work included evidence from the following sites in the southern Levant: Jericho (Tell es-Sultan), Lachish (Tell ed-Duweir), Tell el-Far’ah (South), Shechem (Tell Balatah), Hazor (Tell el-Qedah), Tell el-‘Ajjul (Sharuh?), Ta’anach, Megiddo (Tell Mutesellim), Tel Poleg, Tell el-Far’ah (North), and Ai (et-Tell); and in the northern Levant Alalah (Tell Atchana), Carchemish (Jerablus), and Ebla (Tell Mardikh). Sites which are conspicuously absent from his catalogue and for which publications were available at the time included Byblos, Ugarit, Mari, and a group of third millennium sites identified as *Kranzhügels* in eastern Syria.

radically different from those that preceded them in the EB, but were only built on a larger scale.

The Early Bronze Age architects had seen their cities rising ever higher on their autogenous mounds, and had been faced with the problem of how to deal with the vulnerable slopes...Their natural surfaces, perhaps baked hard in the summer heat, would have been scoured and scarred by winter storms, when veritable gullies would have been cut into them by run-off waters...The result would have been slopes which, even in time of peace would have weakened the foundations of the walls of their crest, and which in time of war would have provided a would-be attacker with an easy approach, where every irregularity gave cover. The architects of the Early Bronze Age in Palestine had met with this problem in a variety of ways, each of which was designed to consolidate and regularize the embankment. Their Middle Bronze Age successors, faced with the same problems, adopted much the same remedies. (Parr 1968:43)

Parr was also not convinced that the introduction of the battering ram was the main motivation for MB rampart fortification techniques, suggesting essentially that it was a red herring, as this weapon had already been in existence during the EB (see discussion of battering ram in chapter two, section C.2.c), a fact which has been more recently confirmed (see Steinkeller 1987). He cited the Egyptian illustration from a tomb at Deshashe as proof of its early existence.¹⁰ Parr, therefore, also concluded that,

It is unlikely that the designers of the Middle Bronze Age fortifications had any single method of attack in mind when they erected their steeply inclined ramparts; they merely knew from experience that by so doing they were making all the more difficult the task of any enemy seeking to scale, to undermine, or to breach their city walls. It is by an evolutionary interpretation of its origin that we can best understand the function of the MB glacis. (Parr 1972:43)

Despite evident gaps in Parr's list of Middle Bronze Age sites in the Levant and the absence of any consideration of Mesopotamian origins, his arguments reflect the working hypothesis on the evolution of MB fortification strategies in the Levant. What has remained unclear, though, is the chronological distribution of MB fortified sites between

¹⁰For an argument against the identification of the weapon, which is depicted at Deshashe, as a battering ram see chapter 3 below.

the northern Levant and the south where Parr noted that “the evidence does not permit a refined or trustworthy chronology” (1972:44). Despite the overwhelming influence that Parr’s article had upon the field of Levantine archaeology, it was an admittedly limited treatment, since information concerning some of the most important examples of such sites had not yet been made available. For this reason Parr’s conclusions can only be understood as a preliminary analysis of this problem. Unfortunately, he never returned to the subject except in his preliminary reports on Tell Nebi Mend where he has discussed some of the evidence for its fortifications (see Kadesh in Appendix B).

While many more sites with MB fortifications have been excavated since Parr’s work, his position, though tentative, has become the mainstay of many Levantine archaeologists. Nevertheless, as if to demonstrate that Parr’s review would not put to rest all consideration of exogenous origins for rampart fortifications, G. R. H. Wright (1969) also sought to address the relationship that Albright had postulated between the introduction of the rampart style of fortification and connections with Iran. Although he was unable to demonstrate any clear connection between this type of fortification and Iran, Wright did conclude that there was a need “to investigate a sufficient number of examples [of fortifications], sufficiently closely to determine if a distinct historical or structural category is in issue” (*ibid.*, 33). However, it should be noted that no attempts to connect rampart fortifications in the Levant with ancient Iran have been made since Wright’s treatment.

Probably due to a lack of evidence for the various suggestions relating to the foreign origin of this type of fortification, since the late 1960’s the origin and development of rampart fortifications have been almost unquestioningly associated with the advance of the Amorites and their culture. W. G. Dever, for instance, summarized what had emerged as the three main interpretations of “fortified city-states” of the MB in the southern Levant (1985:73). These included that they functioned either (1) as “a

defense against the more powerful Amorite/Canaanite city-states to the north in Syria”, (2) as “strongly-defended regional centers in the internecine war...among petty princes of the ‘Hyksos’ who ruled Palestine itself”, or (3) that they were “base-camps from which to launch Asiatic campaigns into Egypt, as well as ‘back-up systems’ in case these were repelled”. Although Dever’s characterization of MB settlements in the southern Levant as “city-states” may have inclined many scholars towards either of the first two of these interpretations, no arguments were presented which clarify why MB settlements in the southern Levant should be called “city-states” and Dever himself actually suggested that the third option best accounted for the archaeological data. Despite the lack of clear data to support one of these interpretations over the others, no new speculation as to the general nature of these settlements has been offered in more recent treatments of the MB by A. Mazar (1990) or A. Kempinski (1992d), despite continued adherence to the prevailing notion that ramparts were constructed for defense (e.g., Kempinski 2002a:37).

5. *WEAPONRY AND THE MILITARY ROLE OF MB DEFENSES*

As discussed above, during the early years of excavation of MB fortifications in the southern Levant scholars considered various suggestions concerning the military function of rampart fortifications. On the one hand, they were thought to have been built for the purpose of repelling chariotry (Kenyon 1952:71), while on another for rendering the battering ram ineffective (Garstang and Garstang 1940:91f.; Yadin 1955a). As research on the functional role of fortifications progressed a widely accepted consensus developed which holds that the entire complex of fortifications, including the fosse, ramparts, walls, and gates, were to be considered part of a multifaceted defensive strategy (Parr 1968:43). This strategy was concerned with defending against the best known methods by which towns were usually entered: over, through, or under town walls (Yadin 1963:17). In this vein suggestions by various scholars continued to bring to light considerations no less significant than those that had been raised earlier. One such

consideration included the possibility that glacis probably also functioned to deter sappers from undermining town walls (Lagarce 1984:n. 2; Stager 1991b).¹¹ Jonathan Tubb even suggested that rampart fortifications were intended to keep archers and javelin throwers at a distance (1985:193f.), while others referred more specifically to the threat posed by archer's who could fire burning arrows into the town (Miller, et al. 1986:191). To this list of growing functional considerations have also been added the suggestion that glacis and ramparts were not primarily military innovations, but rather served simply to protect the slopes of the settlement against erosion (Parr 1968:43; Pennells 1983; Lagarce 1984:159).

Building upon his experience from the excavation of the MB gate and rampart at Ashkelon during the 1990's Lawrence E. Stager has made several observations which demonstrate that functional explanations for MB fortifications do appear to remain warranted. (Like Amihai Mazar, Stager accepts that there is sufficient evidence to demonstrate the existence of walls atop ramparts.) One particular observation made by Stager concerns the reason for the integration of the fosse carved into the *kurkar* bedrock outside the MB rampart at Ashkelon. This he surmised was a strategy intended to prevent sapping of the town wall by the besiegers (1991b). He had argued that the fosse at the foot of the rampart guaranteed that the sappers had to undertake to dig through bedrock before gaining any cover from the arrow-firing defenders on the walls above the rampart.

In another article in which Stager has addressed the subject of MB ramparts he has also posited that sites with "free-standing ramparts and dry moats...derived ultimately from third-millennium settlements in the Baliḥ and Ḥabur river basins" at

¹¹In his examination of defenses constructed at Ras Ibn Hani and Ras Shamra Lagarce has observed, "Son rôle militaire est de protéger le pied des murs contre l'action des beliers et des sapeurs, et aussi de permettre à un défenseur posté au sommet de l'édifice de faire ricocher sur l'assaillant un projectile pondéreux lâché verticalement" (1984:n. 2).

settlements referred to as *Kranzhügels*, or “wreath-shaped mounds” (1999:237). With regard to such sites Stager has made two important observations. He has noted, first, that their general shape was characteristic of MB rampart fortifications, and second, that the technology used in the construction of early examples of mudbrick vaulted arches originated in northern Mesopotamia as early as ca. 2400 B.C. being later incorporated into MB gate structures. Stager’s argument draws its support from the consensus of many scholars that both urbanism and fortification systems were reintroduced at the start of the MB from the northern Levant and Mesopotamia after a deurbanized interlude in the southern Levant during the EB IV (see discussion above).

6. *TYPOLOGIES FOR MB FORTIFICATIONS AND THEIR HISTORICAL SETTING*

Operating under the assumption that Yadin had demonstrated the military basis for the construction of MB defenses and that Parr had deconstructed their exogenous origin, J. Kaplan (1975), director of the excavations at Yavneh-Yam (1966–1969), attempted to establish a clear typology of MB fortifications.¹² He did so by distinguishing two main types of earthen ramparts by their relationship to walls, namely the “wall rampart” and the “freestanding rampart”. He defined the wall rampart as “a girdle of earth deposited in front of the wall” (as at Tel Poleg) for the purpose of protecting it against erosion and “enemy attempts to undermine it”. The freestanding rampart, on the other hand, Kaplan concluded, “originated with the embankments of the ancient irrigation networks” like those in southern Mesopotamia and featured no wall superstructure (ibid., 2).¹³ Kaplan’s concern in this typology was primarily with the internal construction of

¹²This article is a translation of a lecture which Kaplan presented in 1971 and published in Hebrew the following year (1972b).

¹³Kaplan had already attempted to identify connections between MB material culture in Palestine and that of Mesopotamia in an earlier article (1971).

these fortifications rather than their overall form or the effectiveness of the arrangement of their defenses.

Along with these definitions Kaplan also helped to draw the proper distinctions between the use of the terms *glacis* and *rampart*, noting that *glacis* refers specifically to the “rampart slope or other escarpment, including the slope of the tell” built for the specific purpose of serving as a military obstacle. Although technically the terms *glacis* and *rampart* can be used interchangeably, Kaplan’s suggestion that the terms should be used to refer to distinct morphological features has proven helpful when employed in published archaeological reports. This observation came as the study of MB fortifications intensified and terminology was becoming increasingly confused (see sections A.1 on *Earthen Ramparts* and A.3 on *Glacis* in chapter three for definitions used in this work).

But terminology aside, Kaplan further clarified the association between the construction of freestanding ramparts and the arrival of the Amorites.

The appearance of the freestanding rampart is linked by us with the beginning of the spread of the Amorite tribes, throughout Syria and Palestine. Our theory is that the Amorites were the first to build earth rampart enclosures which in plan resemble Roman military encampments, and that these fortifications were inspired by similar fortifications in Mesopotamia. (Kaplan 1975:9)

This inspiration Kaplan noted, building upon the argument advanced by J. Bottero (Posener, et al. 1971), can be traced back to the building of the wall of *Muriq-Tidnim* (lit. “keeping Tidnum (Amorites) at a distance”) which was built by the Ur III king Šu-Sin at the end of the third millennium. Kaplan postulated that the wall was probably built upon “parts of existing levees of the main irrigation canals and only added the needed links between them to complete their continuous defence line” (1975:12). While greater evidence is still needed to support this hypothesis, less plausible was Kaplan’s claim that the builders of Shechem’s triple gate (dated to MB III) used the triple gate of the court of Nannar in the sacred enclosure at Ur as a model for its construction, given the disparity in time between their constructions and the vast distance between these sites, as B. Gregori

has demonstrated (1986:96f.). The extent of Kaplan's contributions on the subject has been, of course, hindered by a lack of publication of his excavations at several important MB sites, such as Yavneh-Yam and Jaffa.

Another early attempt to place the development of MB fortifications within a historical framework was Joe Seger's review of the fortifications of Shechem and Gezer (1975). Seger's analysis of these two sites in the southern Levant, which experienced different building programs but appeared to follow a "common pattern of city development" (*ibid.*, 42), led him to suggest a three stage development of late MB fortifications in this region. The first stage consisted of "an era of gradual settlement and assimilation" from ca. late MB I (IIA) through MB II (IIB) (*ibid.*, 45). During the first part of the second stage towns underwent rapid "redevelopment and expansion" as a result of the establishment of the Hyksos in Egypt (late MB II (early IIC)). This was followed by "refortification and energetic development, in response to the resurgence of Egyptian power" with the rise of Dynasties XVII and XVIII towards the end of MB II (late IIC). The final phase of development then occurred at the start of the LB with the "gradual dissolution of Hyksos power" and the fall of their centers in northern Egypt. Seger's emphasis of the break between the first and second phases in this development serves to reify the position of those who note the cultural differences between the early and late MB II (MB IIB and IIC). Nevertheless, the lack of detailed correlation between the archaeological evidence from other excavated sites and Seger's historical development remains a weak point in his treatment.

In an attempt similar to that made by Jacob Kaplan Ze'ev Herzog also tried to construct a typology of MB settlements based upon the evidence for Middle Bronze Age fortifications (1997a:268ff.). This classification was based upon the premise that MB I (IIA) urbanism was "not suddenly introduced" to the southern Levant by "an urban population from Syria", but that the development was endogenous and was the result of

the take over of power “by an ascendant political-military ruling class”. Herzog has characterized the earliest phase of settlement, the MB I (IIA) as “not urban in character”, suggesting that the data for sites newly founded and fortified in this period support the interpretation that the farmers and pastoralists who comprised the “autochthonous population”, presumably a reference to the EB IV population, simply reintroduced town life as they moved onto “raised mounds to profit from the natural protection afforded by their steep slopes” (ibid., 268f.). Nevertheless, his interpretation overlooks a number of large sites founded in this period, such as Burga, Shimron, and Ashkelon, which feature no prior occupation (i.e., EB IV) and provide no data from which to posit a clear connection between their MB population and an indigenous EB IV population. While Herzog acknowledges that it is “problematic to pin-point the exact circumstances that generated this process of urbanization” he has not, nevertheless, hesitated to ascribe this complex process to “a new type of elite”, who were responsible for the “erection of urban institutions” (ibid., 269).

From this theoretical framework, Herzog suggested that five “structural types” of MB towns based on their topography, plans, and fortifications. These five types included (1) *rampart cities* “covering more than 10 ha”, (2) *fortified cities* protected “by walls and glacis, usually 3 to 7 ha in size”, (3) *extended cities* “located on mounds enlarged by earthen ramparts”, (4) *embankment cities* “located on a plain or low hill and fortified by a city wall and outer glacis”, and (5) *girdled cities* “fortified during the MB IIA and succeeded by unfortified cities in the MB IIB” (ibid., 269). Unfortunately, two major problems with this typology are immediately apparent.¹⁴ The first is that Herzog’s typology presumes to pertain for the entirety of the MB, yet several of the categories he

¹⁴The confusing aspect of Herzog’s presentation has been elsewhere noted by D. Oredsson (2000:51f.).

has proposed only apply to MB II (IIB–C) sites and the typology also does not account for settlements in the northern Levant. Herzog himself admits, as the evidence indicates, that during the first phase of the MB I (IIA) “occupation was not urban in character” and yet he proceeds to create a single typology into which all MB settlements are to be fitted.

The second shortcoming in Herzog’s typology is that his criteria are not sufficiently exclusive, making it possible that a site could be included in more than one classification. This pertains specifically to the incorporation of size as a criterion for the first and second types of sites, even though it is possible that sites of a similar size could be included in the last three types. For example, the site of Timnah, which Herzog classified as an “extended city” (1997a:160ff.), could be identified as a “rampart city” in miniature, built in the classic style with a core wall and built-up rampart like Hazor, which Herzog has correctly included in this category. Also, several of the so-called “rampart cities” which Herzog identified, such as Hazor, Haror, and Tel Dan (1997a:269), should probably be identified as “extended cities,” as these sites featured some occupation prior to the construction of their MB II (IIB–C) ramparts. Finally, Herzog’s criteria for “MB cities” does not address unfortified settlements which have been attested in both periods and, therefore, this typology cannot be used to suggest why sites were fortified. In short, the validity of Herzog’s typology is undermined by mixed categories and the inconsistent incorporation of chronological data.

7. THE MB IIA FORTIFICATION CONTROVERSY

A very significant early debate concerning the chronology of MB fortifications came about from the publication of the preliminary reports of the excavations of Tel Aphek (1972–1976) by Moshe Kochavi (1974; 1975). The revelation that the fortifications seemed to date to the MB I (IIA) instigated an article by Yadin (1978) in which he argued against the suggestion of an MB I (IIA) date for this type of fortification

at any site.¹⁵ Yadin's argument was, of course, based on the conviction that most of the large, walled settlements of the MB II (IIB–C) (like Hazor, Yadin 1972b) were not previously occupied during the MB I (IIA) (i.e., Jericho, Hazor, etc., Yadin 1978:2ff.) and that sites which were occupied during the MB I (IIA) had not been fortified. This conviction was further entrenched by the acceptance of Megiddo XII as MB II (IIB–C) in date (*ibid.*, 2), rather than to MB I (IIA) as it has been designated today (see, for example, A. Mazar 1990:196). It is also evident that Yadin's arguments were premature, since they were based on the limited information available for the MB I (IIA) date for Aphek's fortifications which had at that time only been presented in preliminary reports. Nevertheless, Kochavi, Beck and Gophna replied (1979), noting four sites in the coastal plain with MB I (IIA) foundations which also featured fortifications, Aphek, Poleg, Burga and Zeror. The evidence from these settlements convincingly refuted Yadin's rigid MB II (IIB–C) date for all massive MB fortification systems and instead suggested an MB I (IIA) date for the earliest rampart fortifications in the Levant.

Ironically, in the same issue of *ZDPV* as Yadin's 1978 article another essay addressed the MB fortifications of Megiddo arguing for their construction in the MB I (IIA). On the basis of a comparison of the fortifications of Megiddo XIII A and Egyptian Middle Kingdom cataract forts, the limited evidence for Egyptian material culture discovered at Megiddo, and the evidence for the raising of cattle in Retenu, A. Harif (1978) suggested that Megiddo functioned as an "Egyptian stronghold" in the southern Levant during the early MB. But the crux of Harif's argument rested upon the identification of a "Wall Street" in Area BB. Since this identification can no longer be supported, the direct parallel Harif suggested with Middle Kingdom forts in Upper Egypt cannot be upheld.

¹⁵ An earlier version of this article was published in Hebrew in *Eretz-Israel* (Yadin 1977).

8. *MB DEFENSES IN THE NORTHERN LEVANT UNVEILED*

Although parallels have been drawn between the fortification styles of Middle Bronze Age sites in the southern Levant and large, similarly fortified settlements in the north since Albright's earliest work on the subject, due to insufficient publication of the evidence from the excavation of the fortifications of Byblos, Alalakh, Qatna, and Ebla the hypothesized connections had remained conjectural. It was not until 1955 that Sir Leonard Woolley provided the first published results of excavations of late MB and LB defenses of a settlement in the northern Levant, at Alalakh (1936–39, 1946–49), that such data first became available (Woolley 1955). Until that time scholars had merely cited what amounted to no more than survey data for the ramparts of Qatna where du Mesnil du Buisson (1926–29) had excavated (see du Mesnil du Buisson 1935a). However, since neither he nor the most recent expeditions have ever actually excavated the ramparts the task still remains to be undertaken. Similarly, while preliminary reports were made available after the excavations of the fortifications of Byblos during the 1950's, the French mission failed to provide the final reports for these excavations with plans and section drawings following Dunand's death (see Byblos in Appendix B).

Equally meager information has been provided for the Italian expedition's excavations of the fortifications at Ebla (Tell Mardikh). Nevertheless, following the English translation of Paolo Matthiae's popular work *Ebla: An Empire Rediscovered* (1980b) a school of somewhat Ebla-centric thinking emerged in the study of the MB and LB fortifications. Even by the time of the publication of the original work in Italian (Matthiae 1977a), the mission had already excavated the remains of two of Ebla's four MB gates (in Areas A and L), and Fortress M, a bastion built into the eastern ramparts north of the southeast gate. Only in 1994 did the mission continue with intensive exploration of the site's ramparts and fortifications in what Matthiae has since referred to as the sixth phase of archaeological exploration of Ebla (1997c:3). The results of this

work have, unfortunately, only been published in preliminary reports. But it was in this popular work that Matthiae summarized his general conclusions regarding MB fortifications at Ebla, which do not seem to have been altered significantly in the course of more recent excavations.

The earthwork fortifications of Ebla are perhaps the most imposing example of a type of city wall, well attested and much discussed...it is a fact that several important tells of Northern Syria had fortifications like these during the Middle Bronze on a particularly grand scale. It was certainly the case with Qatna to the south and Carchemish to the north, to name only two of the big cities in which owing to their large surface area the circuit of the ramparts on the surface remains very obvious. But in many small cities the same defensive system must have been used. The date of the ramparts of Ebla, which as we have seen, must have been erected about 1950 B.C., is a sure indication that fortifications of this type were characteristic of the first emergence of the great urban culture of the Archaic Old Syrian Period. (1980b:199f.)

Several studies in particular also owe much of their value to the results of the archaeological work at Ebla. Among these is an important article on triple-entry or Syrian-style gates of the MB in the Levant and northern Mesopotamia by Barbara Gregori (1986). Her findings along with those summarized in a work on town gates by Ze'ev Herzog (1986:esp. pp. 37–88) published in the same year have been widely accepted as the definitive typologies of MB gateways, despite the propagation of some significant errors (see discussion in chapter three). Additionally, Gregori's conclusions (1986:95), which were based upon the established MB I (IIA) dates provided for the gates at Tell Mardikh and Tell Tuqan excavated by P. Matthiae, also appeared to have substantiated Parr's (1968) hypothesis concerning the northern origin of rampart fortifications. More recent treatments such as *The Urban Landscape of Old Syrian Ebla* by F. Pinnock (2001) have also made it possible to further understand MB defenses within the context of large urban MB centers such as Ebla.

9. *SOCIAL AND IDEOLOGICAL APPROACHES TO MB FORTIFICATIONS*

Although the suggestions noted above reveal the widespread consideration that MB fortifications were receiving in excavations during the 1970's and 1980's, shortly after this period a new school of scholarship emerged as research on this subject continued. This new group of scholars was motivated by a desire to expose the relationship between the construction of Middle Bronze Age fortifications and the society and economy of the Levant. Work by these scholars focused, therefore, specifically upon the socio-economic context of these structures while drawing upon the results of more recent excavations at sites such as Tel Michal (1977–80) and Shiloh (1981–4). These conclusions were mostly set forth in a single issue of *Tel Aviv* (1992, vol. 19 no. 2) in articles by Israel Finkelstein (1992), Shlomo Bunimovitz (1992), David Ussishkin (1992), and Ram Gophna (1992a).¹⁶

The views of this school of archaeologists centered upon their reaction against traditional, functionalist interpretations like those discussed above which viewed these types of earthworks as primarily defensive features. The inauguration of this line of thought can, however, be traced back twenty years to Jacob Kaplan's original work on the typology of MB fortifications (see discussion above), wherein he suggested that walls were only present with "wall ramparts" but not atop "freestanding ramparts" (1975). But as will be discussed below, this position has become increasingly tenuous in light of the evidence that has become available.

Nevertheless, Israel Finkelstein, having acknowledged the contribution of earlier studies on the question of MB fortifications, has, as one of the members of this school, sought to incorporate three particular aspects which had not been previously addressed

¹⁶R. Gophna's article was a revised version of his original article on the MB rampart at Tel Poran published fifteen years earlier in Hebrew (Gophna 1977).

for this subject (1992). These included (1) the integration of excavation data for MB fortifications with survey information on settlement patterns, (2) the differentiation of socio-economic and political conditions at sites in different regions (e.g., between the highlands and lowlands in Israel), and (3) comparisons with political formations and the public building projects in which such polities were involved in earlier and later periods. Though he intended that these lines of evidence would demonstrate the “various purposes” for which MB earthworks were constructed, Finkelstein’s proposed approach contrasts sharply with his very terse discussion of the relevant discoveries at highland sites (Shiloh, Shechem, Hebron, and Beth-El) as well as those of the lowlands (Dan, Akko, Kabri, Ashkelon, Yavneh-Yam, Mevorakh, and Jericho), in addition to his brief presentation of the survey data. Yet, since many of the sites discussed by Finkelstein still lack final reports (e.g., Ashkelon, Beth-El, Dan, Hebron, Kabri, and Yavneh-Yam) and because he completely omitted detailed data from other published sites (e.g., Hazor), Finkelstein’s observations can only be considered a very preliminary hypothesis (for further discussion of his hypothesis see chapter five, esp. section A.6).

Shlomo Bunimovitz (1992), who like Israel Finkelstein has also sought to understand MB fortifications as a socio-cultural phenomenon, has similarly down-played the defense related aspects of these fortification types though he has left open the possibility that they may have functioned as such.

In my opinion, the rapid diffusion of the innovation of the earthen rampart, following its first appearance in Palestine, and the erection of huge enclosures partially empty of settlement, is an outcome of competitive emulation between neighbouring tribal groups in the country during MB I [IIA]. It is also possible that the construction of the earthen ramparts served as a vehicle to enhance social solidarity within the various groups and to reinforce the tribal leaders’ status. As a result, it propelled social development in Palestine towards the re-emergence of a stratified, urban society. (Bunimovitz 1992:228)

Bunimovitz’s study, as he admitted, was the result of his desire to return to an understanding of “the cultural mechanism by which the idea of building earthen ramparts

around settlements was transferred to Syria from Palestine” (ibid., 223), a statement which reveals the growing acceptance of the priority of such features in Syria—even if interpretations of their function and significance vary. Nevertheless, the “cultural mechanism” Bunimovitz sought was pre-determined to be a social phenomenon, since he had accepted W. G. Dever’s observation that “formal and functional considerations” of the type familiar from earlier studies were “too general and simplistic” to explain the basis for the construction of MB fortifications.

Bunimovitz’s study was built, therefore, upon earlier attempts by Herzog, Biran, and more recently by Finkelstein, who sought to assess the amount of labor required in the construction of these features. In Bunimovitz’s opinion, these studies emphasized that a “strong central government capable of organizing and deploying masses of manpower” would have been required to build such fortifications (1992:224). Still, Bunimovitz’s own work assumed a priori that the figures provided in the works of earlier scholars could be employed without further critical examination. (For an assessment of these figures and further discussion of Bunimovitz’s conclusions see chapter five.)¹⁷

The flaws in this “new” approach to the study of MB fortifications, as will be demonstrated in this work, lay in the assumptions that have become inherently associated with it. The first assumption is that there is a lack of evidence for fortification walls at the

¹⁷ Bunimovitz, like Herzog and Finkelstein, also accepted the conclusion that city walls were not constructed atop MB ramparts (1992:227). He has argued that “it is far easier and quicker to dump earth than to engage hundreds of skilled workers and stone-masons in quarrying, transporting and laying stones for wall foundations, and preparing the enormous quantity of bricks required to build their superstructure” (p. 224), despite the fact that such efforts were employed in the construction of core walls within ramparts as demonstrated in chapter three (e.g., Hazor). This argument, which has been based upon weaknesses in the typology proposed by Jacob Kaplan, should seem ironic since the main thrust of Bunimovitz’s argument is that earthen ramparts, “monumental architecture” built as products of “conspicuous consumption”, were intended “to enhance social prestige and power” (p. 225). Yet if the goal of constructing ramparts was conspicuous consumption and building mudbrick walls required more labor—and everywhere else in the Near East massive mudbrick structures had been considered evidence of royal power—why should the construction of earthen ramparts, especially without mudbrick walls, have been preferred?

sites at the heart of the discussion and that these sites are characteristic of MB fortification strategies at all sites in the southern Levant, if not also in the north. (As is demonstrated in chapter three section A.4.c, this can no longer be accepted.) The second assumption is that the construction of ramparts was an extremely labor intensive process which meant that the purpose of these earthworks must have involved more than mere defense. (As will be shown in chapter five, various parallels for the construction of other earthworks demonstrate that such “large” construction projects required only a fraction of the labor suggested.) Unfortunately, these basic assumptions have led to the inaccurate but now widely accepted conclusion, as exemplified by Z. Herzog’s statement that “It has been irrefutably demonstrated that in not even a single instance did earthen ramparts carry or incorporate a fortification wall” (1997a:132f.).

Such assertions have also begun to find acceptance among archaeologists working in Syria. Based on his recent excavation of large sections of the fortifications of Ebla, Paolo Matthiae suggested that theories advanced not only by Kenyon (1952:71), but also by Yadin (1955b) and Stager (1991b) do not adequately account for the discoveries at Ebla since 1995 (2000:n. 77). Unfortunately, Matthiae does not provide details which demonstrate how this is so, though he notes that the premise of the Tel Aviv school’s position should not be dismissed since it accounts for socio-economic and ideological considerations: “Toutefois, il faut retenir les récentes theories plus complexes qui considèrent les ramparts dans un cadre socio-économique et idéologique plus élaboré” (ibid., n. 77, p. 601). In a similar attempt to focus upon socio-economic aspects, Harvey Weiss has recently suggested that “massive city walls were constructed to control labor” during the Akkadian period at sites such as Leilan (2000:85). However, no direct correlation was demonstrated between the presence of Akkadian imperial power and the widespread attempt to control labor by limiting the mobility of urbanites, nor can an

argument be made that demonstrates that these walls effectively kept people within these settlements in this period.

To date, however, only Amihai Mazar has taken the perspectives advanced by both Finkelstein and Bunimovitz to task, appropriately in his publication of the ramparts at Timnah (1997b). While he has agreed that MB fortifications may have been understood as symbols of power, he has adhered to a “practical reason for the erection of the ramparts, beyond mere propaganda and the demonstration of power” (ibid., 250f.). He disagrees specifically with the details of this dubious interpretation, which require that one believe that the core mudbrick walls found within the ramparts did not project above the rampart at sites such as Hazor, Kabri, and Shiloh. He also cites Ashkelon as a prime example of the incorporation of various defensive strategies into the construction of the rampart. As for arguments citing the perceived disadvantages of MB defenses, Mazar has cautiously noted that the perception of town planners during the MB may have been quite different than our own, and it is even possible that their perceptions were based on “erroneous principles”.

E. THE STUDY OF MIDDLE BRONZE FORTIFICATIONS IN NEIGHBORING REGIONS

While a comprehensive examination of MB fortified sites in the Levant is at the heart of this study, it is also necessary to place these sites within the architectural milieu established by contemporaneous fortified MB sites throughout the Near East. Although early scholars such as W. F. Albright understood the value of this approach, the parallels which they had suggested with sites as far away as Iran, were almost entirely based upon superficial analyses of site topography and for this reason their hypotheses have never been supported by archaeological evidence (see comments by G. R. H. Wright above in section D.4 above). In light of this observation it is worth reviewing the conclusions of a number of studies that have examined MB fortifications in Mesopotamia, Egypt, Anatolia, and Cyprus.

1. MESOPOTAMIA

The study of fortifications of the late third millennium and the first half of the second millennium B.C. in Mesopotamia can be characterized as unbalanced. While excavations of sites in eastern Syria have provided a wealth of information in recent decades concerning the establishment of fortified sites in northwestern Mesopotamia during the third millennium, evidence from contemporaneous sites in southern Mesopotamia has been very sparse for both the third and second millennia. Among the sites where outer walls of these early periods have been explored are, for example, Larsa, Nippur (Fisher 1905; Gibson, et al. 1983), Sippar (Tell Abu Habbah), and Tell ed-Der (de Meyer, et al. 1971; Paepe, et al. 1978; Gasche and Paepe 1980).

The limited exploration of Old Babylonian fortifications is evidently the result of several factors, some of which have also been previously noted by R. Opificius (1964). First of all, despite the interest in the rise of urbanism which has often characterized archaeological exploration of southern Mesopotamia, few research projects have expressly focused upon the exploration of defensive systems. Instead, their focus has often been upon other monumental features such as temples, palaces, and canals and irrigation systems, which certainly played an important part in the evolution of urbanism. A second factor limiting exploration of OB fortifications are the results of one of the most intensive explorations of the rampart-like embankment at both Sippar and Tell ed-Der. After having encountered only limited evidence of an original fortification wall at the base of the embankment at Tell ed-Der the excavators of these sites confidently concluded that their embankments were first and foremost “raised in order to protect the living site from the increasing ravages of fluvial waters” (Paepe, et al. 1978:33). Because their results, which were obtained from a single sounding at both sites, have been stated so unequivocally, there has been little impetus among Mesopotamian archaeologists for the expenditure of limited resources upon the exploration of similar

features at other Mesopotamian sites in the south. The third reason for the lack of evidence for fortification systems is that they have often been either heavily damaged or gradually buried through flooding from or the meandering of the Euphrates and Tigris rivers (cp. Mari and Terqa). But the final reason for the lack of information for fortifications in this region is related to the modern political circumstances in Iraq which have reduced the number of excavations over what has now been nearly fifteen years. Together these factors have limited our understanding of these features in southern Mesopotamia.

Nevertheless, excavations of smaller fortified settlements have been published in recent years, thus improving our understandings of Old Babylonian fortresses in Mesopotamia. These include excavations by the Oriental Institute at Dūr-Samsuiluna located at Khafajah Mound B in the Diyala (Delougaz 1990) and Haradum (Khirbet ed-Diniye) excavated by Christine Kepinski-Lecomte (1992). These sites permit further consideration of the time required in the construction of the fortifications of similarly sized settlements in the Levant (see discussion in chapter five).

In contrast to the lack of information from the south, northern Mesopotamia, as noted above, has yielded considerable evidence for the evolution of urbanism and the development of fortification systems along the middle and upper Euphrates and along the Ḥabur and Baliḥ river basins during the Early and Middle Bronze Ages. First and foremost, numerous reports have been published for sites such as Terqa (Tell ‘Ashara), Tuttul (Tell Bi’a), Yakaltum (Tell Munbaqa), Tell Sweyhat, Selenkahiye, Tell Beydar (Nabada?), Urkeš (Tell Mozan), Šubat-Enlil (Tell Leilan), and Tell Chuera (see Appendix A). In addition to these, general surveys of the evolution of fortification systems have also been produced (e.g., Oates 1985; Margueron 2000). The literature concerning the role that *Kranzhügels* played in the evolution of urbanism and fortification systems in this region must also be considered (e.g. Moortgat-Correns 1972; Lyonnet 1998; Kouchoukos

1999). Nevertheless, no consensus has yet emerged regarding the origin and ultimate influence that the *Kranzhügels* of the third millennium B.C. might have had upon later fortification systems (see L. E. Stager's suggestion in section D.5 above). This study will, therefore, attempt to address some of these questions insofar as they appear to relate to the study of MB fortifications in the Levant.

2. EGYPT

Since Petrie's excavations at Tell el-Yehudiyeh and nearby Heliopolis, these sites have been frequently cited as direct evidence of the construction of "Hyksos" style fortifications in Egypt during the MB. But G. R. H. Wright conclusively demonstrated that "girdling structures at both of these sites, which had been cited by Albright, Kenyon, Yadin, and others as "Hyksos" ramparts, were, in fact, neither MB in date nor built as defensive structures" (1968). They were, he argued, essentially the remnants of a type of ancient Egyptian construction whose remains after years of erosion resulted in a similar topography or landscape signature. He also noted elsewhere that Egyptologists commonly referred to such structures as "Sanctuary Mounds or Sanctuary Enclosures" (1969:33). His observations also emphasized the lack of data from the Egyptian Delta to support an Egyptian origin for this type of fortification. Since this essay Wright's conclusions have been almost unanimously accepted and they have essentially removed Egypt from the debate concerning the origin and spread of rampart fortifications.

While data for MB fortifications of either Egyptian or Levantine origin in the Delta and north Sinai remain wanting, the excavations done in anticipation of the construction of the Aswan High Dam in Upper Egypt brought about a wealth of information concerning Egyptian Middle Kingdom fortification strategies. As a result of salvage excavations in the 1950's and 1960's in the area of Lake Nasser most of the Middle Kingdom fortresses in the Sudan between the second and third cataracts of the Nile were identified and at least partially excavated before being completely submerged.

Among these forts, from north to south, were Buhen (Emery, et al. 1979), Kor (Vercoutter 1955; H. S. Smith 1966), Mirgissa (Dunham 1967; Vercoutter 1970), Askut (Badawy 1964; 1965; 1966), Shalfak and Uronarti (Dunham 1967), Semna and Kumma (Dunham and Janssen 1960), Semna south fort (Vercoutter 1966), and Serra (Knudstad 1966). Although most of these forts were already well known (see Clarke 1916) and some sites such as Buhen and Mirgissa had been initially explored by Reisner (1960), Vercoutter, Randall-Maciver and Woolley (1911), the amount of data generated through these salvage excavations resulted in a proliferation of secondary literature concerned with analyzing Egyptian imperial presence in Nubia from the Old Kingdom through the New (Lawrence 1965; Emery 1965; Vila 1970; Kemp 1972; 1983; 1991; Trigger 1982; S. T. Smith 1995).

While no effort was made in this literature to compare these fortifications with known fortification types from the Levant in the MB, one particularly interesting aspect of the analysis of these settlements has been the recognition of two distinct fortification strategies which clearly correspond with the two main phases of Egyptian expansion into Nubia during the Middle Kingdom. Although this pattern emerged gradually during the early stages of analysis of these forts, it has been best articulated by Barry Kemp (1983:130ff.; and 1991:166ff.). He observed that the earlier set of forts, which were built during the reign of Sesostri I (1949–1905 B.C.), were established on the plain along the Nile with regular plans and, therefore, featured a unique combination of defensive features surrounding each fort on all sides which included a fosse, low parapet walls with apsidal towers and loopholes, and thick fortification walls with towers and bastions (1983:130f.). Although the initial plans of these settlements were rather regular, modifications, maintenance and improvements during the Middle Kingdom resulted in a variety of final plans at these forts. Among these initial settlements were Ikkur, Kubban, Aniba, Buhen, and possibly slightly later, Mirgissa. In addition to the ‘plain type’ of

forts, as Kemp has called them, a second group were constructed during the reign of Sesostriis III (1866–1827 B.C.; *ibid.*, 131f.). These fortifications, Kemp has noted, were irregular in plan since they were usually built very close to the shores of the Nile or even upon islands in the Nile. They include fortified sites along the Semna gorge such as Semna, Kumma, the Semna south fort, Uronarti, Serra, Shalfak, and Askut.

While Kemp's typology serves as an excellent example of possibilities for development of diachronic typologies for MB fortification systems in other regions, probably of greatest interest for Levantine archaeologists among the cataract forts is the exceptional preservation of features at these sites. Plastered mudbrick walls (preserved up to a height of 11 m), fosses, towers, gates, and loopholes, are all preserved to an extent unattested in the Levant, Mesopotamia, or Anatolia as a result of the extremely dry climate. These features provide evidence, which as we shall see in the next chapter, can help to clarify the character of Levantine fortifications as they might have appeared when they were in use.

3. *ANATOLIA*

Peter Parr (1968) was the first to truly attempt to incorporate the results of excavations in Turkey at Alalaḫ (Tell Atchana), Carchemish (Jerablus), Hattuša (Boghazköy), Alaça Hüyük, Mersin, Troy, and Tarsus, the remains of which were mostly dated to the EB, in his discussion of MB fortifications in the Levant. Later work by R. Naumann (1971) on Anatolian architecture, though useful for comparative purposes, focused primarily upon the region's architecture and was not concerned particularly with the origins and development of fortification strategies as a whole. No work to date, however, has specifically focused upon Bronze Age fortifications throughout Anatolia.

4. *CYPRUS*

Various suggestions have been made as to the significance of fortified late Middle Cypriot to early Late Cypriot settlements (see references in Peltenburg 1996:30ff.). But

the most comprehensive studies of MB fortifications in Cyprus have been published by Michel Fortin (1983; 1989; 1995) whose dissertation research dealt with this subject (1981). After examining a number of Middle Cypriot III to Late Cypriot I (ca. 1700–1450 B.C.) sites he concluded that the rise of fortified settlements during this period was a phenomenon which was contemporary with “the flourishing growth of the copper industry in the island and the external trade it sustained” (Fortin 1995:101; also 1983:217f.). The need was to protect the routes in the plain of Mesaoria that led to the copper mines. Fortin did not, therefore, find any basis for positing that the character of these fortifications were influenced at all by defensive systems known in the Levant or any other neighboring region in this period, a conclusion which is supported by the unique attributes of these defenses (1995:101). Unfortunately, none of these settlements have been sufficiently excavated.

5. *GREECE AND THE AEGEAN*

Owing to limited exploration of Middle Bronze Age settlements in Greece and the Aegean no comparative data for MB fortifications is yet available from this region. The earliest fortifications, therefore, are those known from the LB at Mycenae. Recent works on LB fortifications in the Aegean and Cyprus are gradually increasing the corpus of known fortified Greek sites of the LB (Karageorghis and Morris 2001).¹⁸

F. **THE STATE OF THE QUESTION**

This review of previous studies on Middle Bronze Age fortifications in the Levant has revealed a number of areas that require further investigation. In addition to the questions that have been posed by earlier studies, an examination of questions posed by

¹⁸ Although F. E. Winter’s (1971) general overview of Greek fortifications is certainly comprehensive for the Iron Age and Hellenistic periods, it does not provide an overview of Bronze Age fortifications.

scholars in more recent works also serves to highlight a number of the specific issue that will be addressed in this study. Eliezer Oren, the excavator of Tel Haror and Tel Sera', has, for example, posed some these questions.

The construction of these elaborate defense systems, perhaps more than any other aspect of the material culture, could help to elucidate the mechanism of state formation in southern Canaan. Important information can be provided by key questions: How long did the construction of these fortifications take? Were they constructed rapidly to encounter an impending military threat, or gradually in stages? Were they designed to comply principally with the immediate needs of an existing population, or do they reflect long-term planning for a larger future population? Perhaps most intriguing of all is the identification of the labor force involved in the actual building operations: Were the defenses built by the local population of the settlement or by a task force recruited specifically for this purpose from elsewhere? (1997b:256f.)

A glaring deficiency in previous studies, which is evident from the persistence of such questions after nearly eighty years of scholarship on this question, has been the almost complete neglect of detailed examination of published archaeological site reports for fortifications. While studies have focused upon supposed identifications of glacis, ramparts, walls, and fosses, or upon the absence of certain features in the archaeological record, not since Parr's work (1968) has a site by site treatment of the data been attempted, such that today the creation of this type of catalogue has posed an enormous task. Nor has anything been done to compare or contrast building techniques and materials used at these sites, which might suggest the direct relationships between sites throughout this region or that might even enable the identification of individual polities (see chapter four). Only a thorough examination of the planning and construction requirements of MB fortifications can help reveal information concerning the work force involved in the construction of these fortifications. The results of a more detailed study can, therefore, contribute not only to a greater understanding of the fortifications themselves but also to the study of Middle Bronze Age society and complexity.

The persistence of many of these questions also reveals that scholars have only scratched the surface with respect to the relevant data from neighboring regions, which might provide analogous circumstances for the Levant, particularly since textual sources are lacking. Unfortunately, though, modern political boundaries continue to create formidable barriers to scholarship for multi-regional issues such as this. Nevertheless, the present study has attempted to remedy this deficiency by incorporating archaeological data and various studies from contemporaneous settlements in neighboring regions.

In the many years since the first theories were advanced and subsequent excavations of Middle Bronze fortifications in the Levant were published, no single work has sought to comprehensively study the various issues involved in what requires a detailed inquiry into various architectural, social, political, economic, military, and historical aspects of the Middle Bronze Age. It is my hope that this work will serve as an important reference for future archaeologists seeking to obtain comparanda for their own excavations in the face of countless relevant reports and articles, while also encouraging the use of a standardized terminology. To this end it is also hoped that future publication of Middle Bronze Age fortification systems can also be considered using similar, if not improved, approaches to those proposed here.

SECTION ONE:
THE EVOLUTION OF WARFARE AND DEFENSES IN THE LEVANT
DURING THE EARLY AND MIDDLE BRONZE AGES

CHAPTER TWO:
WEAPONS AND WARFARE IN THE LEVANT
DURING THE EARLY AND MIDDLE BRONZE AGES

In order to defeat the enemy you think up plans of attack and keep maneuvering for position against him. But the enemy will also, against you, try to plot and to maneuver for position, much as wrestlers use tricks against each other. Truly, (it is) as an old proverb which goes: “A bitch in her battling for food gave birth to lame puppies.” As for you, do not do the same, provided that the enemy will not ambush you in (your) residences.

ARM I 5:4–16 (translation by A. E. Glock 1968:171)

In order to understand the role played by large-scale fortifications in Levantine warfare during the latter part of the third millennium B.C. and the first half of the second, it is necessary to explore the nature of warfare during the period in which this architecture developed. The study of Early and Middle Bronze Age warfare in the Levant has been primarily limited to analyses of weapons recovered from archaeological contexts (see, for example, Deshayes 1960; Salonen 1965; Korfmann 1972; Gonen 1975; Philip 1989; Miron 1992), supplemented by brief treatments of fortifications like those reviewed in the previous chapter. Only a few works have attempted any type of synthesis of this evidence (Yadin 1963; 1970). Neither group of studies, whether of Levantine weapons or fortifications, has fully taken into account evidence of developments in military technology and administration in this period in Egypt and Mesopotamia, even though military innovations in these neighboring regions must have influenced Levantine warfare. The Egyptian and Mesopotamian evidence includes not just artifacts but also iconographic and textual data. Egyptian tomb paintings and Mesopotamian stelae, for example, serve as excellent sources of pictorial information about military technology

(Schulman 1964; 1982), and hieroglyphic and cuneiform texts provide verbal descriptions of military engagements (A. E. Glock 1968; Sasson 1969).

In this chapter I will draw on these diverse lines of evidence in order to describe the general characteristics of ancient Near Eastern and Levantine warfare from the mid-third millennium B.C. until the end of the MB in the mid-second millennium (late EB III to MB IIC in chronology for the southern Levant). First, I will use textual and archaeological data to demonstrate that siege warfare was the most common type of military engagement during this period. Second, I will examine the most frequently attested weapons employed in siege warfare during the Early and Middle Bronze Ages and I will discuss their function and effectiveness. Third, I will argue that skeletal evidence of slain soldiers supports the idea that siege warfare was the dominant mode of warfare in this period, and that such evidence also indicates which weapons played a significant role in siege warfare. Finally, I will assess the role that innovations in weaponry played in the overall evolution of warfare in the Levant from the period of the Ebla empire to the expulsion of the Hyksos from Egypt that marks the end of the MB.

A. OPEN BATTLE VERSUS SIEGE WARFARE

In the ancient world military engagements may be characterized broadly as belonging to one of two main types: the open battle or the siege. We have historical records of a number of important open or pitched battles in the Bronze and Iron Age Levant, such as the Battle of Megiddo (ca. 1475 B.C.), the Battle of Kadesh (ca. 1275 B.C.), and the Battle of Qarqar (853 B.C.). Smaller-scale ambushes and skirmishes are also attested in historical sources, although these are often distinguished from pitched battles because such engagements were usually unplanned and did not occur in the main battle area. But regardless of scale, land-based military engagements that took place in the open all shared in common that natural topography rather than artificial defenses played an important role in their outcome. Thus the key distinction between open battle and siege,

as defined here, involves the impact of manmade fortifications in the conduct and final outcome of the military engagement.

In light of this distinction, what evidence do we have for open battles in the ancient Near East before the end of the MB (ca. 1525 B.C.)? In the available textual sources from the Levant, Egypt, and Mesopotamia there are no clear references to large-scale open battles. Of course, absence of evidence is not proof that such military engagements never occurred, but it does suggest that they were relatively infrequent. The copious archives of the town of Mari on the middle Euphrates River (ca. 1750 B.C.) are one of the best sources of information concerning military and political activities in northern Mesopotamia and Syria in the years before Mari's destruction by Ḫammurapi of Babylon (see, for example, A. E. Glock 1968). But Stephanie Dalley (1984:146) has noted that “no detailed accounts of pitched battles” have been found in the Mari documents, although small-scale ambushes are occasionally mentioned, as in the text translated below:

When a large detachment went to ambush an enemy expedition, they could not find a suitable place to lie in wait, so that detachment returned without success, and the enemy expedition continued unchecked—it was not ambushed. Now, let a small detachment go and ambush the enemy expedition, and let them take informers.

ARM II 22:6–15 (translation by S. Dalley 1984:150)

In contrast, major siege campaigns are well attested in the Mari texts. The following text is typical:

When I had captured the towns of Tarrum, Ḫatka and Šunḫum, I approached Ḫurara and surrounded that town. I set up a tower and a battering ram against it, and in seven days I captured that town.

ARM I 131:5–16 (translation by S. Dalley 1984:146)

Since the Mari texts provide our most detailed documentation of military activities in the MB, the lack of mention of open battles in thousands of texts is thus very telling. But earlier textual evidence from southern Mesopotamia also shows that sieges

were a routine element in warfare while open battles were relatively rare. Akkadian kings in the second half of the third millennium (ca. 2250–2100 B.C.) undertook various battles to consolidate their empire. In many of the inscriptions recording these engagements it is said, for example, that a particular king was victorious over a given town in battle, conquered that town, and destroyed its walls. One notable example refers to Sargon’s defeat of Uruk: “[Sargon]...conquered the city of Uruk and destroyed its walls. He was [victorious] over Uruk in battle, [conquered the city], ...” (*RIME* 2.1.1.1, lines 12–22). Identical phrases are employed elsewhere in the same text to describe Sargon’s battles against other cities such as Ur, Eninmar, and Umma.

Although it is possible that what is meant here is that opposing armies first fought in open battle outside the town and the victorious invaders ruthlessly destroyed the town, the juxtaposition of the phrase “in battle” to “he conquered the city” more probably means that the battles were, in fact, sieges of the fortified cities themselves. What we have here is a poetic parallelism that depicts the nature of the battle. This interpretation is corroborated by another inscription of Sargon in which a reference to his victory in thirty-four battles is followed by the phrase “he destroyed their (city) walls” (*RIME* 2.1.1.11 lines 5f.). But the clearest evidence that these battles were sieges is to be found in an account by Sargon’s grandson, Naram-Sin, who recorded in detail his army’s siege of Armānum and Ebla, two towns in the northern Levant (*RIME* 2.1.4.26.). At Ebla the abundant evidence from the destruction of Palace G, which I shall discuss in greater detail in chapter four, corroborates this account.

Later in the third millennium there are numerous references to sieges of towns among the year names of the kings of the Third Dynasty of Ur, from ca. 2050 to 1950 B.C. (Sigrist and Gomi 1991:319ff.).¹ At least twelve different towns were besieged

¹Year names were names given to a particular year of a king’s reign based upon an important event such as the construction of a major canal, wall, or temple, or an important battle.

during a 69-year span. Some of them were besieged more than once, and one town was besieged at least eleven times. Smaller towns of less strategic importance were probably also besieged during this period but did not warrant a year name to preserve the memory of the event.

It is particularly noteworthy that in none of these year-name references to military engagements is there clear evidence of open or pitched battles. Indeed, in Ur III sources we learn of the Mesopotamian rulers' use of large-scale fortifications to protect their heartland against the growing threat of Amorites from the northwest. A great wall called Muriq-Tidnim (lit., "that which keeps the Tidnum [Amorites] at a distance") was to be constructed in the fifth year of the reign of Šu-Sin. This wall and similar walls, such as the "Wall of the Land" built during the 37th year of Šulgi's reign, indicate a Mesopotamian military strategy in which attacking forces were not met in open battle but were contained by a defensive line, even in the open countryside. Such fortifications were a means of predetermining the location of battles against invading troops, who would have been forced to adopt siege tactics, which required a relatively advanced level of military technology and organization. While the Ur III empire could muster an army without equal to execute punitive or preemptive campaigns against its enemies, it apparently still preferred to establish a costly defensive perimeter that could be defended like a town's wall against enemy attack. The so-called "Walls of the Ruler" in Egypt, first attested in the Middle Kingdom *Tale of Sinuhe* (*AEL* 1, ln. 15ff. p. 224), may be evidence of a similar military strategy in Egypt during only a slightly later period. According to *Sinuhe* these walls—or what might simply have been a series of fortresses along the "Via Maris"—were intended "to repel the Asiatics and to crush the Sand-farers" (*ibid.*).

There were many differences between Mesopotamia and Egypt, but in contemporary Egyptian sources of the Sixth Dynasty (ca. 2400–2200 B.C.) and the First Intermediate Period (ca. 2200–1950 B.C.) the evidence for open battles is equally scarce,

while there is considerable evidence that sieges were the most common form of military engagement. The relevant Egyptian sources for this period are not textual but iconographic. Information about military matters is derived primarily from tomb reliefs and mortuary complexes which depict battle scenes. These have been collected by A. R. Schulman (1982:esp. 165f.), who discusses two siege scenes dated to the Sixth Dynasty, and two Fifth Dynasty fragments which may depict pitched battles.² Fragmentary battle scenes dated to the early First Intermediate Period (FIP) do not provide clear evidence of an “assault on a fortified town,” according to Schulman (*ibid.*, 179); but there is a later First Intermediate Period depiction of an Egyptian siege against a town occupied by Asiatics in the tomb of Intef, which is dated to the reign of Mentuhotep II. This provides clear evidence of Egyptian siege warfare even in this period of political decentralization (see plate 17 and folding pls. 1 and 3, Jaroš-Deckert 1984). During the end of the FIP and during the Middle Kingdom (ca. 2040–1650 B.C.) numerous reliefs from tombs in Beni Hasan depict scenes of siege warfare,³ while only one clear reference to a pitched battle is made and its historicity remains in question.⁴ As Schulman has observed, all but one of the tombs that depict battle scenes during the later Middle Kingdom illustrate “a full-scale assault on a walled fortification” (1982:168). The remainder of the MB in Egypt, in the Second Intermediate Period from ca. 1650 to 1530 B.C., witnessed an increased frequency in siege warfare culminating in the siege of Avaris, the capital of the Semitic

²To call the two fragments cited by Schulman depictions of pitched battles is truly to overstate what can be said with any certainty. These two fragments, which depict three or four soldiers, are classified as such by Schulman simply because they lack any depiction of a fortified town or siege equipment such as ladders, mantelets, or battering rams on the preserved fragment itself.

³These include, for example, tombs 2 (Newberry 1893:pl. 14), 14 (*ibid.*, pl. 47), 15 (Newberry 1894:pl. 5), and 17 (*ibid.*, pl. 15).

⁴It has been suggested that Merikare’s reference to a battle, which was set in a graveyard during the Middle Kingdom and is recorded in *The Instruction Addressed to King Merikare* (AEL 1, ln. 70ff., p. 102), reflects an actual historical event. Unfortunately, this cannot yet be verified.

“Hyksos” rulers of Lower Egypt, and the subsequent Egyptian siege of Sharuhen in the southern Levant, to which the Hyksos forces fled after they were expelled from Egypt. In summary, although the occasional fragment of a relief suggests that open battles were also a part of Egyptian warfare during the third and early second millennia B.C., the disproportionate number of siege scenes suggests that this mode of warfare was as dominant in Egypt as it was in Mesopotamia during this period.

B. THE CHARIOT IN MIDDLE BRONZE AGE WARFARE

Although there is no evidence for the involvement of chariots in siege operations, references to chariots in late MB texts, their depiction in seals and sealings, and ceramic models of them from the start of the MB warrant some consideration of the significance of their role in military engagements during this period. The historical development of the chariot in the Near East and the role that the horse played in this development have been thoroughly treated in the works of Littauer and Crouwel (1979; Littauer 2002) and P. R. S. Moorey (1986). Although “battle cars,” “straddle cars,” and “platform cars,” as Littauer and Crouwel have called them (1979:15–47), were all in use before ca. 2000 B.C., it is incorrect to view these vehicles as chariots. The earliest evidence for the true chariot dates, therefore, to the MB (see Littauer and Crouwel 1979:48–72):

This period sees the evolution and general adoption in the Near East of a light, two-wheeled, horse-drawn vehicle with spoked wheels: the *chariot*. It appears either as a flat cart with open railing (in Anatolia and southern Mesopotamia), or (in Syria) as a gradual modification of the “platform car”: disk wheels are replaced by spoked ones, the high front screen by a low one of equal height at front and sides; the seat is removed, permitting rapid access from the rear, and the high, arching pole is reduced to a lower more mildly curving one. Evidence points to a lengthened axle, providing a wider wheel base, which increased stability and eventually permitted a crew of two to stand abreast (an important improvement for military use). (Littauer and Crouwel 1979:71)

The chariot, although certainly used in sport-hunting, as indicated by Syrian seals, was also put to use in “warfare, in cult and, probably, as a parade and a status vehicle” (ibid.,

72). While such functions are, of course, also well attested in LB seals, such as those from Alalah,⁵ Ugarit, and Tell Abu Hawam (see Collon 1982:130 for references), they are also attested in a number of seals and sealings with clear MB dates.⁶

Of central importance to the development of the chariot is also the issue of the domestication of equids in the Near East, since it has been established that the equids which drew these chariots were not themselves ridden. But as P. R. S. Moorey has demonstrated, the arrival of horses and their use with chariotry during the second millennium was not, as has been traditionally assumed, “a sudden intrusive innovation from the north or from the east,” but instead part of a local development (1986:198).

In general, texts reveal that horses were coming to Mari, and to the king of Assyria, at this time [i.e., during the MB] from the west, from inland Syria and from Anatolia, not from the east. At this stage, in the early and mature Middle Bronze Age, there seems to be no hard case for an exclusive Hurrian or Indo-European involvement in breeding, in training, or in the dissemination of the arts of horsemanship and chariotry. (ibid.)

What remains in question though is the extent to which chariots were employed in warfare as early as the MB.

With respect to the chronological and spatial distribution of the chariot in the Levant during the MB, it is worth noting that examples of ceramic chariot models are known from the northern Levant and northern Mesopotamia but are not known in the

⁵AT/48/32, though poorly preserved, shows a man in a chariot being followed by three men in procession (no. 136, Woolley 1955:266; no. 17 in Collon 1982:51). Its date and provenance are unknown. AT/46/213 is from Level V and, therefore, probably originally LB in date (no. 44 in Woolley 1955; no. 119 in Collon 1982:129f.). D. Collon has suggested that this seal, though, is also an “inept copy of a well-known subject” and probably should date to the thirteenth century B.C. (1982:130).

⁶Since the publication of Littauer and Crowell’s work a number of additional seal impressions from Syria dated to the late third and early second millennia depicting chariots have been published. In addition to seal nos. 892 to 895 in B. Buchanan (1966:174f., pl. 56), see also, for example, no. 502 in B. Buchanan (1981:193), and no. 82 dated ca. 1700 B.C. in A. Glock (1988). All of these seals were purchased or collected and therefore lack proveniences. Well known seals depicting chariots include some from Babylon. See seal 3 on tablet no. 22 published by H. H. Figulla (1967:pl. 14), which has been dated to the 18th century B.C.

southern Levant. Chariot models dated to the MB have been found in the northern Levant⁷ at Ugarit,⁸ Tell Mašin,⁹ Qatna,¹⁰ and Hama.¹¹ In the southern Levant, however, while no such models are found, equid burials have been found near the burials of what have been traditionally identified as elites at Tell el-‘Ajjul, Tell Jemmeh, Jericho, Lachish, Akko, Tel Haror, Azor, and in Egypt at Tell ed-Da‘ba/Avaris (see Wapnish 1997), in contexts dating to the mid to late MB (i.e., MB II/IIB–C).¹² Given their tomb contexts, these equids must have had a prestige value, making it unlikely that they were simple pack animals, though donkeys functioned as the main type of caravan animal in this period. It is plausible to assume that they were used, therefore, to draw chariots which were employed first in the northern Levant and then introduced into the southern Levant later in the MB.

Evidence for the adoption of the chariot in Egypt by at least the end of the MB has also recently come to light from the excavation of the monuments of Ahmose at

⁷ An unprovenanced but well-preserved example of a covered chariot of the EB IV to MB I period is found in the collection of the American University of Beirut (Baramki 1966:pl. 2, and p. 23). Although this example could be from a Lebanese coastal site such as Byblos, chariot models do not appear in the material culture assemblage of Byblos.

⁸ See no. 11 in fig. 97 in *Ugaritica II* (Schaeffer 1949:231).

⁹ See fig. 118 in du Mesnil du Buisson (1935b).

¹⁰ See fig. 12 in du Mesnil du Buisson (1935a:60).

¹¹ See fig. 17:1 (Hama H) in Igholt (1940), and figs. 64 (Hama J), 110 (Hama H), 132, and 139 in Fugmann (1958).

¹² It is worth noting that all of the sites where equid burials have been found in the southern Levant are outside of the hill country. This appears to be further evidence that these equids served to draw chariots, which did not function in the hill country, and that, furthermore, these equids were not, and perhaps could not be, ridden. By extension, if this data is the clearest evidence that chariots did *not* function in the hills and mountains of the Levant, then it is also apparent that ramparted fortifications like those known at Hebron, Shiloh, and Shechem, sites located in these hills, were not *ipso facto* fortified in this manner in order to defend against chariots as once suggested by Kenyon.

Abydos (Harvey 2001). This evidence confirms that the chariot was already used in the southern Levant, from which it was probably introduced into Egypt during the Hyksos period, as the equid burials in the southern Levant also indicate. The use of the chariot in Egypt during this period ultimately resulted in the full incorporation of chariotry in pitched battles during the New Kingdom, when its use in warfare is first attested.¹³

In light of the scarcity of evidence for open battles during the MB—in contrast to sieges, in which chariots were not very useful—it is unlikely that chariots were a major element in MB armies. This probably explains why references to chariots in MB texts are extremely limited and the presence of chariots must often be inferred from references to the management of equids. In fact, textual references to the use of chariots in military operations during the MB are limited to Hittite sources, as Moorey (1986:204) has noted, and these sources mention the use of chariots only for patrolling and the enforcement of blockades. Only later, during the LB, were tactics developed which allowed chariots to be employed *en masse* in open battle, with a devastating effect against enemy infantry.

It has been suggested that even in earlier periods chariots were of some use in battle because horses could trample enemy foot-soldiers and disrupt the enemy's ranks. However, as Littauer and Crouwel have rightly noted, horses are reluctant to trample human bodies. They know their physical limitations and instinctively avoid injury unless sufficiently blinkered:

Indeed, the use of wagons in a charge against each other or against closely ranked infantry seems extremely doubtful. Equids are reluctant to step on yielding bodies, because they instinctively know that the restricted articulation of their limbs, evolved for fast forward movement on the level steppe, makes them vulnerable to joint injuries. Moreover, attempts on their part to avoid the bodies by leaping over them could result in damage to their necks as well as to parts of the draught system. Hence the motif of the prostrate enemy “beneath the

¹³Six full-scale New Kingdom Egyptian chariots have been recovered from the tomb of Tut'ankhamun (Littauer and Crouwel 1985).

hooves...must be interpreted as merely symbolic of victory, while in reality such bodies would be lying on the hither or further side of the teams. (Littauer and Crouwel 1979:32f.)

It is now widely recognized that the true effectiveness of the chariot in battle was, in fact, its capacity to provide a mobile platform for the use of the bow, especially the composite bow. Indeed, the introduction of the chariot ca. 2000 B.C. coincided with the development of the composite bow, which quickly replaced the simple bow in most military contexts. The chariot provided a means by which an archer's effectiveness could be maximized against troops massed for battle in the open field. In hilly terrain or around settlements built next to wadis or surrounded by walls—especially walls built on ramparts—the chariot was of little use.

For this reason, although ill-informed and misleading comparisons have been made in the past between the chariot and the tank (e.g. Kenyon 1952:71), as I have noted in chapter one (see section D.2), many scholars, beginning with Yigal Yadin (1955b), have concluded that chariots had no role in attacks against fortified complexes. The chariot's role in warfare—particularly evident during the Late Bronze Age—is best likened to that of the modern fighter plane, which serves as a fast and maneuverable firing platform (cf. Moorey 1986:203). The military role of the chariot during the MB was most likely limited to providing “protection for an army on the march and in combat; to blockade at times of siege; and to transport archers and other elite troops” (ibid., 203f.).

C. THE WEAPONS AND TACTICS OF SIEGE WARFARE IN THE MIDDLE BRONZE AGE

Much could be written concerning the character of ancient siege warfare, particularly for later periods.¹⁴ In what follows, however, I will draw upon the most

¹⁴ Important authors on the subject include Aeneas Tacticus (ed. 1990) from the 4th cent. B.C. and Flavius Vegetius Renatus (ed. 1993) from the 4th cent. A.D., as well as Alan Schulman (1964) on Egyptian tactics, Israel Eph'al (1996; 1997) on the Iron Age evidence, and a magnificent review of siege warfare through the Roman period by Paul Kern (1999).

important of these studies without needlessly repeating the overviews they have provided. Caution has also been taken to avoid propagating anachronistic comparisons that are often the result of poor understandings of the historical development of weaponry and strategies for their use. In this regard it has been all too common for scholars to rely on data from the Iron Age and classical periods when discussing Bronze Age warfare because the evidence from these periods is, of course, greater. While my approach in this section owes many of its insights to previous scholarship, I have attempted to consider the material in a new light.¹⁵ I have placed emphasis on the ranges of the weapons used, as attackers brought different elements of their arsenals to bear in the course of a siege, noting the technical improvements in these weapons from ca. 2400 to 1500 B.C. and the physical obstacles they were intended to overcome.

1. COVERING AND SUPPRESSING FIRE

Of all the weapons available to the Bronze Age warrior, the bow and sling provided the greatest range and firepower. These two “long-range” weapons played a significant role in siege warfare because they made it possible to suppress the defensive efforts made by the besieged from the tops of the walls or during sallies from their gates. In this section we will consider the crucial role that the sling, the simple and composite bows, and various types of shields played during siege warfare in the MB.

a. The Sling and Its Projectiles

Although the sling has been identified as a weapon of considerable importance beginning as early as the 8th millennium B.C.,¹⁶ direct material evidence of its existence is

¹⁵My approach also owes much of its inspiration to John Keegan’s well-known work *The Face of Battle* (1976).

¹⁶For detailed treatments of the sling and its distribution see works by M. Korfmann. For prehistoric times (ca. 8000–3000 B.C.) see *Schleuder und Bogen in Südwestasien* (1972) and for subsequent periods see Korfmann’s review article, *The Sling as a Weapon* (1973).

extremely limited in most periods because it was constructed of completely biodegradable materials, usually leather. M. Korfmann has observed that the absence of clearly identifiable sling stones or bullets has, in some cases, led to the sling being entirely overlooked (1973:38). This omission has been further compounded by the fact that “naturally formed missiles” also used by slingers “may never be recognized” (*ibid.*). Such objects might be no more than river pebbles or roughly-shaped, fist-sized stones, rather than well-worked, symmetrically rounded stone projectiles that are quite readily identified. Nevertheless, we are aware of the importance of slingers in the military ranks of Near Eastern and Mediterranean armies during the Late Bronze and Iron Ages from reliefs and textual references.

The problem of identifying the sling is no less significant for the Early or Middle Bronze Age periods in the Levant. Even so there is some notable archaeological evidence of its use in the Levant and northern Mesopotamia during the periods under consideration. Numerous clay sling bullets of five different shapes have, for example, been recovered from the late third millennium site of Tell Sweyhat in Syria (Stout 1977). These “stockpiles” were found in structures adjacent to the western wall of the upper town. That such projectiles could be effective has been demonstrated in experiments conducted by the Sweyhat expedition with a local slinger. This informal experiment indicated that these sun-dried, clay sling bullets could be effectively used within 100 m of the target (compared to 200 m for sling stones) and sometimes even remained intact after impact (*ibid.*, 65).

Similar archaeological evidence comes from a large cache of baked clay sling stones found in court 22 of the temple of Dagan at Mari (Parrot 1964:9–11). Other sling bullets referred to as “catapult projectiles” (Matthiae 1982b:125) have also been found in

a storeroom of the MB Western Palace in Area Q at Ebla.¹⁷ Since there is no evidence for the catapult before the classical period,¹⁸ these artifacts must, in fact, be identified as sling stones. Their size, though not provided by Matthiae (1977b:152, n. 9), is compared to a ballista stone (no. 2379) from a group found in the Iron Age “Phrygischer Tempel” at Boğazköy published by Boehmer (1972:227 and pl. 96, nos. 2379–2383) which had a diameter of 13.7 cm. Matthiae states that such stones “étaient employés, pendant les sieges, pour créer ou élargir des brèches dans les ramparts” (Matthiae 1977b:152, n. 9).¹⁹ But this suggestion is anachronistic and ignores two important facts: first, no propulsion machines existed during this period with which to fire such projectiles and, second, at no period in history are slingers known to have attempted to breach walls with their projectiles. Such a suggestion seeks to compare the effectiveness of slingers with the successful employment of ballistae against walls, as for example during Alexander’s siege of Tyre.²⁰ It is more likely, therefore, that slingers employed such large sling stones against enemy soldiers. Using larger stones would have meant, of course, that the slinger sacrificed the speed and accuracy of a smaller ballista, but would have gained increased mass, the effect of which would have been a greater chance of injury upon impact. The

¹⁷These were found in a storeroom, L. 2887, located below a staircase, in square DfV8ii (Matthiae 1982b:n. 23).

¹⁸It is worth noting that the belly bow (Gk *gastraphetes*) and its successor the catapult (Gk *katapultikon*) described by Diodorus Siculus (14.41–42.1) were products of the classical period. There is as of yet no evidence suggesting that such a device or anything comparable existed any time prior to the fifth century B.C. at the earliest. For further discussion of such devices see works by E. W. Marsden (1969; 1971).

¹⁹Despite the fact that he cites Yadin, Matthiae’s assertion finds no support in Yadin’s treatment of the methods of warfare during the MB (1963:69–71).

²⁰His was the first historically attested use of the stone-throwing catapult (Diodorus Siculus 17.42.7; 17.45.2).

ability to choose between differently weighted projectiles is also attested among archers, who used arrowheads of different weights (see discussion of the bow below).

To this archaeological evidence we can also add iconographic representations and textual references to the sling. A depiction of an Egyptian slinger in the Beni-Hasan reliefs from Egypt attests to contemporaneous use of the sling in MB warfare in Egypt (Newberry 1894:pl. 15).²¹ Also, in the Mari texts the sling is referred to as the *waspum* (see ARM IX 102:18; *AHW* 3, p. 1475) and the sling stone as *aban waspim* (see ARM II 127:7, Sasson 1969:26). Although it is unfortunate that these references to slings are limited to orders for a specific number, Margueron has also identified sling stones from the excavation of areas around the ramparts at Mari (1982:30), thus corroborating their use in warfare during the period in question as alluded to in the Mari texts.

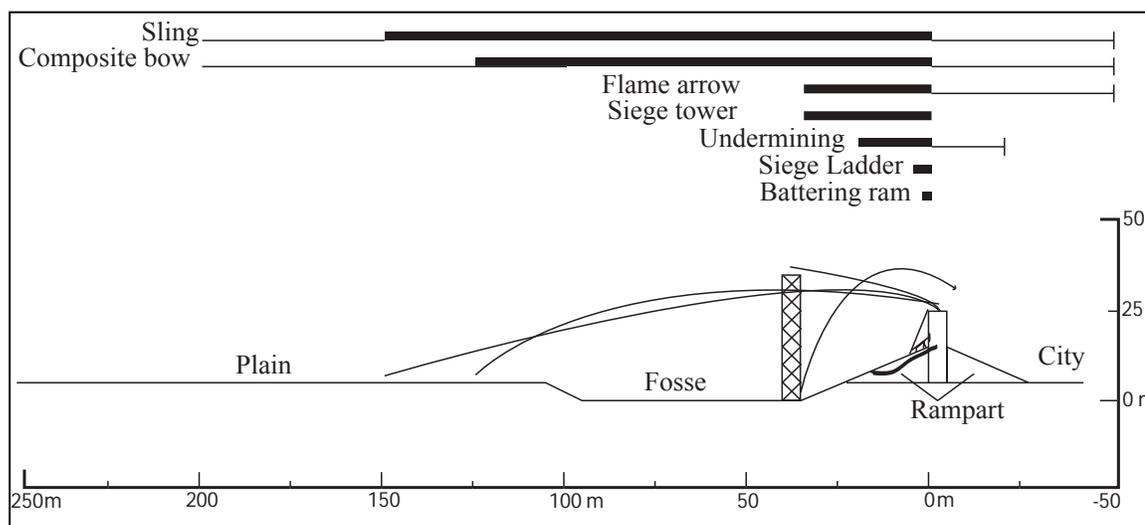
Despite the relatively limited archaeological evidence for the use of the sling in the Levant during the third millennium and the first half of the second millennium, its role in Bronze Age warfare should not be underestimated. As M. Korfmann has observed (1972:37), even a relatively novice slinger could propel a missile more than 200 m at a speed in excess of 100 km per hour (*ibid.*, 40). Such a missile was considered lethal even without breaking the skin or penetrating the soldier's armor (if he were fortunate enough to have had armor). The lethal nature of the injuries was due to the internal damage that the projectile inflicted (*ibid.*).

As Yadin has also noted, "the function of the sling was often complementary to that of the bow," and when "they were used in battle, the slingers always served close to archery units" (Yadin 1963:9f.). This is evident in the Lachish reliefs from the Neo-Assyrian period, where the slingers are always depicted behind the archers (see Ussishkin

²¹The iconographic evidence is corroborated by a large number of clay and stone sling projectiles recovered at the Middle Kingdom fortress of Buhen (Emery, et al. 1979:95ff., 130, and pl. 45).

1982:78, 80, 82, and 84). Functionally, it was probably advantageous for the slingers to serve behind the archers because it would have made possible a flatter trajectory for the slingers' projectiles, which were fired at higher speeds than arrows and once launched lacked any aerodynamic characteristics by which to improve their time aloft. On the other hand, it required no more energy for the archer to increase his trajectory, and being in front and closer to the target would have increased the archer's effectiveness. The Lachish reliefs also seem to confirm, as Korfmann has suggested, that the slingers' effective range of 200 m was actually greater than that of the bowmen (see Figure 1 below).

Figure 1. The ranges of weapons employed in MB siege warfare. Maximum range is indicated by thin line, while effective range is indicated by thick bar. The dimensions of the site's defenses are based upon those of the fosse and rampart at Qatna (Tell Mishrife).

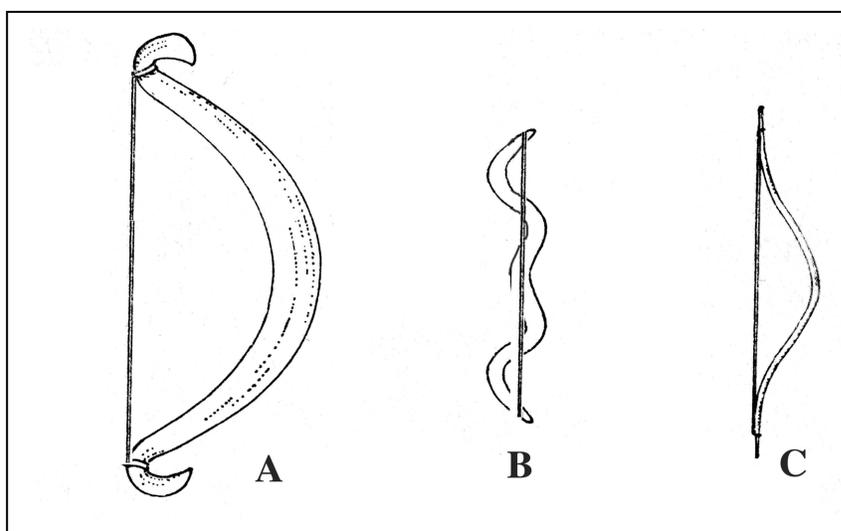


b. The Simple and Composite Bows

While the scarcity of archaeological evidence makes it difficult to assess the extent to which the sling was used during the MB, Yigal Yadin has argued that the bow was the main weapon of the period (1963:62). Whether or not this was the case, there is considerable evidence, both archaeological and iconographic, to indicate that the *simple bow* or *self-bow* was the main type of bow used in this period, despite the fact that the

composite bow had been in existence since ca. 2400 B.C. Two types of simple bows were known. The first, which was usually quite long, ca. 1.5 to 1.7 m, is referred to as a *single-arc bow* (ibid., p. 63).²² Its unwieldy length was a result of the fact that it was made of a single piece of wood that had to be long enough to provide sufficient tension without breaking.

Figure 2. Bows of the third millennium B.C. (after Yadin 1972a:fig. 1). A) Bow on the Uruk stele; B) Double-curved reflexed composite bow from Mari scene; C) Single-curved reflexed composite bow of Naram Sin.



A variation in design of the simple bow was the *double convex bow*. It is called this because of its form, featuring a slight curvature, such that when held vertically the arms of the bow bent slightly forward of the handle before bending backwards towards the string. This improvement upon the simple bow was made possible by adding sinew to the back of the bow's wooden arms in order to prevent it from breaking (Miller, et al. 1986:179). Despite increasing the bow's tensile capacity, this innovation still fell

²²The principle here is the same as that employed in the English long bow, which was a simple bow that should not be confused with the composite bow. The composite bow appears to have been a technology foreign to Europe during the medieval period, although it was still in use throughout the Near East. The composite bow was, therefore, often referred to as the *short bow* since it was shorter than the typical European bow (Bradbury 1985:12ff.).

considerably short of yielding the power available with the next major development in bow technology, the *composite bow*.

The earliest textual description of the composite bow, in the Ugaritic story of ‘Aqhat, dates back only to the Late Bronze Age, but it provides a roughly contemporary description of the materials used in the construction of this weapon:

I’ll vow ash wood from Lebanon,
 I’ll vow sinews from wild bulls,
 I’ll vow horns from rams,
 Tendons from the hocks of a bull,
 I’ll vow reeds from GL’IL.
 Give (these) to Kôtaru-wa-Hasîsu,
 And he’ll make a bow for ‘Anatu,
 Arrows for the sister-in-law of Li’mu.

COS 1.103, pp. 346f.

Similar descriptions of the components of composite bows from the medieval period testify to the impressive longevity of this weapon type,²³ which was in use in the Near East and North Africa for almost 4,000 years! Furthermore, according to McLeod, “the oriental bow used on the fringes of the Greco-Roman world underwent no startling improvement between 700 B.C. and A.D. 700” (1965:3), and its ultimate abandonment was due entirely to the introduction of gunpowder.

E. W. Marsden (1969), in his work on *Greek and Roman Artillery*, has also provided an excellent technical description of the composite bow that emphasizes the value of each of the component parts:

The [composite] bow contains three principal layers. The central strip of wood, though its relatively slight elasticity may contribute something to the total power of the bow, serves mainly as a base to which the other more resilient materials can be attached. On the back of the wooden layer, that is on the side facing away from

²³ A 353-page Arabic manuscript of anonymous composition on Arab archery also refers to the construction of the composite bow (Faris and Elmer 1945). This manuscript from the Garrett Collection at Princeton University Library is dated to the fifteenth century A.D. by the paper upon which it was written, though the date of the original work remains unknown (*ibid.*, vi).

the archer, the bowyer fastens a band of animal sinew. On the inner side he glues a series of pieces of horn. When the bow is bent the sinew is stretched and tries very hard to contract to its original size; the horn on the other hand, is compressed and tries to expand to its original shape. The sum of these combined forces is considerable (*ibid.*, 9).

From this description we can see how significant the horn and sinew were in the construction of the composite bow, noting that the wood served only as a foundation for these materials.

The range of the composite bow can also be determined from textual evidence, most of which comes from the classical period (McLeod 1965; 1972). McLeod concludes that “bowmen were quite accurate up to 50 to 60 metres; that their effective range extended at least 160 to 175 metres, but not as far as 350 to 450 metres; and that 500 metres was an exceptional flight shot” (*ibid.*, 8). Comparative evidence gathered by McLeod from later bow competitions seems to confirm that these figures pertain to the average performance of the composite bow. Ranges of 450 m or more were achievable only under special conditions, such as from an elevated position or with favorable winds. But shots of such distance would have had little effect once the arrows reached their targets, not to mention being wildly inaccurate.²⁴

As Miller, McEwen, and Bergman point out, the tactical advantage of the composite bow lay not only in its greater range, but also in the fact that its increased power permitted projectile points of increased weight to be fired with it (1986:189ff.). As they observe, the best evidence for the use of the composite bow in the ancient Near East is, in fact, the many arrowheads that have been found, which were of varied weight and design because archers “could use heavy arrows at short range to pierce armour, or lighter arrows to harass the enemy at long range” (*ibid.*). The former use is best

²⁴Y. Yadin’s figures of 275 to 300 m for its effective range and 550 to 700 m as its absolute range are exaggerated and should therefore be revised.

demonstrated by the depictions of Amenhotep II and other Egyptian pharaohs, who fired arrows through thick copper targets using composite bows (*ANEP*, p. 137, no. 390).²⁵ The latter use of the composite bow for rapid firing of lighter arrows has been quantified through modern experimentation that demonstrates that an expert archer could have shot thirty arrows in three minutes (Miller, et al. 1986:188).

Metal arrowheads of different weights, ranging from 8 to 40 grams (1–5 shekels) and as much as 48 grams (6 shekels) are attested not just archaeologically but also in the Mari documents as noted by S. Dalley (see ARM I 38 and XVIII 5, 1984:148). As early as the Middle Bronze Age, professional archers would have selected different arrow types depending upon their objective.²⁶ Three “chisel-ended” arrowheads have been found in the defensive fosse around the MB site of Tell Hadidi on the Upper Euphrates (Miller 1983). The find-spot of these arrowheads suggests that they were used in an assault on the settlement at Hadidi during the early second millennium. They are also depicted in use by Middle Kingdom Egyptian troops during the MB (Newberry 1893:pls. 13f.). Perhaps those targeted with such arrows were to be taken as prisoners or as slaves, since projectiles of this type are thought to have been used to maim rather than kill.

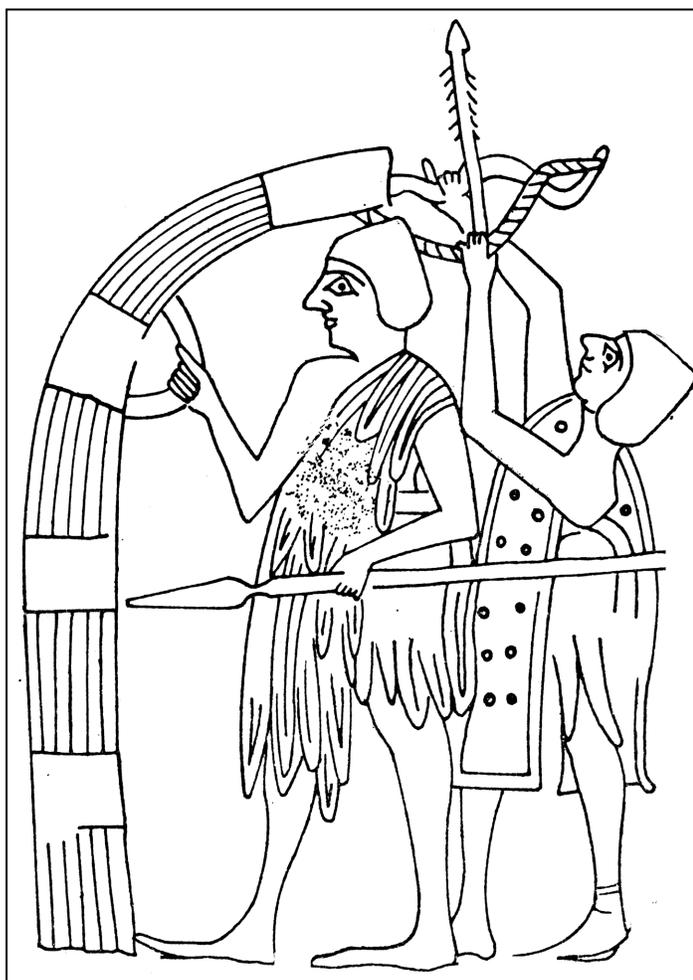
In northern Mesopotamia, the simple bow was probably surpassed by the composite bow as early as the Early Bronze III period. This is indicated by a scene discovered in the pre-Sargonic palace at Mari (ca. 2400 B.C.) which illustrates the use of a bow that Yadin (1972a) has identified as the *Scythian bow* (Figure 3 below). Yadin

²⁵For a more complete listing of sources for pharaohs firing arrows with composite bows at copper targets see p. 37, n. 3 in McLeod (1970). Note that these scenes actually account more for the power of the weapon in capable hands than they do for the physical strength or prowess of the pharaohs who wielded them.

²⁶Although it has been nearly impossible to distinguish metal arrowheads from spearheads in the archaeological record—hence the absence of any discussion of arrowheads in G. Philip’s catalogue (1989)—some of the weapon heads discussed in many archaeological reports, such as those treated by Philip, should probably be identified as arrowheads, a fact supported by such references in the Mari texts.

emphasized that this weapon is similar to a form of the composite bow traditionally attributed to the Scythians in the late Iron Age, sometimes also described as a “reflexed composite bow” (Yadin 1972a:91). Subsequent evidence of the composite bow includes several depictions from fragments of Akkadian-era stelae. On one of these Naram-Sin is depicted as a god, holding a composite bow (see C in Figure 2 above) and battle-ax in his left arm (Yadin 1963:150). In another broken stele from Lagaš dated to the reign of either Sargon or Naram-Sin, a soldier is shown employing the composite bow in combat (Yadin 1963:151).

Figure 3. Third-millennium B.C. shield and double-curved reflexed composite bow depicted at Mari (after Yadin 1972a:fig. 1).



Our only unequivocal evidence for the presence of the composite bow among the inhabitants of the Levant during the MB is an illustration from Tomb 3 at Beni Hasan in Upper Egypt, which depicts an Asiatic caravan from the southern Levant “guarded” by a male bearing a composite bow, a quiver, and an ax (Newberry 1893:pls. 30f.). Unfortunately, either a lack of preservation of the remains of bows or a cultural predisposition against including such weapons in tombs of the so-called “warrior burials” (see Philip 1989:145f.) has meant that no archaeological remains of the composite bow are known from the Levant in the Bronze Age.

Despite evidence of the existence of the composite bow as early as the second half of the third millennium, its spread through the southern Levant to Egypt appears to have been rather slow. The primary bow in Egypt during the MB, for instance, remained the double-convex simple bow (see Yadin 1963 pp. 162f. for illustrations). Because the composite bow is only attested in Egypt from the LB on²⁷—that is, after the expulsion of the Hyksos—it has been considered by many scholars to be one of the means by which the Hyksos were able to overrun the Egyptians and establish themselves as the lords of the Fifteenth Dynasty. While this part of the composite bow’s history remains enigmatic, it is clear that the Egyptians obtained this technology from eastern lands not long before the expulsion of the Hyksos. New Kingdom texts such as the *Autobiography of Ahmose son of Abana* record the use of the chariot and bow—probably the composite bow—in battle (*AEL* 2, pp. 12–14).

Yadin has suggested that the bow was most often used in siege warfare (1963:64), although it is difficult to verify this assertion because large-scale open battles during the MB are neither depicted in Egyptian reliefs nor are they referred to in the Mari texts, as discussed above. But given that all of the recorded confrontations of the MB appear to be

²⁷Excellent examples are preserved from the tomb of Tut’ankhamun (see McLeod 1970).

sieges, Yadin's statement is probably correct. This hypothesis may also find support from J. Tubb's (1985:193) observation that arrowheads were less common during the early part of the MB in the southern Levant than they were during the latter part of the MB and the LB, by which time siege warfare had reached its apex. Whatever the case may be, the gradual proliferation of the composite bow from the EB IV to the end of the MB would have drastically affected the conduct of siege warfare. The increased range afforded by this type of bow meant that archers could still harass a town's defenders at a distance of 150 to 200 m or even set the town ablaze from a distance of 50 m despite the construction of moats, ramparts, and massive walls intended to keep siege machines and soldiers from approaching easily.²⁸ While no specific morphological changes in fortifications are usually attributed to the introduction of the composite bow, how the increased range afforded by the composite bow might have led to changes in the morphology of fortifications over the course of the MB will be addressed in the chapter three.

Although the early history of the use of the composite bow in warfare remains to be clarified, it is generally acknowledged that it had its greatest impact when it began to be used in conjunction with the light horse-drawn chariot some time after ca. 2000 B.C. (Miller, et al. 1986:182; Moorey 1986:208). Prior to the MB, neither the simple nor the composite bow seems to have been used in combination with equid-drawn vehicles. The limited evidence of the adoption of the chariot during the MB, which was discussed above, suggests that it took some time before the composite bow was widely used with chariotry. In Egypt, for example, techniques for the use of the composite bow with the chariot in pitched battles were not fully developed until the start of the LB.

²⁸R. Miller et al. (1986:191) have, through experimentation, determined that a flame arrow could not have remained lit if fired from a composite bow at full draw, but could be fired at half draw, achieving a height of 30 m and a distance of 40 m.

c. The Shield

It is worthwhile at this point to mention how bowmen protected themselves while attempting to attack fortified settlements, since the degree to which they were protected would have affected their offensive capability. It is unfortunate that no artifactual evidence is available for the use of the shield during the late third and early second millennia in the Levant. This is no doubt due to the fact that shields, like slings and bows, were constructed from organic materials such as leather, wood, or reeds, as is suggested by Egyptian depictions of Asiatic shields in the tomb of Intef, which has been dated to the reign of Mentuhotep II (Jaroš-Deckert 1984:pl. 7). In an elaborate siege scene the Asiatic shields are depicted with an ox-hide shape, which may indicate that they were constructed with wooden or wicker frames and covered with the hide of an animal.

As a defensive device the shield's size and shape involved trade-offs between effective protection of the soldier and the ease with which the shield could be moved (Yadin 1963:14). In Mesopotamia full-length shields seem to antedate the use of such a device in Egypt by several hundred years. Such a shield, with a top that curved back over the archer, was intended to protect the attacking archer and shield-bearer from the defender's fire (see Figure 3 above). Yadin identified this type of shield in the siege scene from Mari dated to ca. 2400 B.C. that was mentioned above (Yadin 1972a). Prior to this discovery, the full-length shield was thought to belong solely to the Neo-Assyrian period. Further evidence for the use of a large shield in Mesopotamia during the late third millennium B.C. comes from the "Stele of the Vultures," which depicts a "phalanx" of soldiers from Lagaš bearing rectangular shields and spears (ibid., 134f).²⁹

²⁹Although Yadin has attempted to identify the materials used in the construction of these shields (Yadin 1963:48), it is not possible to be certain of what materials these shields were constructed.

Although the shield was in use even before the third millennium in Egypt (e.g. Hierakonpolis tomb 100, Yadin 1963:117), its first widespread employment appears to have been during the Middle Kingdom. At that time two types of Egyptian shields were used. The full-length shield with a rounded top and flaring wide bottom was used by stationary soldiers (see pl. 29 in Newberry and Griffith 1895), while smaller shields of similar shape but about half as tall were carried by infantry (see Newberry 1894:pl. 15). It is clear from these depictions that the shield's primary purpose was to protect against the enemy's archers because no shield-bearing Egyptians are ever depicted in hand-to-hand combat and enemy archers are always present where shield-bearing soldiers are present.

It is worth noting that none of the Asiatics depicted in the Middle Kingdom Beni Hasan reliefs carry shields, even though they are shown carrying axes and spears, and no archaeological evidence of the shield has thus far been unearthed in the Levant for either the MB or LB. Therefore, aside from the pictorial evidence noted above concerning small ox-hide shields used by Asiatics at the start of the MB in Egypt, the earliest evidence for the form and construction of the shield in the Levant dates to the LB and is also derived from Egyptian New Kingdom reliefs (Yadin 1963:83f.). These shields are depicted as small, light, and rectangular, and were clearly intended for personal protection in hand-to-hand combat. New Kingdom Egyptian shields were similarly small, having evolved from their Middle Kingdom predecessors (*ibid.*).

2. ESCALADE, BREACHING, AND BREAKING-THROUGH

Besieging armies would have employed slingers and archers to harass a town's defenders or even to set a town ablaze, supported by chariot-based archers who tracked down those attempting to escape. Nevertheless, projectiles alone would not have enabled entry into a town during a siege in the Bronze Age. As Yadin has noted, four main modes existed by which a town's defenses could be overcome (1963:17). These included climbing over the walls, breaching the gate or undermining its walls, tunneling under the

defenses to enter the town from below, or employing a ruse in order to enter the town in disguise. Historical evidence from the classical period demonstrates that successful penetration of the town wall's line during a siege by scaling, undermining, breaching, and/or a ruse almost always guaranteed the victory of the attacking force, since the town's defenders relied entirely upon these fortifications, which constituted the most important element of their defensive efforts. Such success was assured during a siege by means of the concomitant pursuit of several of the tactics mentioned above at different points around the town's defenses in order to wear down the town's defenders and prevent them from concentrating their efforts against a single approach. This is evident in the following Mari text: "As soon as I had approached the town of [Qīrḥadat], I set up a tower and made its wall fall down by tunneling, and in eight days I captured the town of Qīrdaḥat [*sic*]." (ARM I 135:4–13, translation by Dalley 1984:146). In this case both siege towers and tunnels were used, and we may assume that siege ladders, though rarely mentioned, were also employed.

a. Escalade: Siege Ladders

Scaling ladders were an effective means of mounting a town's walls, despite the stiff resistance which attackers would have faced. Once the attacking soldiers were atop the wall they were in an advantageous position, owing to their elevated location, from which to overpower the town's remaining defenders. The greatest disadvantage of this approach was that it was also accompanied by the greatest number of casualties for the attacking force.

Ladders must have been specially produced in different lengths to attack various locations around a town. They were probably part of an army's equipment, borne on carts or boats to the site of the siege, because in many places in the Near East it was impossible to obtain timbers of sufficient length to build ladders long enough to mount even the lowest walls. Although we can make plausible inferences of this sort concerning scaling

ladders and their uses in siege, it is not surprising that there is no direct evidence of them preserved in the Levant, in view of the perishable materials from which they were made.

Our only direct evidence for the use of the scaling ladder comes from Egypt. One example from a tomb at Deshashe (Dynasty V) shows a ladder being moved into position to scale the wall of an Asiatic town. This town is shown as a stylized oval enclosure, as if it were an aerial view of the town (Yadin 1963:146). In another example, on a wall painting from the tomb of Kaemheset at Saqqara (Dynasty VI), a ladder with wheels at the bottom is depicted being used by soldiers to scale the wall of a town and tear it down with axes (for an interpretation of its use see Yadin 1963:147). It is likely, however, that the relatively steep slopes of the ramparts around many MB settlements in the Levant and northern Mesopotamia made it difficult to use ladders with wheels, if not also regular ladders.

b. Breaching, Tunneling, and Sapping: *pilšum*

Reliefs from an Old Kingdom Egyptian tomb belonging to Iny at Deshashe appear to illustrate the act of breaking through a town wall. Two individuals are depicted in this scene using crowbar-like implements on the corner of a schematically portrayed fortress as a ladder is raised against the wall behind them (see Schulman 1964:15). This third millennium B.C. depiction is probably typical of the most basic means of penetrating a fortified wall during most periods in antiquity, if the defenders were sufficiently contained or distracted. But such attempts would have usually faced stiff resistance and quite frequently would have been impossible to execute successfully.

When using ladders to scale the town's defenses proved ineffective and simply breaking through the wall at ground level was impossible besiegers could also attempt to undermine a wall by digging tunnels. This was done in the hopes that the wall would collapse into the cavity created by the tunnel (Sasson 1969:184). Such breaches may be described by the Old Babylonian term *pilšum* (*AHW* II, pp. 863f.), which occurs in the

Mari texts and refers either to an above-ground breach in a town's wall or to a tunnel used for undermining the wall or entering the town.³⁰ Unfortunately, there is still no clear MB archaeological evidence of tunnels used by besiegers to sap a town's walls, which is due primarily to limited exploration of town defenses. I am not convinced that the so-called "sappers' tunnel" identified at Lachish should be identified as such, and there is no evidence that this feature was excavated before the Iron Age (on its date see S. Yeivin 1951).³¹ Other MB tunnels identified at Hazor and Tell el-'Ajjul, though located in different locations relative to the defenses, pose similar difficulties with regards to identifying their function.

Lawrence Stager has suggested, however, that the fosses built outside the ramparts of MB Levantine towns like Ashkelon—and the great thickness of the earthen ramparts themselves—were intended to prevent sappers or tunnelers from easily reaching the wall. He describes the work of sappers as follows:

While the city was under siege, a team of excavators from the attacking army would begin their tunnel at some distance from the fortification line they wished to undermine. Their object was to cause the fortifications to collapse or to sneak beneath them and then to surface inside the city, usually at night, to launch a surprise attack. It might take days, even weeks, for the "moles" to reach their objective. Once under the fortifications they might widen the tunnel in order to collapse the defense works above, or if that failed, to stoke the widened tunnel with combustibles, which would then be burned in order to precipitate collapse, while assault troops penetrated the breach above ground (Stager 1991b).

³⁰See ARM I 135:9, I 118:12, and III 37:17, as well as discussion by E. Salonen (1965:36f.).

³¹For a photo of the tunnel see pl. 6 in *Lachish IV* (Tufnell 1958); for the course of the tunnel see pl. 90 in the same volume. I believe that its identification as a "sappers' tunnel" is dubious in whatever period it may have been excavated because the tunnel parallels the course of the defenses for more than 20 m and never makes any attempt to turn beneath the wall's line. Unless it can be conclusively demonstrated why such a strategy might have been pursued, this identification cannot be accepted.

Stager argues that the amount of earth that needed to be moved by the attackers because of the rampart would have given more time to the defenders to “spot the sappers and trap them or smoke them out” (ibid.).

Despite this argument which is inspired by accounts from the classical period, the geometry of MB ramparts does not, in my opinion, support this conclusion. For ramparts with an average slope of 30° let us assume that, despite the length of tunnel required to reach the wall, a 2 m pit would be required initially to begin the tunnel. For a rampart of the largest known size, for example, for which the foot was 50 m away from line of fortification (along the horizontal axis), if a tunnel was dug parallel to the rampart’s slope (i.e., along the longest line between the tunnel’s entrance and the wall’s foundation) directly towards the line of fortification, the length of the tunnel would have been 55 m plus the additional 2 m to start the tunnel. The distance would be, in fact, only 5 m more than if the same tunnel had been dug towards a wall built on level ground from a distance of 50 m. This is only an increase of 10% in the time required to accomplish the same ends on level ground, a matter of a couple of days at most—and this difference continues to decrease for ramparts of the same size when the tunnel’s slope is reduced or if the tunnel is begun on the slope of the rampart rather than at its base. Furthermore, for ramparts averaging 30 m wide the difference required for the length of the tunnel would have been almost entirely limited to the initial 2 m which were required to start the tunnel. These figures are, of course, a maximal estimate of the effort required by the attacking force to dig tunnels, and I think that they demonstrate that ramparts did not buy defenders significant amounts of time or strategic advantage against tunneling efforts.

Several other factors also argue against the value of the rampart and fosse in thwarting efforts to sap walls. To begin with the size of the rampart was irrelevant to the sappers’ efforts. This is true because the nature of the sappers’ work and their strategy were not dictated by a rampart’s size. As I argued above, if sappers could begin a tunnel

on a 30° slope 30 m away from the wall, then under the same circumstances we have no reason to believe that they would have begun any further from the wall on a larger rampart (e.g., 50 m wide) with a similar slope. Upon the slopes of the rampart the greatest threat to the attacking force would have been from arrows and missiles fired from the wall. And realizing that at 50 m the composite bow—not to mention the sling—would have been within its most effective range, the difference between the threat posed by these weapons between 30 and 50 m would have been negligible to the initial efforts required of the sappers. This is also supported by the realization that sappers could be protected with large shields, like those discussed above (see Figure 3 above). While such shields, no doubt, had an optimal range at and outside of which they could effectively protect soldiers, efforts could have been made to improve their effectiveness especially for the short period at the start of sapping efforts when they were most needed. Furthermore, devices of varied design could be put in place to protect the workers (see suggestion, for example, by *Aineias the Tactician* 37.8f.). Though scouting parties could be sent out by the defenders to thwart these efforts, it must be remembered that to do so always jeopardized the town's security by requiring a gate to be opened—an action discouraged during a siege (see *Aineias* 28.1–7, 38.8). Finally, in a number of instances, as the next chapter demonstrates, it would appear that ramparts once constructed were only as dense but, more likely, even less dense than the soil and surface of the surrounding landscape, therefore they would actually have made digging easier.

The greatest obstacle, therefore, to the success of those digging tunnels was, not the defenders on the walls but instead the composition of the rampart, which dictated the rate at which operations were conducted and whether or not a tunnel would collapse upon those digging it. On this account, it may be stated that the soil matrices of ramparts were usually less difficult to dig through than the geological deposits of the surrounding plain. On the open plain the degree of compaction of the geological layers would have been

greater than that of the earth and other materials used as fills in ramparts. Moreover, some ramparts were even constructed of sand. If the rampart is understood as a means of deterring sappers, then the use of the rampart in the mountainous highlands of the Levant would have actually facilitated the sappers' efforts by allowing them to dig through earth rather than chisel away at bedrock as they approached the wall. But here, even if they successfully dug through the earth of the rampart, they would still have encountered a cyclopean wall (e.g., Shechem and Shiloh).

In short the strategic value of the rampart and fosse was its presentation of an obstacle to movement on the horizontal plane. These features were obstacles to those devices which required muscle power to be brought into position against the wall. Specifically, this meant that the rampart hindered the approach of soldiers laden with armor bearing battering rams, ladders, or pushing siege towers. But of these three general threats the most likely reason for the construction of ramparts was, not doubt, the introduction of siege towers. While battering rams and ladders could be moved up the slopes leading to the various gates of a site and the adjacent walls if necessary, the siege tower was not a mobile feature which could be advanced once constructed and was not easily adapted to uneven ground. These towers instead, probably served as fixed firing platforms which were built on relatively level ground and were located as close as possible to the town walls in order to provide covering fire for breaching and scaling operations. The fosse, furthermore, enhanced the ramparts' effectiveness by limiting the range within which the siege tower could be brought against the wall. Therefore, in my opinion, the fosse and rampart served first and foremost against the siege tower, and only incidentally did it complicate the efforts of attackers to move either ladders or battering rams up to the town wall.

Another common siege technique involved earth moving for the purpose of building a siege ramp up to a wall. This technique is also attested in a Mari text:

The town of Nilimmar that Išme-Dagan besieged Išme-Dagan seized. As long as the earth(en ramp) did not reach the height of the top of the city (wall) he could not conquer the town, he could not seize (it). But when the earth(en ramp) reached the height of the top of the city (wall) he conquered this (city).

ARM I 4:5–16 (translation of lines 9–11 from *CAD* 4, p. 188)

The goal was to build a gently sloping ramp up which a siege tower or battering ram could be moved. While such efforts were sometimes successful, they may often have been countered by similar earthworks constructed by the town's defenders against the interior face of the town wall which were intended to buttress the area which was about to be battered by these devices.

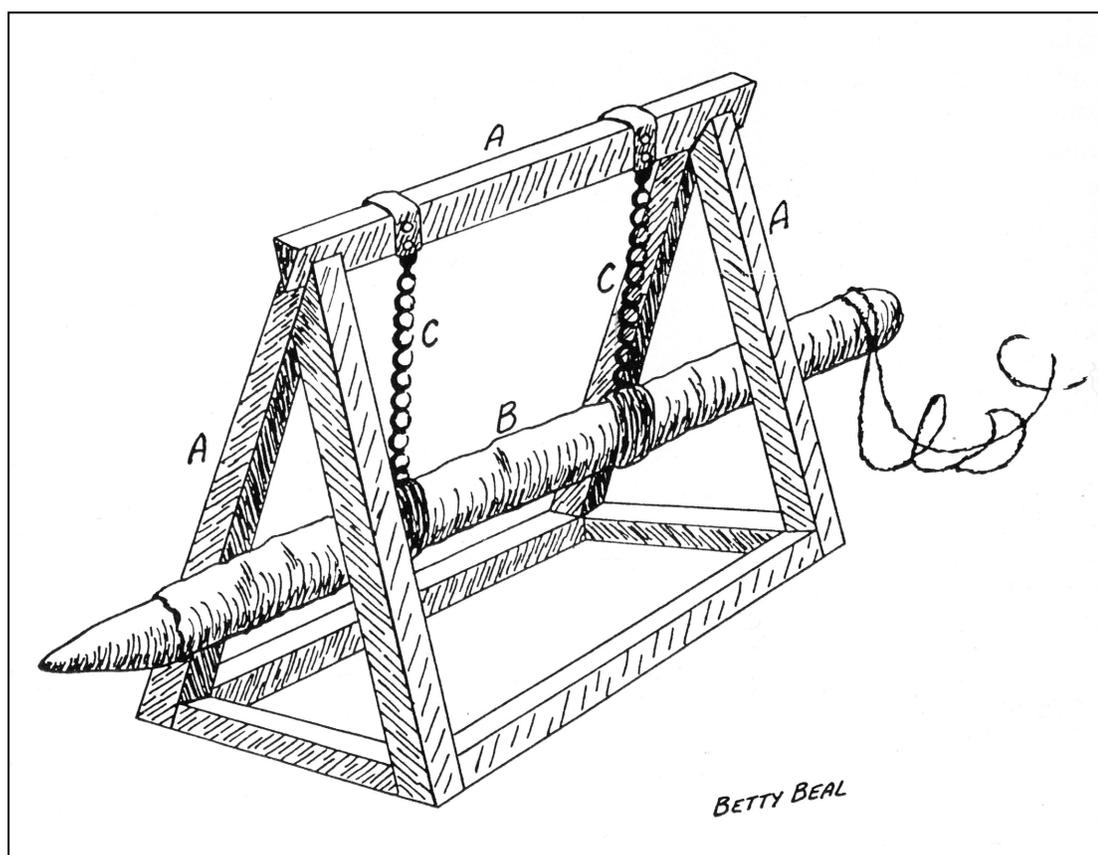
c. Breaking-Through: The Battering Ram and the Siege Pole

Scaling ladders, tunnels, and earthen ramps were rather basic techniques of siege warfare which required considerable energy and time but probably remained unaltered from the third millennium B.C. until medieval times. Several new techniques, however, were invented between ca. 2400 to 2000 B.C. which were actually intended to improve the effectiveness of a besieging army. The first such device that is attested is the battering ram. Although the role played by the battering ram in later Neo-Assyrian conquests of the first millennium is well known, the importance of the battering ram during the late third and second millennia has been less widely acknowledged. In an important article concerning the battering ram Y. Yadin (1955b) cited textual evidence from the Mari texts to support his argument that the development of rampart fortifications during the MB was a direct response to the development of the battering ram. Although no physical evidence of battering rams or their accoutrements is known from between ca. 2400 and 1500 B.C., the Ebla texts confirm that the battering ram was in use near the beginning of this period. P. Steinkeller (1987) has noted that four references in the Ebla texts comprise the earliest evidence of the battering ram.³² These references include the logogram GUD.SI.DILI,

³²See *StEb* 3:9–10 (1980) fig. 27a vii 20–viii 6, and ix 3–12 in same figure; also *ARET* 4:2 viii 5–11, 4:13 rev. 13 vi 12–16.

which in Akkadian was translated literally as the “one-horned bull,” though the actual Eblaite word and its pronunciation remain unknown. Of these four references in the Ebla texts only one involves the use of the battering ram while the other three references refer to maintenance of the weapon. The Old Babylonian term for the battering ram, *(i)āšibumm* or *(i)āšubum* (*CAD* 1/2, pp. 428f.),³³ is attested in numerous texts from Mari (ARM I 131:12; II 7:12; V 2:13; VI 63:6; VII 16:2, 63:2, 69:3; XIII 146:16; XIV 45). Unfortunately, these references to the use of the ram are brief and give little insight into how the device actually functioned.

Figure 4. Reconstruction of a battering ram of the Neo-Assyrian period. Reprinted, by permission, from J. A. Scurlock (1989:131).



³³See also discussions by J.-R. Kupper *RA* 45 (1951), pp. 125f. and E. Salonen (1965:29–31).

A reconstruction of a Neo-Assyrian battering ram based on terminology taken from texts and comparative evidence from classical sources has been made by J. Scurlock (1989). This reconstruction is suggestive of how such rams may have functioned in the Levant during the EB IV and MB (Figure 4). It is thought that the device featured a beam or tree trunk that was hung from a frame by four chains and fitted with a metal point or “tooth” which served as the ram’s head.

In Egypt during the Middle Kingdom the battering ram appears to have taken a slightly different form. As illustrated in Tomb no. 2 at Beni Hasan, dated ca. 1925 B.C., three Egyptian soldiers are shown wielding a long, skinny pole against a fortification wall (see Newberry 1893:pl. 14). This device appears to have functioned to pick apart the bricks of the fortification rather than to batter them. It seems inappropriate, therefore, to refer to this instrument as a battering ram. Instead, it should perhaps be referred to as a “siege pole”.

Although later, particularly Greek, versions of the battering ram featured some type of protection for those maneuvering the ram, it is possible that individuals were only protected by large shields such as those depicted in a third millennium illustration from Mari (Figure 3 above). On the other hand, Egyptian reliefs illustrate a covering over the men using the siege pole. This covering is often referred to as a *mantelet*, the French word for canopy. It is impossible to infer from these depictions what materials were used to construct these canopies, but it must have been sufficiently thick to stop arrows and other projectiles.

d. The Siege Tower

In addition to the battering ram, textual sources also refer to siege towers among the devices employed in siege warfare during the MB. These are described using the Old Babylonian term ^{GIŠ}*dimtum* (CAD 3, pp. 144ff.) which also occurs in numerous Mari texts

(ARM I 131:10ff., II 7:8ff., XIII 146:15ff.).³⁴ Unfortunately, the lack of detail in these references and the complete absence of iconographic or archaeological evidence of these towers make it impossible to reconstruct their appearance and precise function. We can only note from these texts that such towers were often built off-site and delivered to the town by means of wagons or boats, as in the following Mari text: “My lord wrote to me about sending downstream to Mari some ropes to go around siege towers and a battering ram.” (ARM XIV 45:5–7, translation by S. Dalley 1984:145).

Although siege towers could have functioned as large, protected ladders by which a town’s walls could be scaled, the presence of a fosse and sloping rampart in MB fortifications was probably designed to prevent this, as mentioned above. For this reason, siege towers may have functioned more often as freestanding firing platforms at the foot of the rampart, from which archers could provide suppressing fire to protect sapping, tunneling, breaching, or scaling operations. If a siege tower was tall enough, archers of the besieging force could fire down upon soldiers on the battlements or within the town. As Figure 1 demonstrates, the height required for a siege tower to be used in this way against even the most formidable of MB defenses, such as those found at Qatna, would have been about 30 m. Even if such a tower could not have been pushed up the rampart towards the walls, its military value can be readily understood since archers armed with composite bows would have been as little as 30 to 50 m away from the town wall.

³⁴See also discussion by Sasson (1969:33 and n. 182) and Salonen (1965:26f.).

3. *CLOSE-RANGE WARFARE IN BRONZE AGE TOWNS*

While it is likely that following a successful breach of a town's wall trained soldiers and their civilian kinsmen would have used almost every possible means to protect themselves and their town, including maces, clubs, staffs, rocks, and even millstones,³⁵ the most effective armed resistance would have involved close-range and hand-to-hand combat using spears or lances, axes, and daggers.

a. **The Spear and the Lance**

If a town's defenders were fortunate enough to retain a little distance between themselves and their attackers, the first weapon to be used, aside from the bow, would

³⁵ Although by the third millennium the ax had replaced the mace as the leading weapon for hand-to-hand combat, the mace continued in use as a ceremonial weapon through the second millennium in the Levant (the same phenomenon is also evident in Mesopotamia, Gibson 1964:8–13). In addition to the Egyptian evidence of this, a MB (Mardikh IIIB) ceremonial mace made of ivory, silver, and stone was discovered in the “Tombeau des citernes” at Ebla in the northern Levant (see Matthiae 1980a: fig. 6). Despite such ceremonial uses, finds such as a macehead mold from Tel Dan in the southern Levant (Minoff 1992) dated to the late MB or early LB also suggest that such weapons were produced in more than “one-off” or ceremonial quantities. Minoff has argued that the stone macehead mold found at Tel Dan (Area K L.6375.) and dated to ca. 1500 B.C. must have been used for repetitive casting. The very plain shape that this macehead exhibited when taken in conjunction with Minoff's suggestion makes it possible to speculate that maceheads produced at this time were intended for use by soldiers or garrisoned forces acting in the capacity of a police force. This interpretation is supported by an additional example of a piriform, limestone macehead found in the remains of Fortress M at Ebla (Mardikh IIIB, Matthiae 1980b:123). The discovery of a number of maceheads in private houses at Nippur during the LB may also indicate a similar purpose (Gibson 1964:14).

That the club was present during the end of the third millennium and early second millennium among Asiatics is evident from MK tomb reliefs of Beni Hasan (see esp. Tombs 2 and 3, Newberry 1893:pls. 16 and 30–31). The clubs depicted in these reliefs are wide on the striking end, narrow at the handle, and curved like a bow, similar to those featured among contemporary Egyptian soldiers in reliefs. In light of the introduction of the ax during the EB, it would seem that the club rarely, if ever, functioned as the sole, short-range weapon of the Levantine soldier. The three Asiatics depicted on the East Wall (south side) of Tomb 2 at Beni Hasan each bear another weapon in addition to the club; the front warrior bears both the eye ax and the club, while the two soldiers after him bear clubs and spears (Newberry 1893:pl. 16). It would seem that the desired complement of weapons for the average soldier included weapons of varying ranges, such as the spear and the club. This appears to be the case in the early second millennium as attested in warrior burials where most individuals were usually buried with both a duckbill ax and a spear (see Garfinkel 2001:Table 8.3).

have been the lance or spear.³⁶ The spear was clearly an important weapon in Mesopotamian armies until the end of the third millennium, as the textual, iconographic, and archaeological sources indicate. The depiction of the troops of Lagaš armed with spears in what appear to have been a close phalanx-type formation demonstrates the use of the spear in open battle during this period (see Yadin 1963:134f.). Whether such battle tactics were common among EB or MB armies in the Levant is not certain, the spear does, nevertheless, appear in the archaeological assemblage of the Levant in both periods. While the evidence for the use of spears in the MB is complicated by the difficulty of identifying them in the archaeological assemblage, there is little basis for believing that the spear was completely absent from the arsenal of the Bronze Age warrior during any

³⁶The spear, as used in hand-to-hand combat, would have been intended to give the soldier the advantage of striking the enemy first, from a distance, before addressing him, if necessary, in hand-to-hand combat. In discussing the identification and applications of the spear in the Bronze Age arsenal it is important to establish the criteria for distinguishing the spear from the javelin. The term spear should be limited to applications where the weapon served primarily as a thrusting weapon which was retained by its user, although the spear can also, if necessary, be thrown short distances with effect. However, this is in contrast to the javelin which was designed specifically for the purpose of being thrown. Given the two primary applications for what appear to have been nearly identical weapons, it must be realized that the specifications for the construction of each of these two types of weapons would have varied due to the stresses involved in their use. In this case, clearly the greater impact stress was upon the javelin which, if it was to be reused would have needed to survive an impact upon the target or against a harder surface. In an ideal situation, therefore, the javelin's head would be constructed of the strongest possible metal with the most secure means of attaching it to the shaft. During the Bronze Age the limited availability of metals meeting these requirements obviously limited the options and, therefore, modifications in the design using bronze were crucial to successful attempts to fashion a weapon to be used as a javelin. Despite my attempt to assert that functionally unique characteristics should be distinguishable between javelins and spears in antiquity, distinguishing between the two today is difficult, if not impossible.

part of the late MB or LB, as has been suggested by both G. Philip and J. Tubb.³⁷ It is quite possible that the dearth of evidence for the spear during the latter part of the MB (MB II/IIB–C) is the result of the declining prestige associated with its use.³⁸ As “warrior

³⁷ Although I disagree with Philip’s identification of “small spearheads” in light of the complete absence of any artifact which he would identify as an arrowhead (see n. 38), his treatment of Early and Middle Bronze Age spearheads remains the best analysis of the artifactual evidence for these weapons available (Philip 1989:69–101). He concludes that during the EB it is evident from certain types of spearheads that the metalwork involved in their production was more advanced in the northern Levant where molds were used for their casting, as compared to the southern Levant where spearheads were hammer finished (*ibid.*, 73). For the EB IV in the southern Levant Philip’s study suggests that spearhead types were regionally distinctive (like the ceramic assemblages of the period), developing perhaps from a single narrow spearhead type (*ibid.*, 77). By the end of the third millennium tanged spearheads are replaced by socketed types, with most examples in the southern Levant dated to the MB I (IIA) (*ibid.*, 88ff.). Although Philip has observed that the smaller spearheads, some of which I suggest must have been arrowheads, were more common to the southern Levant than in the north during MB I (IIA), it is uncertain that there exists sufficient basis to support the assertion that spearheads entirely disappear from Palestine during MB II (IIB–C) (*contra* Tubb 1985:193–194). Philip concludes that the disappearance of small spearheads from southern Levantine tombs during the MB II (IIB–C) meant that there was “no direct replacement for the javelin...in Palestine” at that time (*ibid.*, 99). At best, reliable phasing of spearhead types 7 and 9 (“small spearheads”) from burials at Ginosar and Tell ed-Dab’a stratum F (see catalog nos. 212, 289–292, and 307 in Philip 1989:p. 364 and pp. 369–372), both dated to the final phase of MB I (IIA) by Cohen (2002a), suggests a transitional MB I–II (IIA–B) date for some of these points. A few from Gibeon and Barqai seem to date to phase 2 of the MB I (IIA). Given the result of Philip’s reconstruction, where neither javelins, spears, nor arrows are attested in the archaeological record of the MB II (IIB–C), it seems more likely that we can only be certain that none of these items were any longer included in traditional “warrior” burials during the later half of the MB, but why this is so remains unknown.

³⁸ Distinguishing weapon points along a continuum of size alone is very problematic. G. Philip, for example, was led to assume that even the smallest MB I (IIA) points a few centimeters in length and about 1 cm wide were socketed spearheads rather than arrowheads (see for example, types 7 and 9 of small socketed spearheads 1989:94, e.g. fig. 24). But Philip’s neglect of thirty-one arrowheads from the Kefar Monash hoard as part of his study is problematic (see photo in Bar-Yosef, et al. 1993). These are clearly distinguished from the four daggers and four spearheads in the assemblage (*ibid.*, 613). I cannot, therefore, accept Philip’s assertion that the spearheads depicted in the Beni Hasan reliefs are examples of the small spearheads he has identified (p. 99); the absence of reliable scale in these depictions is too significant.

Philip has also defended his identification of small spearheads by positing that the points in his catalogue were “unlikely to be arrowheads, as it seems futile to go to the trouble of making socketed fastenings for an essentially disposable weapon, and the values for diameter of socket would require a haft of larger diameter than that desirable for arrows, a maximum of around 8 mm” (*ibid.*). While this hypothesis may appear suitable for his ends, it should be called into question, since there are then no Early or Middle Bronze Age artifacts that he can identify as arrowheads (pp. 144–148). By suggesting that they represent the “heads of thrown weapons” (p. 94) he has also overlooked the basic fact that because they were so small the weight of the head itself when attached to a wooden shaft would have been insufficient to properly balance the weapon lacking head weight. Philip’s argument concerning disposability is also incorrect, because if such a large shafted weapon with a small point is to be identified as a javelin head (or even possibly a spearhead), the result of such a weapon missing its target would surely have meant that the head would have cracked on impact rendering it useless and requiring that it be melted down. Furthermore, there is no basis for positing that arrowheads, themselves, were considered disposable weapons, otherwise we should find more of them on battlefields and in ruined cities in the ancient world.

burials” evolved during the later part of the MB, the status of elite professional warrior may no longer have been associated with the spear, ax, and dagger, but instead became identified with the composite bow and chariot. Spears may have become so ubiquitous that they were no longer symbols of a privileged warrior class and thus are not preserved in tomb assemblages but had become like the mace, a mainstay of ordinary garrison troops stationed within towns and villages.³⁹

b. The Ax and the Dagger

If a siege had advanced to the point where a town’s inhabitants engaged in hand-to-hand combat in an attempt to repel the attackers, weapons such as the ax and the dagger would have played the most important role. As Postgate observes, the weapons borne by the soldiers depicted on the southern Mesopotamian “Stele of the Vultures” (ca. 2450 B.C.) included axes, adzes, and spears (1992:248f.). Given the frequency of the battle ax among “warrior burials” of the EB IV and the MB, much could be said concerning its role. But since neither the ax nor the dagger played a major role in siege warfare per se, neither merits extensive discussion here.

It is worth noting, however, that the development of the ax (and the adze) as weapons apparently resulted from the adaptation to warfare of common tools (see de Sarzec 1894–1912:pls. 3a and 4c). This underscores the fact that many implements could have been used as weapons, although the frequency with which a given type of object was used is difficult to assess. On the basis of the available skeletal evidence, the ax has been identified as the culprit in the maiming and probable death of only one individual, the Egyptian Seqenenre Tao II (ca. 1550 B.C.). In view of the fact that hand-to-hand

³⁹While most examples of MB spearheads come from tomb contexts, at least one spearhead find which also supports its use by garrison troops is worth noting. A bronze spearhead dated to the MB II (IIB–C) and inscribed in cuneiform with an individual’s name was found in Fortress M (Matthiae 1980b:123; see figs. 159–160 in Matthiae 1995a), one of the main defensive complexes built along the MB wall by the southeast gate of the city of Ebla. Its inscription may be compared with an inscribed MB II (IIB–C) dagger found at Lachish. Such a practice foreshadows the inscribing of arrowheads in the LB and Iron I.

combat was the last phase in a siege and many sieges perhaps did not reach this stage before a town capitulated, it is possible that far fewer casualties were caused by the ax, dagger, or sword than by projectiles such as arrows (see the discussion of the skeletal evidence below).

4. EARLY ASYMMETRICAL WARFARE: THE EMPLOYMENT OF THE RUSE

If incurring the fewest casualties was considered important during a siege then a fourth means of conquering a town might come into play: the ruse. We are all familiar with the Greek story of the Trojan horse, but the Egyptian account of “The Taking of Joppa” (*ANET*, pp. 22f.) is less well known. This story, which is ascribed to the reign of Thutmose III in the fifteenth century B.C., describes the taking of the port town of Joppa on the southern Levantine coast. Egyptian soldiers were hidden in baskets that purportedly contained supplies for the town. Although there is reason to believe that this piece of literature is unhistorical and does not refer to an actual capture of Joppa, it does indicate that the ruse was known as a means of capturing a besieged town, even though their chances of success must have been slim in many cases.

D. THE MORTUARY EVIDENCE FOR SIEGE WARFARE

Ancient warfare is often discussed via descriptions of weapons, as I have done above, categorizing weapons according to their tactical use, range, power, and mobility. While this approach is important, in the absence of detailed historical documentation it is important to distinguish between symbolic weapons and those that were actually used. Some types of weapons which are present in archaeological assemblages and iconographic representations may not have been used much in actual warfare during the period in question. This is demonstrated by the recurrence of iconographic motifs which originated in the distant past but were retained for symbolic purposes; for example, the motif of the Egyptian pharaoh smiting enemies with a mace. Moreover, it is desirable to clarify the precise mode of use of the weapons that were actually employed. Human

remains from mortuary contexts can help us on both counts. Physical evidence of wounds indicates the frequency with which various types of weapons were actually employed to bloody effect, as well as indicating how they were wielded. The main disadvantage of this approach is the small size of the excavated sample—a problem not unfamiliar to archaeologists. But mortuary evidence from the Levant and neighboring regions can, nonetheless, provide considerable insight into the mechanics of warfare in the MB.

One of the best-known examples of military casualties during this period is a collection of corpses from Egypt dated to the end of the Eleventh Dynasty (ca. 1950 B.C.). Fifty-nine mummified Egyptian soldiers found in a communal tomb near Deir el-Bahri have been identified by H. E. Winlock as troops of Nebhepetre Mentuhotep II (1945). Most of these soldiers sustained mortal wounds from arrows, many of which appear to have had ebony heads, although a few of the arrowheads were apparently of the blunt type (*ibid.*, 11, 13). On many of the soldiers the entry wounds indicate that the arrows had been fired from above, as if during a siege (p. 14). Four of the soldiers also appear to have been wounded in their skulls prior to their participation in a final battle, and three of these had suffered injuries to the left side of their heads, indicating that their attackers were right-handed (p. 9).

In addition to arrow wounds and head traumas inflicted by blunt objects, Winlock observed wounds on fourteen other soldiers that were probably inflicted by stones (if not sling projectiles), apparently hurled from above and to the front of them (pp. 14f.). It appears that a number of the soldiers were not immediately killed by arrow wounds but were finished off with blows to the head by blunt objects such as clubs or even maces (p. 18), although it is possible that these final wounds were inflicted by objects thrown or dropped upon them from the town wall. After death it appears that the soldiers' bodies had lain exposed for some time since flesh was missing on many of them. This led Winlock to suggest that they were "pecked at by carrion birds" (p. 11). He speculates that

these soldiers may have been involved in a siege on Herakleopolis under Mentuhotep II (p. 24).⁴⁰

One clear example from the Levant of an individual killed under similar conditions comes from Late Bronze Age Ugarit ca. 1300 B.C. (Jarry 1939). Archaeologists recovered a man between 18 and 30 years of age who had been killed by an arrow which pierced his chest from above and in front of him and became lodged in his spine on the inside of his chest cavity. The arrowhead was so deeply embedded that it was not possible to remove it. The angle of the entry wound indicates that the arrow was fired from a sharp angle above the victim, and the depth of penetration suggests that it was shot from close range, perhaps no more than 50 m. The depth of penetration of the arrow, which passed entirely through the man's chest cavity and became deeply lodged in his vertebrae, also suggests that the powerful bow from which the arrow was fired was of the composite type. Most likely, as with soldiers discussed above, this person was killed while participating in a siege and his body was brought back to Ugarit for burial.

Another example of a slain Egyptian from the end of the MB also demonstrates the effectiveness of the battle ax, a common weapon of this period, and the injuries that one could receive from it. The remains are those of the Theban king Seqenenre Tao II (Dynasty XVII), which were found at Deir el-Bahri and are dated to ca. 1550 B.C. (G. E. Smith 1912:1–6, pls. 1f.). This Second Intermediate Period Theban ruler was apparently killed by five blows to the head (no other wounds were found on the body). At least three of the blows are thought to have come from an Asiatic type of battle ax. He was presumably killed during an early attempt by the Thebans to expel the Hyksos from

⁴⁰ In a recent reappraisal of these burials Dorothea Arnold has suggested that these soldiers, many of whom probably did die during a siege, should instead be dated to the reign of Sesostris II in the Middle Kingdom (“Rethinking the Early Middle Kingdom at Thebes”, Second Theban Symposium in Baltimore, September 16, 2000). Publication of this reappraisal remains forthcoming. I would like to thank Stephen Harvey for calling this to my attention.

Lower Egypt. The other wounds to his head may have been caused by a spear or sword, and in one case probably by a club or the handle of an ax or spear (*ibid.*, 5f.).

To these casualties of war it is possible to add several others known from the burials of victims of warfare at sites in northern Mesopotamia and the Levant. At Tuttul (Tell Bi‘a) the remains of eighty individuals buried in a mass grave were discovered in layers of the central mound dated to the reign of Šamši-Adad I, ca. 1749–1717 B.C. (Strommenger 1991:13–15). The corpses were laid haphazardly in a single grave (*ibid.*, fig. 4) and it is possible to distinguish wounded soldiers from nonmilitary personnel. Similar evidence of carnage comes from the siege of Ebla in the northern Levant at the end of the MB. At this site a mass grave dating to between 1600 and 1525 B.C. was recently discovered on the outside slope of the rampart to the east of the Area EE fortress (Matthiae 2000:591, fig. 18). Six soldiers were buried in the grave. Roughly contemporary with these casualties were another seven “armed men” found slain in the guard chamber of the Level VII palace at Alalah (Woolley 1953:80). In the southern Levant the only Middle Bronze Age site that has produced similar evidence of persons slain in combat is Shechem (Tell el-Balatah). Here six skeletons, two of them fully articulated, were found on the inner steps of the East Gate among fallen bricks and the destruction debris dated to the end of the MB (Campbell 2002:137, 139).

This array of Bronze Age casualties of war, mostly derived from the MB, makes it possible to draw some important conclusions concerning warfare in this period. The first conclusion is that siege warfare was as frequent and as dangerous as we might suppose based on Egyptian reliefs of the period and textual references in the Mari texts. Although our sample size is quite small, the nature of the wounds inflicted on the corpses that we do have suggests that sieges and not pitched battles were responsible for most of the casualties incurred by armies in this period. The mortuary evidence also argues against the notion that MB ramparts lacked walls and were intended only as a form of

conspicuous consumption and social propaganda by local elites, as I shall discuss further in chapter five. From these casualties we can also determine the types of weapons employed in battle during the MB. These weapons included, not surprisingly, arrows of various weights and head-types fired from bows, piercing weapons such as daggers and spears, and hacking weapons such as the battle ax. Evidence of blunt trauma on skulls also suggests simple weapons such as the mace or club, which were used to finish off the wounded.

E. DEVELOPMENTS IN WARFARE FROM 2400 TO 1500 B.C.

Having completed our survey of the weapons and tactics of warfare during the late EB and MB, it is possible to offer some general conclusions about the development of warfare from 2400 to 1500 B.C. At first glance weapons and tactics might appear to have remained relatively static, centering on siege warfare and a limited arsenal. But subtle developments in military techniques did occur during this period that are worth noting. These changes can be traced by outlining the main developments in offensive and defensive weapons and in defensive architecture that occurred in this period (see Table 3 below).

As noted earlier, there is evidence that siege warfare had already come to dominate military engagements from Egypt to Mesopotamia during the first half of the third millennium. Although we lack textual sources for the Levant in this period, we can infer that similar conditions prevailed in that region because strongly fortified walled settlements are amply attested during the EB II–III (ca. 3100–2400/2300 B.C.), even if the density of settlement was lower and sieges less frequent than in Egypt or Mesopotamia. By all indications siege in this period was executed using early, unrefined versions of the same implements that would be gradually improved between 2400 and 1700 B.C. The most important of these improvements were the composite bow and the battering ram, which coupled with the introduction of the siege tower, would have greatly affected the

execution of siege warfare, just as the chariot improved warfare in the open field (see Figure 1). Although simple versions of the bow and the battering ram (or siege pole) were available prior to 2400 B.C., there is no evidence to suggest that either weapon in this period was very effective in siege operations against towns fortified with massive walls protected by well-armed defenders. The odds of surviving a siege in this period were, therefore, probably quite favorable.

Although we have no direct evidence, it is a plausible inference that the ability of defenders to resist a besieging army in this period was an impetus for the development of more effective offensive weapons by aggressive military powers such as the Akkadians. The gradual replacement of the simple bow with the more powerful composite bow and of the siege pole with the larger battering ram meant that besieged defenders were faced with a new set of challenges. While defenders could adopt the composite bow in order to match the range and firepower of their attackers, no comparable countermeasures existed against the battering ram. If a battering ram could be deployed and kept in place to do its work, a breach would eventually be made regardless of the thickness of the wall. The battering ram's only weakness was the mortality of the men who employed it. Here the aggressors had another advantage, namely, that the defender's firepower would have been concentrated at close range on those operating the battering ram, distracting them from other targets. Meanwhile, the attackers could themselves harass the defenders with volleys from a distance, especially from siege towers which served as elevated platforms from which suppressing fire could be provided for their comrades. Such a scenario must have been replayed many times during the MB.

Although we cannot be certain that siege towers were used in this way during the EB, the Mari texts indicate that by the MB siege towers were commonly deployed alongside battering rams. For this reason, there was a strong incentive to engineer ever more massive fortifications which would inhibit both battering rams and siege towers,

and their coordinated use by besieging armies. As we shall see in the next chapter, this required major modifications in the design of town defenses—architectural modifications which came to be widely adopted in the Levant by the beginning of the second millennium B.C.

Table 3. Major developments in warfare from ca. 2400 to 1500 B.C.

Period	Developments
Pre-EB IV before 2400 B.C.	<ul style="list-style-type: none"> • Simple bow in common use • Variations of slower, equid-drawn battle car in use • Lance bearing infantrymen common • Siege pole used to pick apart walls in Egypt (and Mesopotamia?)
EB IVA ca. 2400–2200 B.C.	<ul style="list-style-type: none"> • Composite bow introduced • True battering ram introduced (Sum GUD.SI.DILI)
EB IVB (MB I) ca. 2200–1950/25 B.C.	<ul style="list-style-type: none"> • Burials featuring fenestrated ax, daggers, and spears common in Levant
MB I (IIA) ca. 1950/25–1700 B.C.	<ul style="list-style-type: none"> • Small-scale introduction of light, two-wheeled chariot in northern Levant and Mesopotamia • Burials in Levant evolve: common inclusion of “duck-bill” axes, daggers, and spears suggest a “warrior” class • Limited evidence of poor quality, socketed arrowheads in tombs in the S. Levant (previously identified as spearheads) • Socketed spearhead type more common than tanged variety • Attestation of siege towers (OB <i>dimtum</i>) in Mesopotamia • Introduction of early rampart fortifications in S. Levant
MB II (IIB–C) ca. 1700–1525 B.C.	<ul style="list-style-type: none"> • “Warrior burials” shift to equid burials in S. Levant suggesting chariot was present • Arrowheads are identifiably more common in the S. Levant • More evidence of war chariot in Mesopotamia and Egypt • Layouts of fortified sites with ramparts experience modification throughout Levant
LB I ca. 1525 B.C. onwards	<ul style="list-style-type: none"> • Complete adoption of war chariot in Egypt, Levant, and Mesopotamia for pitched battles • Siege warfare continues as open battles are now attested

CHAPTER THREE:
DEFENSIVE ARCHITECTURE IN THE LEVANT DURING THE MIDDLE BRONZE AGE

Qui desiderat pacem, praeparet bellum
(Let him who desires peace, prepare for war.)
Flavius Vegetius Renatus

Although many of the main elements of MB defenses in the Levant such as ramparts (Pennells 1983), gates (Gregori 1986; Herzog 1986; G. R. H. Wright 1984), and fosses (Oredsson 2000) have been well documented in publications of archaeological excavations over the last century in addition to overviews of MB fortifications (G. R. H. Wright 1985a; Kempinski 1992c; Fritz 1995:27ff.), no single work has yet sought to comprehensively describe each of these elements in relation to their functions in light of a thorough understanding of MB warfare. In the absence of such treatments many basic questions remain regarding the construction of these features and how they might have functioned. What elements, for example, are ubiquitous to fortifications during the MB? When do the various elements develop and how do they relate to the technological developments in weaponry described in the preceding chapter? Is it possible to suggest that particular brick sizes or site types were confined to certain regions in the MB? Are particular construction techniques or styles limited to certain regions or political entities?

While it has often been the case that Middle Bronze Age sites have been characterized by the presence of particular fortification types, as, for example, “ramparted” settlements (or “fortified camps”), the use of this criterion in this manner has led to misconceptions about defensive strategies during this period. As I have noted in chapter one there are inherent problems with site typologies which assume that the

identification of a rampart around part of a settlement justifies its inclusion in a category of “ramparted” settlements (see especially comments on Herzog’s typology in chapter 1, section D.6). Such an approach obscures the fact that so-called “ramparted” settlements were not necessarily surrounded on all sides by a single continuous rampart of one particular type. While sites such as Qatna, Timnah, Sefinat-Nouh, and others may provide examples of this type of settlement, which were completely surrounded by a single type of defense, conditions at many sites prohibited the use of only a single fortification strategy. Therefore, a combination of defensive strategies may have been necessary to adapt the site’s defenses to the local conditions, areas of occupation, or uneven topography around the site.

For this reason the presence of ramparts or any other single feature, such as a glacis, cannot serve as the basis for the establishment of a site typology, since this may erroneously imply that these features were homogeneous and continuous around an entire site. Prior to attempting to create such a typology, it is necessary to establish a typology of MB defensive elements that can first account for the historical development of each feature and its regional distribution. In the subsequent discussion of ramparts, for example, it is therefore assumed that a single rampart constitutes a continuous built feature of uniform dimensions (i.e., height and width) without any breaks in its length such as, for example, for the placement of a gate. Likewise, while a glacis may have been discovered along one slope of a settlement, it cannot necessarily be assumed that it would also have existed or would have featured a similar construction on other slopes around the site. With this observation in mind it is also important to note that issues of preservation, as of mudbrick fortification walls, must also be taken into consideration when determining the extent of particular fortification features. If, therefore, it is possible to provide a reasonable explanation for the absence of evidence for a particular feature,

such as a wall, then an exception can be made concerning the use of this feature for establishing a typology of fortifications.

In this chapter, therefore, an attempt has been made to advance a typology of the fundamental features which were included in MB fortifications. The focus is, therefore, upon components such as walls, gates, towers, bastions, ramparts, glacis, revetments, and fosses, which have been frequently identified in the archaeological record. Each feature is examined with specific attention to its typology, construction, comparanda, purpose or function, and geographic origin. The basic elements of their construction, their average dimensions, the period during which they were constructed and functioned, as well as the specific roles which they fulfilled are also discussed, as are the materials used in their construction. Finally, a chronological typology of fortified sites in the Levant is offered for the EB IV through the MB II (IIB–C) based upon the functional use of these architectural features. Because the conclusions provided in this chapter are drawn from the catalogue of fortified MB settlements, both published and unpublished, which has been provided in this work (see Appendices A and B), direct citations of reports have usually been omitted in this chapter. The reader will find, instead, that sites with the best examples of the features discussed have been listed in parentheses. Discussion of Akkadian terms for these features can be found in various sections in chapter five.

A. THE ARCHITECTURAL ELEMENTS OF MB FORTIFICATIONS

1. EARTHEN RAMPARTS

Ramparts have been recognized as the most unique element of MB fortifications in the Levant since archaeological exploration of the Levant began (see chapter one, section D). But the interchangeable use of the terms *rampart* and *glacis*—which were originally borrowed from French terms for Medieval fortifications by scholars over the years—has obscured the importance of distinguishing between these two functionally unique techniques for defending settlements against both aggressors and the natural

elements. However, the clearest definition of a rampart thus far provided can be found in the glossary for *The Architecture of Ancient Israel* (Reich and Katzenstein 1992), and for this reason I have adopted it in the following discussion.¹ R. Reich and H. Katzenstein have summarized the consensus that has emerged among Levantine archaeologists by defining the *rampart* as an “earthen mound piled up around a city as a fortification or part of it...typical of the Middle Bronze Age II [i.e., IIA–C]” (ibid., 319). They define the *glacis*, however, as the “outer facing of [an] earthen rampart which serves as a fortification of the lower slope of a mound (tell), or the lower outer-sloping foot of the city-wall. Constructed of different materials such as: beaten earth, lime plaster, bricks, stones, etc.” (ibid., 316).² Unfortunately, although their definition of rampart agrees with the data reviewed below, referring to the glacis as “the lower outer-sloping foot of the city-wall” does not serve to adequately distinguish these two morphologically and functionally unique features.

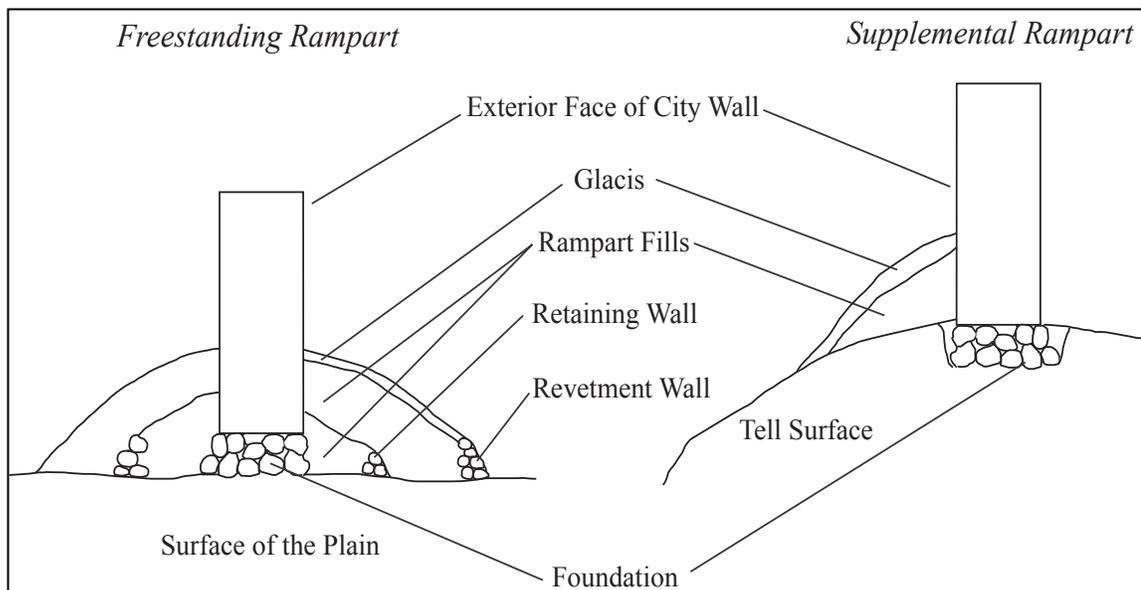
The distinction between these features is, simply, that a rampart is an embankment built in order to actually impede the advance of an enemy approaching the fortification wall by adding elevation to the wall, while a glacis (see further discussion below) is merely a surface treatment for the slope before the wall which was intended primarily to protect it from erosion. If the glacis actually impeded the enemy this was mostly an unintended advantage. Additionally, the definition of a rampart should emphasize that earthen ramparts were not limited to the MB, since they were already

¹Oddly enough Aharon Kempinski’s (1992c) own contribution on *Middle and Late Bronze Age Fortifications* in the same volume still confuses the distinction between the terms *glacis* and *rampart* which Reich and Katzenstein have drawn. Kempinski, for example, defines a glacis as “a sloping, external retaining wall” that “protects the base of the city-wall by keeping besiegers away” (ibid., 129) and he then identified the glacis at Tel Gerisa as a rampart (ibid., fig. 6).

²These definitions also find support in the work of G. R. H. Wright on *Ancient Building in South Syria and Palestine* (1985a:183f.), even though he did not explicitly define these terms.

being erected during the third millennium in the northern Levant and northwestern Mesopotamia. Two main types of ramparts can be identified based upon their morphology as the freestanding rampart and the supplemental rampart.

Figure 5. Rampart types (freestanding v. supplemental) and their components. Note that the construction of supplemental ramparts did not as often require the construction of retaining walls within the rampart.



a. Freestanding ramparts

A freestanding rampart may be defined as an artificially engineered embankment which raised the level of the base of the fortification wall above the surrounding plain and featured both interior and exterior slopes.³ Such ramparts were often built around entire settlements, but they were also constructed around only portions of settlements

³A. Kempinski characterized this type of rampart similarly by referring to it as a “double-sloped rampart” (1992d:175).

which were particularly vulnerable due to their topography.⁴ In most instances the crests of freestanding ramparts (as well as those of supplemental ramparts) were surmounted by defensive walls, despite the fact that evidence of these walls has not always been preserved (see discussion of *Fortification Walls*, section 4 below).

Freestanding ramparts are usually the easiest type of rampart to recognize because both their interior and exterior slopes can be identified, either in section or above ground, since they were so elevated above the landscape that later occupation often did not lead to their being buried (see Figure 5 above). At some sites such as those located on the open plain, where settlements were exposed on all sides, an entire settlement was frequently surrounded by a freestanding rampart. This has led to such settlements featuring a crater-like appearance with the main part of the settlement located in the bowl of the crater (e.g., Ebla, Qatna, Tuqan, Dan, Timnah, etc.). But it is also important to recognize that site morphological processes and continuous occupation of settlements has often obscured or even destroyed traces of freestanding ramparts at some sites, particularly in the western Levant where precipitation has been heavier. These “craters” may also have been filled in over time erasing the rampart’s characteristic topographic signature. This may be the case at sites with saddle-like appearances where gates would have been located on opposite sides in depressions between the two rising ends of the site, where most likely the ramparts are best preserved. But it should also be noted, as mentioned in chapter one, that sites with rampart-like embankments have also been mistaken for MB ramparts (e.g., T.

⁴In early scholarship by W. F. Albright, Y. Yadin and others had referred to such ramparts as “fortified camps” or “enclosures”, emphasizing their relationship to Hyksos charioteers (see discussion in chapter 2) and distinguishing them from fortified tells. Both P. Parr (1968) and J. Kaplan (1975) attempted to improve the characterization of MB fortifications by advancing other terminology to describe ramparts based on their relationship to city walls, namely the presence or absence of these walls. Ramparts characterized by the presence of a wall within the rampart, which I call a core wall (see section 2.b below), was, therefore, called a “wall rampart” and the rampart without a wall was a “freestanding rampart” according to Kaplan (1975:1). But the difficulty of identifying the remains of city walls when compared to identifying earthen ramparts means that a typology of rampart types cannot depend upon the presence or absence of evidence for a city or core wall from limited soundings of a site’s fortifications.

el-Yehudiyeh, Heliopolis, and T. Safut).⁵ These are the result of other site formation processes and, therefore, caution should be taken in the identification of freestanding ramparts based solely upon the contours of a site.

The plan of the typical freestanding rampart depended mostly upon the original topography of the site. Where the plain was open and relatively flat and early occupation was limited in extent or had not yet begun (an ideal situation for their construction), the rampart could be laid out according to a systematic plan. Their layouts were usually either elliptical (e.g., Achzib, Akko, Alalakh, Ashkelon, Byblos, Kabri, etc.) or rectilinear (e.g., Timnah, Haror, Hazor, Deir Khabiye, Lachish, Nagila, Masos, Qatna, Sefinat-Nouh, Yavneh-Yam, etc.). Where the underlying terrain was not as flat modifications were made to the layout to accommodate these slight incongruities, but one of these two basic plans was still generally applied (e.g., Hazor). Adjustments to the layout of freestanding ramparts also appear to have been necessary at sites where earlier occupation had necessitated modification of the structure of the rampart (e.g., Tel Dan, Ebla). At Ebla the construction of a series of rectangular fortresses connected by a town wall ca. 1800 B.C., all of which were built on top of the MB I (IIA) and EB IV ramparts led to a straightening of the lines of what were, since the third millennium, probably freestanding ramparts with an overall elliptical plan. The result was that the plan of Ebla's MB II fortifications, though roughly quadrilateral (perhaps rhomboid) in appearance today, was never actually rectilinear but obtained its present form from an attempt to convert the earlier, third millennium elliptical plan of the site's fortifications to

⁵In addition to Tell el-Yehudiyeh and Heliopolis, it is worth mentioning Tell Saffut (MR 228.168), on the northeastern outskirts of Amman. It has long been identified as a ramparted site. This suggestion, D. Wimmer (1997:449) has noted, was originally made by F. S. Ma'ayeh (1960) based on the supposed identification of a glacis in a bulldozed, geological section of the site prior to any archaeological excavation. Unfortunately, this misidentification has been perpetuated in the scholarly literature for the MB in the works of R. de Vaux (1960), R. Dornemann (1983:19), J. Sauer (1986:6), and most recently A. Mazar (1990:197).

a new method of fortifying settlements with straight rampart segments. Nevertheless, other continuously occupied sites such as Byblos and Ashkelon maintained their original elliptical layouts, despite the addition of successive earthen ramparts.⁶

The difference between the use of elliptical and rectilinear plans for freestanding ramparts appears to correspond to chronological developments in defensive strategies. Freestanding ramparts with *elliptical plans* seem to have originated in the late third millennium in Mesopotamia (see Mari and Terqa) being introduced to the northern Levant thereafter. They precede the development of freestanding ramparts with rectilinear layouts which are well known in the southern Levant during the MB II (IIB–C). In addition to examples of sites in Mesopotamia, like Mari and Terqa, which featured ramparts of elliptical plan, sites in the Levant include the EB IV sites of Byblos, Ebla, Tuqan, and Umm el-Marra, and the MB I (IIA) sites of Akko, Burga, Shimron, Zeror, Ashkelon, and Jericho in the southern Levant. While a handful of smaller sites with fortifications, which were constructed at the end of the MB (e.g., MB IIC) in the highlands of the southern Levant, also featured elliptical plans (e.g., Shechem, Shiloh, and Hebron), their ramparts were predominantly of the supplemental type and their locations, primarily atop hills, would have made the use of rectilinear plans more difficult and costly. In contrast, the evidence for freestanding ramparts of the rectilinear type suggests that they were constructed no earlier than the end of MB I (IIA) and were built through the end of at least the early MB II (IIB) if not until the end of the Middle Bronze Age. The reason for this change may have been due to the realization that straight lengths of fortification were more easily defended than curving segments. By dividing the defenses into a discrete number of straight lines each archer could protect greater

⁶It should be noted, however, that nothing is known of the line of the fortifications atop the ramparts at either of these sites. It is not impossible that similar efforts were made to straighten the line of their fortifications atop the existing, though modified ramparts.

stretches of the town wall and rampart, particularly from towers located at the points where the direction of defenses changed (see Figure 8 below).

b. Supplemental ramparts

Although freestanding ramparts were common among the towns of the plain where town planning was less constrained, this type of rampart could not be employed in the fortification of sites built upon tells or natural hills and for the fortification of acropoleis. This was probably because building freestanding ramparts at these sites would have required an incredible amount of additional work just to expand the base of the mound in order to facilitate the construction of freestanding ramparts. Furthermore, the position of these sites meant that one of the main advantages gained by building a freestanding rampart was already present, namely elevation. Nevertheless, these settlements also featured modest ramparts, but because their construction was usually adapted to pre-existing means of defense, ramparts at these settlements should be referred to as supplemental ramparts (see Figure 5 above).⁷ This does not, though, imply that supplemental ramparts were built only as an afterthought to earlier fortifications. Rather, these ramparts could either supplement a town's existing wall (e.g., Aphek, Beit Mirsim, Gezer, Lachish, Megiddo, Mevorakh, Poleg, Shechem, and Zurekiyeh) or fortify particularly vulnerable sections of a site's defenses (e.g., Amman, Far'ah North, Shiloh, 'Umayri, etc.). Such ramparts should not only be distinguished from the freestanding variety, but they must also be distinguished from surface treatments such as glacis which,

⁷J. Kaplan referred to such ramparts as "wall ramparts" (1975:2). The main problem with his classification, however, is that it confuses the compositional and morphological traits of ramparts. Some ramparts, which by Kaplan's classified as "freestanding ramparts", could also be classified as "wall ramparts" (based on a compositional analysis) because of the occasional use of core walls against both sides of which earth was piled (e.g., Tel Dan, Hazor, Shiloh, etc.). A. Kempinski, improving upon Kaplan's analysis, noted though that basically only two types of banked fortifications existed, the "double-sloped rampart" (cp. freestanding type identified here) and the "glacis" type (cp. supplemental type identified here) (1992d:175f.). Nevertheless, Kempinski's terminology continues to confuse the distinct construction of the glacis, a surface treatment for a sloped feature (see discussion in section 3 below), and the rampart whether of symmetrical (freestanding) or asymmetrical (supplemental) design.

although they were frequently added to the surfaces of supplemental ramparts they were also added to freestanding ramparts. Supplemental ramparts were, instead, attempts to obtain the advantages of freestanding ramparts with only modest modifications of the defenses of sites perched upon hills or tells. Though they were constructed using the same techniques and materials as freestanding ramparts (see discussion below), they were usually much more modest in size and were rarely more than a few meters high. Nevertheless, their slopes were equally steep (see Table 4 below) and the fact that they were constructed atop existing tells meant that the elevation of the base of the wall above the surrounding landscape was often equal to if not greater than that of the wall atop a freestanding rampart.

Table 4. Slopes of ramparts and glacis of EB IV to LB I sites. Slope measurements were provided by the excavator or determined from section drawings.

Site	Glacis?	Rampart Type	Slope
Abou Danne (Level VI)		Freestanding	40
Achzib	Yes	Freestanding	30
Akko	Yes	Freestanding	30
Alalah VII		Freestanding	35
Amman		Freestanding	40
Timnah (Stratum XII–XI)		Freestanding	15
Biruta	Yes		30
Biruta (LB I)	Yes		20
Byblos VII (Ouvrage 3a)	Yes	Supplemental	35
Byblos VII (Ouvrage 3b)	Yes	Supplemental	35
Byblos VIII (Ouvrage 4)		Supplemental	15
Dan XI (Area B)	Yes	Freestanding	43
Dan XI (Area K)		Freestanding	14
Dan XI (Area T)		Freestanding	20
Dan XI (Area Y)		Freestanding	20
Ebla (outlying rampart)		Freestanding	24
Far‘ah North (Period VC)		Supplemental	24
Far‘ah South (N Rampart)		Freestanding	40
Far‘ah South (W Rampart)		Freestanding	33
Gezer (Stratum XVIII/Field I)	Yes	Supplemental	45
Hazor XVI/3 (N Rampart)		Freestanding	25
Hazor XVI/3 (W Rampart)		Freestanding	18
Hazor XVI/3 (Area G Upper Town Glacis)	Yes		68

Table 4. Slopes of ramparts and glacis of EB IV to LB I sites, continued.

Site	Glacis?	Rampart Type	Slope
Jericho (Period IVa-b)	Yes	Supplemental	35
Jericho (Period IVc)		Freestanding	22
Gerisa	Yes		28
Kabri		Freestanding	45
Kazel	Yes		45
Keisan XV	Yes	Supplemental	25
Keisan XVI	Yes	Freestanding	28
Lachish (Level VIII/P-5 and P-4)	Yes	Supplemental	29
Malhata (Period B)	Yes	Freestanding	30
Mardikh IIIA		Freestanding	30
Mardikh IIIA (Citadel glacis)	Yes		9
Masos	Yes	Freestanding	17
Megiddo XI	Yes	Freestanding	45
Megiddo XIII (Area AA)	Yes		16
Megiddo XIII (Area CC)	Yes	Supplemental	40
Nagila VII	Yes	Freestanding	35
Poleg		Supplemental	20
Poran	Yes	Supplemental	16
Sefinat-Nouh		Freestanding?	19
Shechem (Stratum XVI)		Supplemental	21
Shechem (Stratum XVII)		Supplemental	15
Shiloh (Stratum VII)	Yes	Supplemental	28
Tuqan (MB I Upper Town)		Supplemental	30
Qatna		Freestanding	30
Ugarit (LB IA)	Yes	Supplemental	45
Yavneh-Yam		Freestanding	40

c. General Characteristics of Earthen Ramparts

Though the slopes of ramparts, both freestanding and supplemental (and their glacis), can be suggested to have been approximately 30° (Table 4), many were no doubt steeper prior to erosion following their abandonment, with slopes of perhaps 35° or more. Only a small percent of ramparts probably featured slopes of more than 40°. The average height of these ramparts above the surrounding plain was usually about 10 m. The width of ramparts depended mostly upon the size of the site but also varied according to whether or not the rampart was freestanding or supplemental. The widest (and longest) ramparts were, of course, the freestanding type as found at Hazor (90 m), Qatna (70 m),

and Ashkelon (70 m), while the narrowest are usually of the supplemental type and were often no more than a few meters wide. The dimensions of ramparts will be discussed in greater detail in chapter five where the amount of labor which was required in their construction is discussed.

The two terms that I have proposed above for earthen ramparts refer to the main *morphological* characteristics that distinguish ramparts (i.e., their construction as viewed in section, see Figure 5 above). These traits are, therefore, distinct from the *compositional* characteristics of earthen ramparts (i.e., their building materials) which can vary considerably within each of these two rampart types.⁸ As noted above similar building materials were used in both types of ramparts. Although based upon the morphological typology offered above one might expect that a relatively limited number of methods of constructing ramparts existed, the archaeological evidence suggests that methods of building both freestanding and supplemental ramparts were as diverse as the construction materials available. In this regard it is impossible to identify an “ideal” geographic region where ramparts were most common. Nevertheless, the largest ramparts appear to have been built in areas where the greatest quantities of the requisite raw materials, such as loose earth, could be excavated with the least amount of effort (e.g., Qatna, Ebla, Mari, Ashkelon, Hazor, etc.).⁹ Such sites were, therefore, often situated in the open plains of Syria and northern Mesopotamia, and in comparable positions along the coastal plain and the Great Rift Valley in the southern Levant.

⁸The lack of distinction between morphology and composition has been the chief reason that conflicting typologies of MB fortifications have been advanced over the years (see Yadin 1955b; Parr 1968; and Kaplan 1975).

⁹Interestingly, the location of sites with the largest ramparts also corresponds to regions where large tracts of arable farmland were available to support the large populations of these settlements (see chapter five, section A for further discussion).

Concerning the composition of ramparts it can be stated that quite often when the greatest quantity of fill in a rampart has consisted of earth it has been described as a *terre pisée* (literally “beaten earth”) rampart (see, for example, Yadin 1955b; Tufnell 1958:45f.; Kenyon 1979:165; van Seters 1966:27ff.; Stern 1984:49; A. Mazar 1990:202, etc.). This term which was borrowed from French refers, however, to the construction of a core wall or structure by packing earth in a mold or frame (G. R. H. Wright 1985a:360f.), and several observations suggest that the use of this term for the composition of earthen ramparts is misleading.¹⁰ Firstly, few ramparts are composed entirely of earth. In fact, many ramparts employ the so-called “sandwich” technique of alternating layers of varying types of fills, which itself testifies to the unsuitability of a rampart composed solely of a single type of earth. Secondly, there is no substantive evidence for the use of molds or frames in the construction of ramparts. The only feature which could have functioned as such would have been a core wall built within some ramparts, but, as noted below, few ramparts featured core walls. Finally and most importantly, there is no evidence for the intentional tamping or beating of a rampart’s layers during the construction process in any rampart. For these reasons it seems incorrect to continue to use this term to refer to the construction and composition of earthen ramparts. It is more likely, therefore, that the process of packing the layers of the rampart, insofar as it actually occurred and can be identified, was the unintended result of both the continuous treading of workers (and beasts of burden) up and down the rampart during

¹⁰The term should be reserved for earthwork constructions like those identified around the cities of Cheng-chou, Yen-shih, P’an-lung-ch’eng, and Tung-hsia-feng in China during the Shang period, ca. 1700–1100 B.C. (Chang 1986:335). The 320 ha site of Cheng-chou in northern Hunan was surrounded by a 7,195 m long beaten earth wall which has survived as much as 9.1 m high and 36 m wide; the wall was built with 8 to 10 cm thick layers of compressed earth (1976:205). Apparently, the *pisée* technique was introduced to Chinese architecture during the Shang period (1986:331). It continued to be important during the following Chou Civilization from which a ballad has even preserved details of the construction of the city of Chou using the *pisée* technique (ibid., 340f.).

the process of deposition and the weight of the rampart itself and its crowning wall over the course of several millennia.

Aside from various types of earth or soils (e.g., alluvium, clay, *hamra*, loess, marl, sand, etc.), rampart fills included many other materials such as chipped or crushed stone (e.g., *huwwar* limestone, *kurkar* sandstone, flint, travertine, etc.), pebbles, occupational debris, mudbrick detritus, broken mudbricks, and plaster lenses—all of which were locally obtained materials. Although sand was also used to build ramparts, because it does not serve as a good foundation upon which to build it appears to have been avoided whenever possible. But where sand was used it was always necessary to provide the rampart with a less permeable surface which should be identified as the glacis (e.g., Akko and Ashkelon). Many excavators have suggested that rampart fills probably derived from the excavation of material from the fosse outside the ramparts and there is no reason to doubt this since at many sites the materials in rampart fills correspond with the material types excavated from their fosses (e.g., Achzib, ‘Ajjul, Ashkelon, Timnah, Haror, Hazor, etc.). Furthermore, the capacities of fosses which have been identified adjacent to ramparts are so comparable to the volume of earth used in these ramparts that they also support this hypothesis (for rampart volumes see Table 19 on p. 305).

While rampart fills were often quite sterile, at previously occupied sites fills also consisted of occupational debris which included quantities of ash, charcoal, pottery, and bones. The various materials and soil types used in rampart fills have led to considerable speculation concerning why they were used. According to E. Pennells one of the most important factors involved in the selection of materials for rampart construction was drainage (1983). It was not desirable for a rampart to hold water because it would diminish the strength of the rampart and lead to erosion. For this reason Pennells suggests that the “layered fill” technique (elsewhere referred to as the “sandwich” technique) was developed—a technique which would improve drainage of water from within the

Contrary to Pennells's suggestion R. Voss has, in fact, suggested that materials such as ash were actually preferred because they *did* "absorb large amounts of rainwater becoming heavier and denser, while resisting the effects of erosion" (Voss 2002:379f.). There is, therefore, some difference of opinion as to how ash functioned in construction and surface preparation.¹¹ Even if ash were the ideal material for rampart construction, it would never have been available in sufficient quantity for building any large part of a rampart, since rampart construction was usually concomitant with the expansion of smaller sites or the foundations of new sites. Hence, there is no evidence that ash constituted a great percentage of the mass of any single rampart and it is not entirely clear that it was a preferred material, even when it was readily available. It is quite possible, therefore, that ash and occupational debris just like thin lenses of plaster and other crushed layers of stone were actually used in ramparts because of their varied water resistant properties (contra Voss 2002). This explanation would be consistent with Pennells's observation that it was necessary to keep ramparts from becoming saturated, which would have facilitated erosion and sliding. That other features such as glacis, revetments, and retaining walls appear to have been built for the same purposes (see below) also supports the notion that rampart layers were constructed as frequently as possible of materials which repelled moisture. The use of large quantities of earth without chipped stone for entire ramparts appears, in fact, to have occurred most frequently in drier regions (e.g., Qatna and Ebla), whereas mixed fills occur most often in the western Levant (see also discussion of *Glacis* below).

¹¹I find Voss's suggestion to run contrary to the typical observation concerning ash. In fact, ash is usually acknowledged for its water resistant characteristics, such that it was often incorporated into beaten earth floors in domestic contexts and mixed with lime for water resistant plaster (G. R. H. Wright 1985a:438).

Regarding rampart fills, the frequent absence of stones larger than gravel size is also noteworthy. Although this could be due to the fact that free-floating stones contributed nothing, or were perhaps even detrimental, to a rampart's integrity, it was more likely the result of the specific architectural role for which stones of any useful size were employed, namely for the construction of retaining walls, revetments, foundations, and glacis. The evidence for material selection suggests that a careful process was involved in choosing materials for rampart construction despite, as we shall see, the varied means that could be undertaken to build them to similar plans. This process appears to have also taken into consideration the rates at which materials could be supplied by those excavating them. For instance, it is rare to find a single layer of a particular building material with a thickness of more than one meter within a rampart's fill. Structural advantages for doing so aside, there is, in my opinion, also a clear functional reason why this was the case. The main reason may have been the speed with which ramparts were constructed. There is no evidence to suggest that rampart construction took very long at all (see, for instance, chapter five, section 3.a). This rate, therefore, would have required an efficient management of labor where materials were moved almost as quickly as they were excavated in order to facilitate continued excavation, for example, from a fosse or another source. An excellent example of this can be witnessed by examining the section of a very typical rampart at Achzib, which was built from the bottom up of "red fill...dune-sand...brown soil...grey soil with ashes...dune-sand...hardened red-brown soil" (Prausnitz 1975:207). That the rampart's center was not built mostly of sand when it is known that it could be used for much of a rampart's composition (e.g., Akko and Ashkelon), suggests that one or more considerations prevailed which prevented this. I suggest, therefore, that it would have been more difficult to send all the laborers to the same source for materials at the same time. Instead the excavation of materials proceeded gradually in at least two locations at

the same time so that those carrying loads of materials did not have to wait during this process. It is probably also for this reason that it is rarely possible to identify the same sequence of fills within a rampart's construction in different areas excavated around a single site. Instead, fill layers were interspersed and varied from the bottom up in different areas around a site because different work groups were exploiting different sources of material at the same time in the construction process.

In general the cumulative evidence of ramparts in the Levant suggests that ramparts were constructed for the purpose of creating elevated but relatively level embankments which were intended to significantly improve the defensibility of a settlement's perimeter, whether it featured a distinct town wall or only the rear walls of different buildings (see *Fortification Walls*, section 4.a below). At most settlements ramparts appear to have succeeded in elevating the base of a town's walls between 7 and 10 m above the level of the surrounding plain. Although their slopes vary between 20° and 45°, they were also usually covered with a glacis composed of materials which was intended to protect their surfaces against erosion. The materials used in rampart construction varied depending upon the site's location and various techniques were employed in their construction such that it is not possible to speak of a single approach to rampart construction.

2. CORE, RETAINING, AND REVETMENT WALLS

Three types of walls are frequently associated with the construction of ramparts. These are core, retaining, and revetment walls. The reason for the construction of these walls (and the addition of glacis, discussed below) was at least partially due to the fact earthen ramparts with slopes ranging between 30° and 45°, not all of which featured stone glacis, were subject to erosion from winter rain, wind, and animal traffic throughout the course of the year. Although some vegetation such as grasses, when not eaten by herds, might have helped to protect the rampart against erosion, it is doubtful that plants

were even allowed to grow on the rampart's surface because these would have attracted animal herds which would have contributed to their erosion. Because the threat of a rampart's layers slipping was more acute with larger ramparts, usually of the freestanding type, two major types of supporting walls were often constructed within freestanding ramparts: small, low retaining walls and core walls built in the center of ramparts.

a. Retaining walls

This type of wall, built within a rampart's structure, was relatively common (e.g., Jericho, Tel Dan, etc.). They were intended to address potential instabilities at specific points within in a rampart which would have been identified during the course of construction. Such walls, usually built of fieldstones only a few courses high and a few meters long, were buried within the rampart's fills.

b. Core walls

If conditions required, a second type of wall, known as a core wall, would have been constructed in order to stabilize the rampart from the outset of construction. The core wall was a multi-purpose feature which, in addition to stabilizing the rampart, also provided a solid foundation for the construction of the town wall which crowned the rampart (see *Fortification Walls*, section 4.a below). Although they are less common than retaining and revetment walls, the use of core walls within ramparts at larger sites may indicate that the planning of ramparts had gradually become standardized. Although such core walls were often built of stone (e.g., Dan, Shiloh), mudbrick walls could also function as core walls (e.g., Hazor). At Dan in Area AB it is evident from the slope of the stone-built core wall that the core wall was erected as the rampart grew on both sides of it. It seems that the value of building core walls was realized by the start of the MB II (IIB–C), whence the main evidence for their construction comes. This may have been as a result of a growing tradition among architects who had acquired experience from previous generations as well as from contact with the northern Levant and Mesopotamia,

where ramparts had often been heaped against earlier fortification walls (e.g., Byblos, Ebla (?), Tuttul, Mari, Terqa, etc.).

While the building of retaining and core walls represent two different strategies for the same general problem, it is important to realize that the use of these techniques was not necessarily identical across a single site. Rather these techniques for supporting freestanding ramparts usually represent distinct strategies that were tailored to the varied topography around a settlement just as ramparts themselves were sometimes only constructed at specific points around a settlement. At Dan, for instance, a core wall was used in the construction of the rampart in Area AB, while a core wall and numerous retaining walls were used in Area Y. Likewise, that retaining walls were usually used in freestanding ramparts does not preclude that they may have been used on occasion to reinforce the construction of supplemental ramparts on existing slopes (e.g., Gezer and Shiloh).

c. Revetment walls

In addition to retaining walls and core walls, revetment walls offered another solution to prevent the sliding of rampart fills. But unlike retaining and core walls, revetment walls were usually built at the foot of both freestanding and supplemental ramparts with their exterior face, usually featuring a batter, exposed. Revetment walls were, therefore, better constructed than retaining walls, stood between two and ten meters high and could be between one and four meters wide. While it is possible that some revetment walls may have circumscribed entire sites (e.g., Ebla?), no revetment wall has yet been traced around the entirety of a site. In fact, the best known examples appear to have encircled at the most one half of a site (e.g., Achzib, Hazor, Jericho, Shechem, etc.), leaving other defensive features such as the sea coast, fosses, and wadis to provide comparable defenses for the remainder of the settlement. Revetments also often employed what has been traditionally referred to as cyclopean masonry. The presence of

a steep batter and the use of cyclopean masonry (e.g., Jericho, Shechem) suggest that the function of this type of wall was, in addition to the prevention of erosion of the foot of the rampart, also defensive. Although minor erosion would not only have undermined the rampart's structure, it would have resulted in the in-filling of the fosse outside of the revetment wall, obviating the function of both of these features. Because many revetment walls were quite large they may actually have provided considerable cover for attackers as they approached the base of the rampart (e.g., Shechem). Nevertheless, such walls did provide an additional barrier to the advancement of siege towers and battering rams, and their presence would have required the use of scaling ladders prior to even reaching the town wall, putting the attackers at greater risk. More so than perhaps any of the other types of structural walls, the presence of revetment walls, suggests that considerable planning was involved in the construction of the defenses into which they were incorporated.

3. *GLACIS*

As noted in the discussion of the rampart above, glacis construction must be distinguished from rampart construction (see Figure 5 above), even though it is possible that both features were constructed at the same time and were in use contemporaneously. The widespread recognition of the distinction between these features has quite appropriately meant that the term *glacis* has been increasingly used to refer specifically to the intentionally prepared surface of a slope, whether that of a rampart, a mound, or a tell, which prevented its erosion and improved its defensibility.¹² Although the materials used in glacis construction were not particularly different than those available for rampart

¹²G. R. H. Wright has objected to referring to non-defensive slopes or slicks as glacis since "it is not always a straightforward matter to determine the purpose of this kind of installation" and "such earthworks are not accurately signified by the term *glacis*" (1997:366). Nevertheless, I would note that glacis, whether originally built for defense or against erosion, served in most instances both purposes to one extent or another.

construction (i.e., earth, plaster, bricks, stone, etc.), glacis were always constructed of the most durable and weather resistant materials available when compared with the materials used within the ramparts they protected. While it has been suggested that plaster (i.e., gypsum plaster, see discussion below) was the preferred material for glacis construction, it is doubtful that sufficient quantities of any type of plaster were ever produced to cover the entire slopes of settlements (e.g., Jericho, Keisan, Hazor, Lachish, Malhata, etc.). For this reason other materials were often substituted such as cobbles or larger stones (e.g., Afis citadel, Ashkelon, Biruta, Beit Mirsim, Burga, Byblos, Far‘ah North, Haror, Hazor citadel, Hebron); cut blocks (e.g., Ugarit); crushed limestone (*huwwar*) or other chipped stone such as *kurkar*, travertine, or flint (e.g., Dan, Gerisa, Gezer, Jaffa, Jericho, Nagila, Qitar, Shiloh, ‘Umayri, Yavneh-Yam); pebbles or gravel (e.g., Abou Danne, Hadidi, Malhata, Masos, Megiddo); mudbricks (e.g., Akko, Ashkelon, Ebla citadel, Gerisa, Jericho, Poran); mud plaster (e.g., Haror); “beaten” earth (e.g., Gerisa, Jaffa, etc.); or clay (e.g., Beth-El, Deir ‘Alla, Kazel, Shiloh, Ta‘anach).

While the use of specific materials in a glacis was often determined by their availability, other environmental factors appear to have played a key role in the type of glacis constructed. The geographic location of sites and the amount of rainfall that these sites received appear to have affected the types of materials selected for use in glacis construction. In this regard it is clear that the greatest efforts were invested in the construction of stone and mudbrick glacis in regions with the highest precipitation (i.e., the Levantine coast), while areas further to the east featured less substantial glacis if they were constructed. For instance, although only a few sites featured glacis built of cobbles (see above), most of these sites are situated along the coast (e.g., Achzib, Ashkelon, Biruta, and Byblos) where rainfall averaged over 400 to 800 mm per year (see Alex and Wolfner 1984). Ugarit, which featured the only glacis composed of ashlar, was also located on the coast. Although sites with various other types of glacis were also located

along the coastal plain and others were further inland (where they were often composed of chipped stone), distinct glacis almost completely disappear east of the Rift Valley (e.g., Ebla, Qatna, Sefinat-Nouh, Tuqan, Umm el-Marra, etc.) and in northern Mesopotamia (e.g., Munbaqa, Tuttul, Terqa, Mari, etc.). This geographical distribution of glacis types demonstrates that glacis in general should probably be viewed as features intended to protect the time and energy invested by a population in the construction of ramparts against erosion due to rainfall. Confirmation of this is also provided by the construction of drains along glacis (e.g., Ashkelon), through revetment walls (e.g., Aphek, Shechem XVI), and underneath gateways (Ashkelon, Megiddo XIII). At smaller sites where glacis were not constructed of cobbles, the other materials used in glacis construction (e.g., bricks, mud plaster, gypsum plaster, and carved stone) were also those typically used to protect fortification walls and gates against the elements.¹³ With this in mind it appears that glacis were not, therefore, constructed to contribute to the defense of slopes against attackers, despite the possibility that some might have impeded efforts to ascend their already steep slopes. Rather, glacis were built to protect against erosion.

4. FORTIFICATION WALLS

Although ramparts and glacis were an integral part of the defense of settlements both large and small in the Levant during the MB, without fortification walls sloped embankments would have been less effective for defense than even the fortifications which had been characteristic of towns during the Early Bronze Age. Despite the fact that evidence of MB fortification walls built atop ramparts has been characterized as scant by some scholars (see chapter one, section D.9), several lines of evidence demonstrate that

¹³ Although E. Pennells has suggested that features, like the glacis, were intended to prevent the erosion of slopes because the slopes of MB ramparts were greater than the average modern constructional slope of 27° (1983:57), the basis of his argument is flawed since he assumes that the *average* MB glacis slope was 45°. In fact, the slopes of MB ramparts are only slightly steeper than the average modern constructional slope, as noted above.

fortification walls were indeed built atop ramparts. Solid mudbrick walls, casemate walls, and the exterior walls of buildings functioned as the main types of defensive walls during the Middle Bronze Age. As the following discussion will demonstrate the dimensions of these walls can be determined by means of a judicious examination of available evidence.

The first evidence which suggests the existence of MB defensive walls in the Levant comes from the depictions from Egypt of fortified MB settlements which were occupied by Asiatics. All Egyptian depictions of fortified Asiatic settlements, which are thought to have been located in the Egyptian Delta, featured defensive walls, even though none of these depict earthen ramparts. The few late First Intermediate Period and Middle Kingdom representations of Asiatics within forts depict walled fortifications similar in appearance to those seen in New Kingdom reliefs of fortified towns in the Levant.¹⁴ The rounded crenellations shown atop the fortification walls of these towns in these illustrations are the only evidence for such features in the Middle Bronze Age.¹⁵

a. Solid fortification walls

The second piece of evidence for the existence of fortification walls include the remains of solid mudbrick walls and their stone foundations which have been discovered with ramparts at a number of sites. Achzib, Akko, Apeh, Beit Mirsim, Deir ‘Alla, Far‘ah South, Gerisa, Gezer, Hazor, Jericho, Kabri, Malhata, Megiddo, Nahariya, Pella, Poleg, Yoqne’am, Zeror, and Zurekiyeh in the southern Levant all provide evidence of mudbrick fortification walls. Similar evidence for the preservation of mudbrick walls and their

¹⁴For First Intermediate Period see plans 1 and 3 of Jaroš-Deckert (1984). For Middle Kingdom scenes see Egyptian Middle Kingdom siege scenes listed by A. R. Schulman (1982).

¹⁵For evidence of crenellations at the start of the second millennium, see the depiction of an Egyptian siege of an Asiatic town from the tomb of Intef during the time of Mentuhotep II (see pl. 17 and folding pls. 1 and 3, Jaroš-Deckert 1984). Here Asiatics are shown defending a fortress against an Egyptian siege. The crenellations of the fortress are semi-circular. They are comparable to the crenellations on the “Syrian gate” leading into the temple of Ramesses III at Medinet Habu (Hölscher 1951:pls. 19f.).

stone foundations is also attested in the northern Levant at Tell Abou Danne, the Afis citadel, 'Arqa, Biruta, Ebla, Kumidi, Tuqan, and Umm el-Marra. The clearest evidence of these types of walls is, of course, found at sites dating to the late third millennium and early second millennium in northern Mesopotamia (e.g., Leilan, Mari, Munbaqa, Terqa, and Tuttul), where mudbrick fortification walls are best preserved due to the arid climate. Conversely, it has been extremely difficult to detect mudbrick walls at sites throughout much of the Levant and the Egyptian Delta due to erosion (see comments regarding mudbrick erosion by Spencer 1994). There is, therefore, an obvious and very direct correlation between the degree of preservation of mudbrick walls and the amount of rainfall and moisture within a particular region. Where the least amount of rainfall is received the walls have been best preserved (cp. also walls of Buhen discussed below).

The remains of solid mudbrick walls and their foundations are usually preserved to an average of height of 2.5 m and an average width of 3 m.¹⁶ Though the elevations of some walls have been preserved as much as 5.5 m high (e.g., Tell Habuba Kabira), the original height of these walls has not yet been attested archaeologically and probably never will be in the Levant. It has been generally assumed that such walls stood at least two stories tall based upon the New Kingdom depictions of forts in the Levant which often show second story windows. That these walls may have been as much as 10 to 15 m high is based on comparisons with the remains of Middle Kingdom fortresses in Lower Nubia, the remains of mudbrick enclosure walls of New Kingdom temples, and references in Naram-Sin's account of the siege of Armānum. At Buhen, for example, a section of the inner fortification wall, which was about 5 m thick, was preserved to a height of 11 m but was probably originally even taller (Emery, et al. 1979:4ff.)! Further

¹⁶Compare this figure with a width of 2 m cited by Herzog (1992:114) and Kempinski (1992c), which is derived from mostly small sites without consideration of the abundant evidence for the width of foundations as evidence of wall width.

evidence for the height of mudbrick fortification walls can be gleaned from the inner enclosure wall of the temple of Ramesses III at Medinet Habu from the late 13th century B.C. The wall, the base of which was 6 m wide gradually tapering to 2 m wide at the top, was preserved to a height of 14.2 m (Hölscher 1941:61). The excavator suggested that the wall was originally 15 m high. The outer enclosure wall or “Great Girdle Wall” of the temple, which was also built of mudbrick, was by comparison 10 to 11 m wide at the base and stood about 18 m high (Hölscher 1951:1f.).

Textual sources also allow us to reconstruct the heights of fortification walls in this period. Naram-Sin’s siege of Armānum (see chapter four, section A.1 for discussion) also provides various heights for the walls surrounding that town which were measured in cubits (1 cubit (KÙŠ) \approx 50 cm). We are informed, therefore, that the outer *kārum* wall was only 10 m high, while the wall of the lower town (BÀD *danīm*) was 15 m high, and that of the acropolis (BÀD.GAL) 20 m high. No figures are provided for the width of these walls. One Old Babylonian text refers to a wall at Larsa as “five reeds [\approx 15 m] high (and) two cubits [\approx 1 m] thick” (see *igartu* in *CAD* 7, p. 34). From these various sources it is reasonable to conclude that mudbrick fortification walls of between 10 and 15 m tall could have been built upon foundations between 5 and 6 m thick. If the wall did not taper, as may have been the case in the Levant and Mesopotamia, then it is possible that thinner walls could have been built to similar heights and would still have supported a walkway along the top of the wall.

Though it is usually assumed that mudbrick walls less than one meter thick were not intended to support second stories, it is difficult to determine whether or not perimeter fortification walls between 1.5 and 3 meters wide were capable of supporting a

ten meter high superstructure.¹⁷ Here it is helpful to examine evidence of modern mudbrick structures built in towns along the Wadi Hadramut in Yemen (Damluji 1992). In a particularly unique architectural style, apartment buildings there continue to be built as much as 30 m or about 10 stories high, in mudbrick (ibid., p. 4). Surprisingly, the width of the ground floor walls of these structures is only about one meter (ibid., 128)! These structures demonstrate, therefore, that by taking the appropriate precautions, namely the canting back of the outer elevation, mudbrick could have been used to build strong structures of considerable height in the MB. This fact has been assumed for some time concerning the so-called MB *magdalu* (*migdol*) or “tower” temples which were probably several stories tall (B. Mazar 1968:93f.).

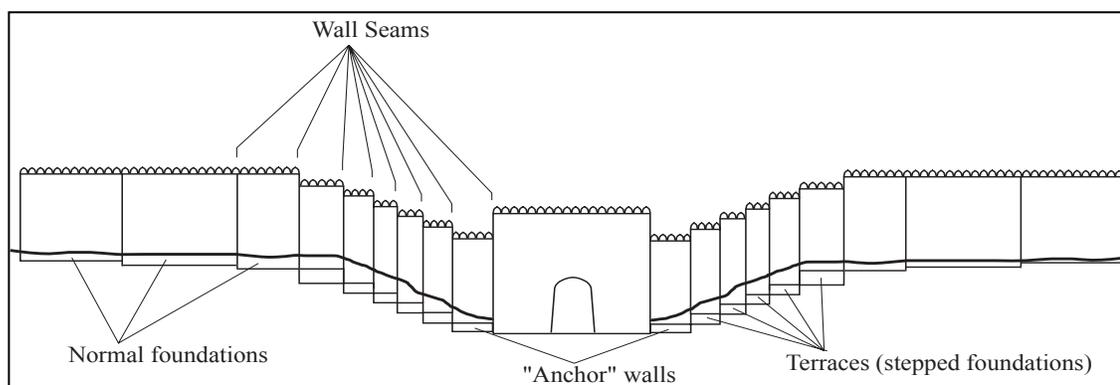
There does not appear to be sufficient evidence to suggest a direct correlation between wall widths and settlement sizes in the Levant, although the largest settlements certainly did feature some of the thickest walls and, of course, the largest ramparts. There is also no evidence for strict adherence to uniform construction techniques, brick sizes, or wall widths within particular regions, which would be the most obvious archaeological evidence for political centralization. Generally, the mudbrick superstructure of the wall was constructed using the header-stretcher technique set upon a comparably wide foundation of stones. While the walls could form a continuous straight or curving line, at many sites the presence of towers and buttresses created junctures at which the wall altered its direction. Where such structures were not present the so-called ‘saw-tooth’ and offset-inset designs were employed in order to make a thick wall, whose base unit was a

¹⁷ Although G. R. H. Wright recounts that Petrie had suggested that “mud brick would be approaching its maximum resistance in compression when it was called upon to support a self load of ca 100’ in height” (about 30 m), no controlled tests have been conducted to test this assertion. While mudbrick apartment buildings in the Wadi Hadramut in Yemen are built up to this height, because these structures also support the weight of floors they, in fact, appear to illustrate that mudbricks could support a ‘self load’ of *more* than 30 m!

rectilinear brick, curve as needed around a site (e.g., Shechem, Shiloh, el-Qitar, and Munbaqa). This technique may have appeared towards the end of the MB, if the few sites where it has been discovered are reliable indicators of the date of its introduction.

While mudbrick walls and casemate walls are preserved at many sites, prior to excavation of a site's fortifications in more than one location it has often been the case that clear evidence of the character of the defensive wall is lacking. Although the absence of evidence has sometimes led to the assumption that no walls ever existed and even that warfare was absent if not very limited,¹⁸ prior to clear evidence for the existence of the mudbrick superstructure of a fortification system it remains quite often possible to extrapolate the width of the town wall. This can be done from the width of stone foundations and core walls, which often served as foundations for fortification walls.

Figure 7. Use of terraces in joining walls and gates in MB rampart construction. Note that so-called “anchor” walls served as the first terrace on both sides of the gate.



Walls flanking the sides of gates or terraces can also be used to determine the composition of town walls (e.g., Akko, Ashdod, Ashkelon, Dan, Far‘ah South, Hazor, and Yavneh-Yam). Although such walls served to “anchor” the gate within the rampart (see Figure 7 above), the fact that these walls terminate within several meters of the gate

¹⁸This has been the case not only with respect to the question of town walls in the Levant during the MB (Herzog 1997a:133ff.), as will be discussed below, but also with respect to archaeological exploration of settlements in the New World (see, for example, S. A. LeBlanc 2003).

does not suggest that they were not a part of a continuous defensive wall (contra Herzog 1997a:134). Instead, as is evident from Hazor (Area P), these short segments of foundations functioned as terraces within the crest of the rampart for the purpose of stepping the wall, which was elevated above the gate, down from the top of the rampart to neatly abut the sides of the gate. The width of the terraces at Hazor may also suggest that the town's wall may have been as much as 10 m wide during the MB and as much as 15 m wide during the LB! If no town walls had been built on the ramparts, terrace walls flanking gates would have been unnecessary. However, the terraces provided each of the wall segments with firm foundations, which were necessary to keep the wall and rampart from placing lateral stress against the sides of the gate's structure as the wall settled along the slope (see Gregori 1986:83f.).

The function of these terraces can be compared with the seams that are placed in the surface of concrete sidewalks in order to keep the sidewalk from breaking apart as each segment of the sidewalk settles. Though the sidewalk is poured as a single concrete slab, seams are placed at regular intervals along the sidewalk in order that the location of cracks can be controlled during the uneven process of its settling. Likewise, terraces would have enabled the release of vertical stresses upon the wall's foundations at the edge of each terrace, thus avoiding any weakening of the gate structure as the adjacent sections of the wall settled. The very preservation of these terraces, which are also evidence of the existence of fortification walls, is due to the fact that they were buried when the gate fell out of use.

b. Early casemate-style walls

In addition to the evidence for fortifications walls discussed above, evidence from a number of MB sites also demonstrates that the earliest versions of casemate-style walls were introduced during the Middle Bronze Age. Sites such as Nebi Mend (Kadesh), Kumidi, Abu Kharaz, Dothan, Far'ah South, Hazor, Shechem, Shiloh, and Ta'anach all

featured these types of walls. While some of these casemate-like walls appear to have functioned as the primary fortification wall around the site, others were clearly constructed only for particular stretches of the town's defenses, whether to address defensive concerns in particular areas or more likely to meet the space constraints at that point inside the town wall (e.g., Far'ah South, Hazor, and Shiloh). Although the strength of such walls in comparison to solid walls cannot be known for certain, the cumulative width of these walls on average exceeded the width of regular walls by about two meters. But the width of the space between both walls of the "casemate" probably resulted from attempts to create storage space, as is attested by the number of storage jars often found in these types of rooms (e.g., Shiloh, Dothan, etc.). In order to have served as a truly effective barrier, however, it would have been necessary to fill these spaces very compactly with rubble and debris before a siege. To date no such fills are attested in these structures during the MB, thus whether or not they functioned as true casemates remains debatable.

c. Settlements with ramparts but without walls?

Despite the widespread evidence for MB fortification walls of various types as mentioned above, an argument has been advanced that MB ramparts featured no defensive walls at all. This argument, championed by David Usishkin (1989; 1992), Israel Finkelstein (1992), Ram Gophna (1992a), and Ze'ev Herzog (1997a), has relied upon an examination of the archaeological evidence from the excavations of a limited number of sites. Among those most frequently mentioned by these scholars are Akko, 'Ajjul, Beit Mirsim, Dan, Far'ah (South), Haror, Hazor, Jemmeh, Jericho, Megiddo X, Mevorakh, Michal, Poran, Shechem, Shiloh, and Yavneh-Yam. Of these sites, however, one can only unequivocally agree that no evidence of defensive walls atop MB ramparts (for the reasons discussed above) has yet been revealed at 'Ajjul, Haror, Jemmeh, Michal, and Poran. While the evidence cited above addresses the existence and fate of

fortification walls at many sites, there is no question that some sites do appear presently to lack any evidence of fortifications in this period. But this negative evidence only makes it impossible *at present* to confirm that they were fortified. However, based on the recent discovery at Jericho of a 5 m thick mudbrick fortification wall dated to the MB, which was finally exposed in the late 1990's after excavations by three previous expeditions, the negative evidence can hardly be considered indicative of the widespread absence of fortification walls.

Nevertheless, the interpretation advanced by these scholars also ignores various other factors which have limited their recognition of fortification walls at numerous other sites. Among these factors have been: (1) the absence of evidence as a result of limited soundings (and limited publication) of the fortifications of many sites, which also featured intra-site variability in the construction of their defenses; (2) the eradication of the remains of fortifications in certain areas due to erosion, mining by farmers for fertile *sebahkin* (Ar soil) and later construction; (3) the misinterpretation of evidence of fortification walls when they consist of the meager remains of a mudbrick superstructure or, more frequently, only its stone foundations; (4) ignoring the comparative evidence of more substantial mudbrick structures such as gates and towers discovered at these sites, which in all other periods are known to have been accompanied by some type of enclosure wall; and (5) the assumption that ramparts were the result of cultural rather than the defensive concerns of the inhabitants of the southern Levant during the MB (see discussion in chapter one, section D.9).

Regarding the first observation about the evidence for fortifications, it is worth noting that the MB ramparts at only a handful of sites in the southern Levant have been adequately explored (i.e., in more than one area). Of the sites mentioned by these scholars that do lack sufficient excavation, the most notable are 'Ajjul and Poran. At both of these sites only a single section of their fortifications has been obtained. The reason for such

limited exploration of fortifications has been due to the assumption that a single section of the fortifications provides a sufficient representation of the general character of the fortifications of an entire site or, more often, that it had been fortified at all in a given period. As mentioned above, intra-site variability in the construction of ramparts and walls to one degree or another appears to have been the norm, despite the tacit assumption by most scholars that ramparts with similar profiles were built using nearly identical techniques (e.g., Dan, Hazor, Jericho, Shechem, etc.).

While intra-site variability has contributed much confusion to the study of fortifications, particularly those of the MB, this confusion has been compounded by the complete eradication in many places of most of the evidence of the fortification walls, the superstructures of which appear to have always been constructed of sun-dried mudbrick (e.g., Ebla, Munbaqa, Achzib, Aphek, Ashkelon, Dan, Hazor, Jericho, etc.). Of course, this statement must be placed in context, since frequently fortifications of as much as four kilometers in length might only have been explored in a single sounding which is usually no more than five meters wide! But recent re-examination of MB Jericho by an Italian expedition, as mentioned above, has revealed evidence of a mudbrick wall associated with the rampart just adjacent to the areas where both Kenyon and Garstang had excavated and yet had not encountered the fortification wall. Though preserved only one meter high, this wall was six meters wide!

At Dan clear evidence of a mudbrick wall and gate complex have been found in Areas K, T and Y, despite the fact that no remains of the mudbrick wall were recovered in Area A-B, where Biran has also suggested that the top six meters of the very large rampart have been removed (see Figure 68 in Appendix B). In Area Y the dilapidated remains of the mudbrick wall, plainly seen in section, are explained away as an extension of the fieldstone core of the rampart. Given the availability of fieldstones for construction and the ease of using this material over making mudbricks for the core of the rampart, the

explanation offered does not accord with the evidence. In Area T seven courses of mudbrick on a stone foundation wall are also not addressed as evidence relating to the MB fortification wall at Dan.

Of particular concern in the interpretation adhered to by Finkelstein, Herzog and others has been their dependence on an absence of evidence from small, usually late MB sites which have seen only limited excavation. One site of importance to their argument, Poran, was only explored during a single season of salvage excavation. Nevertheless, it has also been advanced as a key site for the reappraisal of the issue of MB ramparts (Gophna 1992a), despite the fact that the MB rampart clearly used an EB wall as its core wall and, in my opinion, probably as the foundation for a smaller MB wall evidence of which was not encountered in the single section excavated.¹⁹ Furthermore, the date of Poran's settlement and the use of its rampart are only generally dated to the MB and no sub-phasing has been possible due to the limited extent of the excavations.

d. Exterior walls of buildings as fortifications

Although there are small, well-known Levantine settlements that were unfortified during the MB (see discussion in chapter five, section A.5), there appears to be little basis to doubt that almost every ramparted MB settlement featured some type of defensive wall. The question, therefore, is: what type of wall protected the settlement and how much must one excavate in order to identify it? While solid mudbrick walls and casemate walls, both of which have been discussed above, provide the clearest evidence of fortifications, it is possible that some sites may only have been defended by the exterior walls of structures built atop the slopes of their ramparts or the edge of a tell (e.g.,

¹⁹ It is impossible from Gophna's preliminary report (1992a) to be entirely convinced that the rampart never featured a MB mudbrick superstructure, despite the evidence of an EB pit dug into the top front edge of the wall. This is especially true since the MB wall could have been narrower than the EB wall, resting behind the leading edge of the EB wall.

Mevorakh, Michal, Masos, and Giv'at Sharett). Such defensive practices, though limited in extent, perhaps presage the LB fortification strategy as the lack of evidence for fortification walls for that period seems to suggest. In short, the suggestion that all MB fortifications lacked walls is not unlike Y. Yadin's hypothesis that all ramparted settlements were limited to the MB II (IIB–C) and that none were built during the MB I (IIA) (see discussion in chapter one, section D.7).

G. R. H. Wright has suggested, however, that perhaps the opposite situation had prevailed, such that several walls actually served to defend settlements in a given period rather than considering each of these walls, as at Shechem, to be evidence of the fortifications of successive phases of fortifications (1985a:54). While there is evidence for the coexistence of citadel and town walls, and fortification walls and revetment walls, there does not appear to be any evidence to suggest that these other walls functioned primarily as defensive walls, as discussed above. Instead it is likely that these walls functioned primarily as revetment walls and were intended to retain the rampart's fills. It is also possible that the main revetment walls featured similar walls built above them to keep eroded materials from the rampart's slope from filling the fosse below or creating a slope up the face of the main revetment wall, which would have rendered the wall less effective.

5. *TOWERS AND BASTIONS*

In addition to the direct evidence of MB fortification walls discussed above, the evidence of towers and bastions which have often been identified atop MB ramparts provide unequivocal proof that ramparts were built for defense and remove any doubt that these structures were connected by a continuous fortification wall. Furthermore, the evidence indicates that almost all towers were rectangular, while circular towers are known at only one MB site (e.g., Tuqan). Although the terms *tower* and *bastion* have often been used interchangeably to refer to the same types of structures, based on the

clustering of the dimensions attested for these rectangular structures these two terms can be usefully employed to refer to two basic types of fortified towers identified for the Middle Bronze Age. These two types include towers, which are usually less than 20 m long (length here is measured parallel to the defensive wall) and bastions, which are larger, fortress-like structures (see Table 5 below).

a. Towers

Rectangular towers were the most frequent type of fortified structure attached to town walls in the MB. Their dimensions average between ten and twelve meters in length and five to six meters in width, with their narrow side often centered along the town wall. Usually towers were built as part of the town wall at regular intervals (between 20 and 35 m) projecting only a few meters from the wall. The short intervals between most towers may, in fact, provide additional evidence concerning the optimal range for archers defending the town wall (see chapter two, section C.1.b), but the data for tower intervals is admittedly sparse. On occasion towers were also attached secondarily to the interior rather than the exterior face of the town wall (e.g., Megiddo), though this may have been only the case with citadel walls but not the main defensive wall.

b. Bastions

Bastions, which were usually rectangular like their smaller counterparts, were also incorporated into fortification walls at regular intervals. The best examples of these structures have been exposed at Ebla where they have been referred to as fortresses.²⁰ At Ebla bastions were constructed approximately 300 m apart and featured average dimensions of about 27 x 13 m (Pinnock 2001:22). While it has been suggested that their spacing was optimal for providing suppressing fire between towers (i.e., within 150 m of any tower along the wall), it is doubtful that these bastions functioned without towers,

²⁰I prefer to reserve the term *fortress* for small, fortified, military settlements.

which were probably also placed at regular intervals between them. This principle is demonstrated at Gezer (Stratum XIX) where a structure, which was probably a bastion (Tower 5017), was built to the west of the south gate. Contemporary with this bastion were numerous other towers spaced 30 to 35 m apart along the town wall. It is likely therefore that six or seven towers were built between each bastion at Ebla, with a total number of 35 to 40 towers built along the ramparts.²¹

Although both towers and bastions would have functioned similarly, for example, as lookout and signal towers, sentry posts, and fixed defensive positions, because of their size bastions are likely to have served a number of more general uses. Though they may have served the obvious purpose of barracks for garrisoned soldiers, they may also have functioned as storage facilities, residencies, or administrative buildings. Various finds from the bastions at Ebla, which include weapons, a lexical tablet, and a hearth, provide clues concerning the multiple functions of these structures.²²

Most frequently the ratio of length to width of MB towers and bastions was approximately 2 to 1 (see Table 5 below). This may have resulted from the fact that the basic building blocks for towers were square or rectangular mudbricks, which made building rectilinear towers easier than building apsidal towers like those attested in the early EB. Too great a variation from a rectilinear design necessitated more careful construction and required the cutting of bricks as well as more mortar per cubic meter of mudbrick, thus weakening the structure overall. Solid mudbrick towers with a rectilinear

²¹To date, intensive exploration of Ebla's fortifications since 1995 has focused on areas where large structures could be seen along the surface or were considered most likely to have existed based on the locations of the bastions already identified. No "randomly" placed soundings have been made of the ramparts, which would most likely yield evidence of these towers, nor has magnetometry been used.

²²For discussion of the administrative role of the Western Fortress at Ebla see Pinnock (2001:31f.).

plan would also have been more easy to construct than circular towers would have been (e.g., Poleg).

Table 5. Dimensions of MB towers and bastions. Length measured parallel to the line of fortification. Italics indicate estimated figures.

Site	Area/Locus	<i>L</i> (m)	<i>W</i> (m)	Avg. Ratio (l:w)	Tower spacing (m)
Akko	Building A	15	15	1:1	—
Ashkelon XXI	Grid 2 F31	14	8	7:4	—
B. Mirsim G-F	2 towers	10–10.5	5	2:1	23
B.-Shemesh V	NE tower	9	6+	?	—
	W tower	18	11	1.6:1	89
	S tower	11.3	7.3	1.6:1	see above
Dan XI	Area T L8931	8	5	2:1	—
Ebla	Area M	27	12.5	2:1	300
	Area V	26	16		
Far‘ah North VC	L301–303	12.7	7	2:1	—
Gezer XIX	N Tower 1	12	8	3:2	30–35
	N Tower 2	16	8	2:1	
	N Tower 3	8	12	2:3	
	N Tower 4	6	8	3:4	
	SE Tower	13	6	2:1	
	Tower 1005	13	8	1.5:1	
	Bastion 5017	30	15.6	2:1	20
Jericho IVa-b	Area E. Tower E1 (W.268–270)	7.5	3	5:2	—
Jerusalem	Spring Tower	17	14	8:7	—
Kannas	Bastion 1	7.5	4	2:1	—
Megiddo XIII	4104	13	6.5	2:1	—
Megiddo XII	Area BB	10	6	5:3	—
Pella XI	Area XXVI	12	8	3:2	—
Poleg, Tel	Area C L.24	15	8	2:1	—
Selenkahiye	Bastion B	5	5	1:1	—
	Bastion	10	7	3:2	—
Tuqan	Area E	7.5	5.85	5:4	—
	Area F: 3 circular towers	9.4 m diameter		NA	14.5–16
Zeror	Area D	15	8	2:1	—

But perhaps the most likely reason for the adoption of the rectangular plan for towers and bastions was its superiority to apsidal towers in providing a large platform

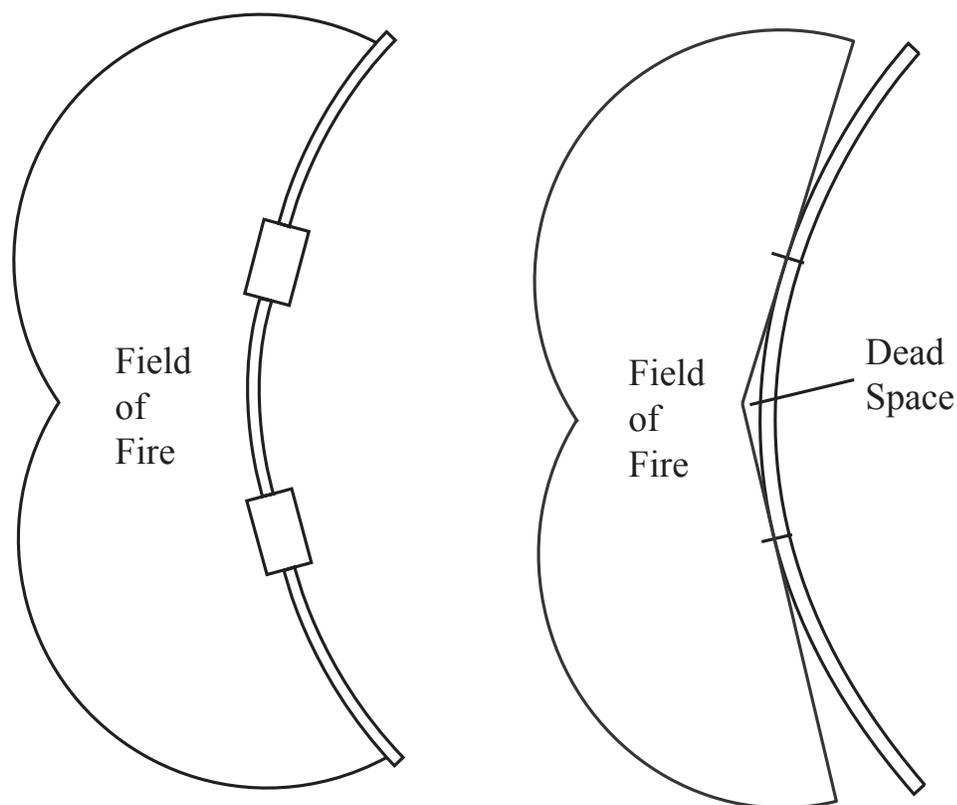
from which multiple archers could fire down upon a single position. Apsidal towers because of their shape afforded fewer positions along the tower's edge from which multiple archers could focus upon a single target, particularly when the target was approaching or up against the town wall. This would have been particularly detrimental during siege warfare when it would have been necessary to provide intense suppressing fire against battering-rams and siege towers from as many positions as possible. I disagree, therefore, with Kempinski's suggestion concerning the apsidal tower's "superiority in many respects over the rectangular tower" (1992b:72), which is based upon the observation that this tower type was reintroduced in the Hellenistic period and was also used through the Medieval period.²³ While it is true that the square corners of towers and bastions would have introduced a vulnerability to prying and battering by the enemy, the advantages to the defenders would have outweighed the disadvantages from the mid-third millennium B.C. onwards.

Regardless of the reasons, rectangular towers had already become the base unit of construction for all fortifications appended to walls by the EB III (Kempinski 1992b:68, 72), which in addition to towers included not only bastions but also gates. As will be discussed below, six-pier gates, which were so common during the MB in the Levant, employed rectangular bastions parallel to their entryways as part of their construction in order to provide optimal coverage of the settlement's entrance by defenders. Towers (and bastions) were also incorporated into other structures within towns, perhaps in order to defend particular structures or to provide strongholds that could be defended in the event that enemy troops entered the town. At Ebla a bastion (L.3245, 3363) incorporated into the Western Palace in Area Q (32.5 x 15 m) retained dimensions similar to those of

²³Kempinski's suggestion overlooks that from the Hellenistic period onwards projectiles were fired against fortifications to breach them. Therefore, using a rounded architecture for stone towers would have reduced their susceptibility to collapse by improving their ability to deflect shots fired at them.

bastions built along Ebla's ramparts, which measured 27 x 13 m (Pinnock 2001:22). A rectangular tower was also built to protect the spring inside Jerusalem during the MB.

Figure 8. Fields of fire for fortified settlements with and without towers.



Despite their size, the most significant role of both the tower and the bastion was, of course, that its forward projection from the fortification wall afforded the defenders an advantageous position from which they could more easily protect longer sections of the fortification system. The most significant difference between settlements with and without projecting towers is, as Figure 8 demonstrates, that a greater number of positions would need to have been manned on a wall lacking towers in order to protect the settlement. The defending forces would, therefore, have been spread more thinly along the settlement's defenses. This deficiency was also compounded by the fact that only two archers, located on opposite sides of one target, could fire upon a single position since, as

the geometry in question demonstrates, only a single tangent exists for any point along an arc (i.e., the curve of the wall).

Although the defensive problems inherent to sites with elliptical plans were basically remedied in the middle of the MB (ca. 1700 B.C.) with the introduction of rectilinear plans for most settlements, rectangular towers were already widely in use in order to improve the defensibility of MB I (IIA) sites, which usually featured elliptical layouts (see discussion of chronology in section D below). They are known during the MB I (IIA) at sites such as Megiddo, Beit Mirsim, Burga, Poleg, and Zeror. They continued in use during MB II (IIB–C) as evidenced at Ashkelon, Dan, Far‘ah North, Gezer, Pella, and other sites (see Table 5 above). It is likely that these towers were simply a development of prototypes employed in fortification systems in northwestern Mesopotamia, where rectilinear towers are attested at EB IV sites such as Sweyhat and Selenkahiye.

The ubiquity of rectilinear designs for towers in the MB is also evident from the employment of rectangular towers and bastions in Middle Kingdom fortresses in Nubia between the second and third cataracts. At Buhen, Mirgissa, and Semna, for example, rectilinear towers projected from the inner and outer fortification walls at regular intervals and were also accompanied by larger rectilinear bastions. Though the towers were more square, clearly the value of such towers, regardless of their origin, was already apparent in Egypt by this period. Earlier towers on Egyptian fortifications, like those in the southern Levant during the EB, were usually apsidal. Although it is difficult to be certain why rectangular towers had become so preferred during the MB in the southern Levant, it is possible that, as suggested above, the size of the platform which they offered made them preferable to circular and apsidal variants.

6. GATES

When no later construction has obscured them, the locations of a settlement's gates are often evident as depressions between the embankments that encircle a site or on the edge of a tell, though it remains impossible to confirm the date of these features prior to excavation. These depressions are the result of spaces occupied by the gate which after partial collapse often continued to channel water along the axis of their passage, which creates a predictable pattern of erosion (cp. to "linear hollows" discussed by T. Wilkinson 1993). At Ebla, for example, though the four MB gates have been partially excavated in the depressions evident in the site's contours, these depressions probably also correspond with the four earlier gates of the EB, which may lie under the MB gates and are mentioned in the texts from Ebla (Matthiae 1980b:65). This suggests, therefore, that the location of MB gates on sites which featured continuous occupation since the EB can probably routinely be determined by the location of earlier gates. When a gate was completely buried or did not collapse, it may often be impossible to identify the location of these structures without excavation (e.g., Dan).²⁴ The location of gates in the MB, as attested in earlier and later periods, was predominantly determined by the orientation of routes to and from particular destinations. This principle of gate location is evident at sites such as Ashkelon where the northern gate facilitated access to the route north towards Jaffa.

While this is usually true, it is also clear that neither the existence of a gate in a specific location, nor the nature of its construction, can suggest anything unequivocally about its importance. Although the gate in Area A on the southwest side of Ebla, for example, is well preserved and certainly leads off towards more densely occupied areas

²⁴The collapse of a gate at Sagaratum is described in ARM III 11. Gate construction is also referred to in ARM III 10 and 78.

than does the gate on Ebla's southeast side, it is impossible to assess its overall significance since there is no way of comparing the amount of use it experienced to that which other gates experienced (contra Matthiae, see Appendix B). Furthermore, there is no way of differentiating between frequent use by local traffic and occasional use by non-residents for each of these gates. Social or political motivations may also have limited the use of a gate for royal business, while circumstances such as later blocking or infilling of the gate may have resulted in unusually good preservation of a gate (e.g., Dan). During the MB II (IIB–C), despite the considerable planning that was entailed in the construction of rectilinear rampart defenses, adherence to the general principles for situating gates persisted for functional reasons. This is evident at Dan where the southeastern gate is not centered in the eastern rampart.²⁵

Middle Bronze Age gates in the Levant have been thoroughly reviewed by a number of scholars (G. R. H. Wright 1984; Herzog 1986: esp. pp. 37–73; Gregori 1986), who have drawn from extensive archaeological reports for the gates of a number of sites in the Levant and northwestern Mesopotamia (e.g., Dan, Hazor, Shechem, Akko, Ashkelon, Qatna, Ebla, Tuqan, and Munbaqa). Since the subject of the present study is focused on broader questions involving the role of fortifications as a whole, this treatment of MB gates will focus primarily upon the basic types attested, their functional characteristics, and their origin. Although some gate types, such as the six-pier type, are particularly well known, other gate types include the four-pier gate and the postern gate, which are both well attested in the Levant.

²⁵For this reason A. Kempinski's suggestion (1992a) that the locations of the gates on MB sites in the south can be determined by comparison with Qatna is too rigid. It does not acknowledge that at previously occupied sites, such as Dan, the location of their gates, despite the rectilinear plan of the new defenses, is likely to have been determined by preexisting routes of trade and communication which may have served as the very impetus for the site's continued settlement. A. Biran has, for example, suggested that there may be an EB gate below the MB gate at Dan (1984:8).

a. Six-pier gates

Because of its first appearance in the Levant during the MB, the six-pier gate has been considered a hallmark of monumental and defensive architecture during this period for this region. While this type of gate has also been variously referred to as an *a tenaille* (Fr “with pincers”) type gate (Matthiae 1980b:120), the “three-entrance” gate (Gregori 1986), the four-chamber gate (Ger “Vierkammertor”, Weippert 1988:222), the “Syrian” gate (Kempinski 1992d:197; 1992c:134ff.), the “fort-gate” (Herzog 1997a:134), and the “triple gate” or “three way gate” (Kaplan 1975:12ff.)—all terms which emphasize particular aspects of this gate type—the gate is probably best described as the six-pier gate. This term avoids tying the origin of the gate type to a particular region, since it is not certain if it originated in the northern Levant (i.e., Syria), and it does not unnecessarily emphasize the number of chambers or doorways which the gate featured, since chambers were probably of secondary importance to the establishment of at least two separate lines in the gate which an aggressor would need to have penetrated to enter the town. Furthermore, the term “three-entrance” gate is also inappropriate since we cannot be certain that six-pier gates were equipped with three sets of doors, as this term suggests since even when all the door sockets are found in situ they actually suggest that two sets of doors, which opened in opposite directions, were located inside the inner and outer piers (e.g., Area A gate at Ebla).

The six-pier gate can, therefore, be described as a unified defensive complex with a direct-axis passage flanked by two rectangular bastions aligned parallel to each other and separated by three sets of piers, which formed two separate chambers that could be closed off by up to three sets of doors. Such gates are known in the northern (e.g., Alalakh, Ebla, Tuqan, and Qatna) and southern Levant (e.g., Dan, Far‘ah South, Gezer, Hazor, Megiddo, Shechem, Shimron, and Yavneh-Yam), as well as in northwestern

Mesopotamia (e.g., Munbaqa).²⁶ Since no contemporary gate structures have been excavated in southern Mesopotamia, it is not yet possible to be certain that this type of gate was not present there or that it did not originate there, though presently it seems unlikely. There is no evidence from Anatolia to suggest that this gate type originated there (Naumann 1971:285ff.), and attempts to draw parallels with gates from Troy are ill-founded and too far-reaching.

Although it is probable, as B. Gregori has suggested, that the development of this type of gate was directly related to an increase in the width of fortifications as a result of the use of earthen ramparts (1986:83), it does not appear possible to conclusively prove this, especially since even larger gates (with eight piers) were built in the Iron Age, for example, and were not accompanied by commensurately more massive fortification walls. I would suggest, instead, that the appearance of this gate type can be related to the prevalence of the battering ram in siege warfare during this period and the need to improve the strength of gates. But whatever the reasons for its inception, this type of gate was especially uniform in size and construction (see Table 6 below),²⁷ as P. Matthiae has previously observed (1980b:204). Gregori has noted that two main types of rectangular towers were incorporated into these structures (1986:85f.): towers with solid lower levels (e.g., Tuqan, Gezer, Hazor) and towers with rooms (e.g., Alalah, Beth-Shemesh, Far'ah

²⁶ If the reconstruction of the gatehouse at Tell Taya in northern Iraq is correct (Reade 1968), this gate would be the only extant example of a similar gate type in eastern or northern Mesopotamia.

²⁷ The reader may note that the west gate at Qatna, the “Water Gate” of Carchemish, and the northeast gate at Munbaqa can no longer be included as MB gates due to the inconclusive nature of the evidence for the dates of their construction. The west gate at Qatna cannot, in my opinion, be dated to the MB since according to du Mesnil du Buisson’s published plan it featured a completely different alignment from the other gates and its masonry, which was also completely different, appears to be Iron Age or later in date (see Appendix B). Despite former identifications of the “Water Gate” at Carchemish as a six-pier gate, the publications do not provide conclusive evidence for its dating and, therefore, we should err on the side of caution concerning its identification as an MB gate (see Appendix B). Details regarding the possible LB date of the gate at Munbaqa are provided in Appendix A.

South, Hazor, Shechem, and Yavneh-Yam). The narrow rooms in some of these towers can probably be reconstructed as staircases, which were built of wood (e.g., Alalah, Shechem, Yavneh-Yam, Beth-Shemesh) with the lower steps constructed of stone (e.g., Alalah). Other rooms within the gate's bastions were multi-purpose, just as the rooms in most bastions (see discussion of *Bastions* above).

Table 6. Six-pier gates of the MB (after Gregori 1986:Table 1 with revised figures for gates and new gates). P=Passage. Dimensions for bastions flanking gates can be derived from figures for gate length (=bastion length) and bastion width.

Site	P. l	P. w	Entry w.	Pier w.	Bastion w.
Munbaqa (NE)	17.5	7.2	3.1	2.5	2.5
Alalah VII (NW)	16	5	2.75	2.6–2.8	9.2
Ebla (sw)	21.3	5.8	2.8	4.35–4.45	—
Ebla (NE)	20	4.7?	3.2?	4.5–4.75	—
Qatna (E)	>22	8	3.5	4	?
Tuqan (NE)	>18	7.3	2.6	3.2–3.75	10.2
Tuqan (SE)	17.5	7.5	2.7	3.5–3.9	>7.5
B.-Shemesh (S)	14.3	4.5	3	2.2–2.5	5.5–7
Dan (E)	13.5	10.6–11	2.5	1.65–2	—
Far'ah S. (S)	18	6.6	3.6	2.2–3.8	7.6
Gezer XVIII (S)	12.9	4.6	2.75	2–2.7	8.5–8.7
Hazor Str. 4 (Area K)	9	3 (?)	1.8 (?)	?	9
Hazor Str. 3 (Area K)	16.5	7.3 (?)	3.1	2–3	6.5
Hazor Str. 4 (Area P)	20.6	?	?	?	9.5
Hazor Str. 3 (Area P)	25	?	2.65	3.2–3.6(?)	11
Megiddo X?–VIII	18	6.8	2.8	2.6–2.8	—
Shechem XVI (NW)	18.3	7.32–7.55	2.8	1.91–2.3	4.9–5.5
Yavneh-Yam (Gate III)	18	5.2	2.8	2.4–2.5	9.5–10

Despite the formidable construction of the six-pier gate, it may often have been the case that the gate was supplemented with an outer gate of smaller proportions. Such was the case for Ebla's southwest gate where a four-pier gate was constructed outside of the main gate and was separated from it by a large courtyard. At Ashkelon a similar outer gate was added in Phase 12 below the main gate. In both instances, the indirect approaches to these gates were oriented at an angle to the main gate. Though this bent-axis design may have been the result of a strategy intended to impede direct entry, it

seems more likely that in both cases the location of these gates reveal the original approaches to the site, which had been established during earlier phases of occupation. Usually the steepness of the slope of the approach could be reduced by curling it around the edge of the site (i.e., along the slope of the ramparts). This almost always resulted in a bent-axis approach which was tailored to the needs of everyday traffic rather than aimed at thwarting an approaching army. If bent-axis approaches reduced the effectiveness of enemy attempts to enter gates, then we would expect ample evidence, of which there is none, for this strategy to have been adopted for Mesopotamian gates (see Damerji 1987:esp. 181ff.). Instead, this approach, though peculiar to the Levant and Anatolia, was dictated by the topography outside the gate.

The number of excavated examples of six-pier gates is sufficient to reconstruct a chronological understanding of the development of this gate type. That it first appeared in the northern Levant towards the start of the MB I (IIA) has already been demonstrated by examples from Ebla (Mardikh IIIA) and Tuqan. During the transitional period MB I–II (IIA–B) this gate type first appeared in the southern Levant (e.g., Dan, Hazor, and Yavneh-Yam), probably having been adopted gradually throughout the northern Levant, as for example at Qatna. Following this period numerous examples are attested in the southern Levant, particularly during the late MB II (e.g., Shechem XVI, Yavneh-Yam phase 2, Hazor Str. 3, Beth-Shemesh, Far‘ah South, Gezer, etc.), and they were constructed through the end of the MB II (IIC) throughout the Levant (e.g., Alalah). The latest of these gates appear to have often remained in use during the start of the LB (e.g., Hazor). It may even be the case that some examples, whose construction has been dated to the LB, were actually built in the late MB (e.g., Megiddo VIII, where this may account for the lack of evidence for the gates of Levels X–IX). Nevertheless, it is clear that when possible these gates were maintained and renovated as necessary.

What remains debatable, however, are the developments which led to the invention of the six-pier gate. In this regard several gates, which have not previously been addressed in existing typologies of EB IV and MB gates in the Levant, may provide some understanding of the development of this gate type. These gates include the EB IV gates of Selenkahiye and Byblos (Level VI), and the gate of Ashkelon XXII (Phase 14) dated to the start of the MB I (IIA). Since the role of the load-bearing, barrel-vaulted arch appears to have been integral to the construction of the six-pier gate type, it is important to recognize that such architectural elements were in use in the Levant and northwestern Mesopotamia as much as five hundred years prior to the development of six-pier gates. Among the earliest preserved mudbrick arches is one found in the palace at Beydar which has been dated to ca. 2400 B.C. (Bretschneider and Van Leerberghe 1997; Oates 1973). Evidence that similar arches were incorporated into architecture in the Levant prior to the MB is attested in the northeast gate at Byblos (Level VI, ca. 2300 B.C.) which transects the early rampart. The interior passage of this gate was 18 m long and 4.8 m wide and it was roofed by a barrel-vaulted ceiling that was supported by the canted, stone-built walls that have been preserved to a height of more than two meters. Yet this barrel vault, which lacked any internal piers, was structurally insufficient at the time of its construction, as is indicated by the spaces left in the walls and floors for the timbers which supported the vaulted ceiling. A roughly contemporary gate of smaller proportions has also been exposed at Selenkahiye. Its passage was found to be 10 m long and 3 m wide, a passage size closer to that of MB six-pier gates. Despite the fact that little is known of this gate's superstructure nor is it certain that this gate featured a barrel vault, the gate's dimensions and date suggest that it played a role in the evolution of the six-pier gate type.

The clearest evidence of the evolution from the EB IV gate attested at Byblos, however, is the MB I (IIA) gate at Ashkelon (Stratum XXII, Ph. 14, ca. 1825 B.C.). This gate featured four arched piers, the outer two of which were constructed in stone with the

inner two built in mudbrick, enclosing a barrel-vaulted chamber 9 m long and 3.6 m wide. The construction of this gate, when compared to the gates of both Byblos and Selenkahiye, suggests a need for a continued reduction of the original length and width of the vaulted space for structural reasons. This is further illustrated in the gate at Ashkelon by the addition of buttresses in the center of the chamber's walls in Phase 13—a precursor, if not replication, of the function of the central piers of six-pier gates. Though it might be argued that at some point the gate at Ashkelon should have been constructed with a six-pier plan, the lack of space within the Phase 14 and 13 passages made such a modification impossible, and an entirely new gate would have been necessary to replace the older gate. The date of the original gate at Ashkelon—to the mid-MB I (IIA), after the EB IV gate at Byblos—and the evidence that the builders of Ashkelon's gate were unfamiliar with the six-pier gate type at the time of its construction supports the suggestion that this gate must be placed in a sequence after the EB IV gate type but before the MB six-pier type. Thus it is possible to reconstruct a likely scenario for the evolution of the six-pier gate from earlier gate types characterized in its earliest stage by the gates of Byblos and Selenkahiye, followed by the gate type attested at Ashkelon, and culminating, finally, in the development of the six-pier gate which gained widespread use during the MB II (IIB–C).

b. Four-pier gates

The four-pier gate is perhaps the most ubiquitous of all gate types during both the EB and MB (see Table 7 below). As such this gate type also features the most variation in orientation. As Gregori has observed, this type of gate, which she has referred to as the “chamber-shaped” type, although present during the MB, had very clear precursors in the EB (1986:90). This variety of gate consisted of two main subtypes which are differentiated primarily by their length, being either long, where vaulting may have been used for the passage, or short. Examples of four-pier gates with a single, long vaulted

chamber are found at Byblos and Ashkelon, as mentioned above, and these gates may have contributed to the development of six-pier gates. Smaller types are attested at Akko, Ashdod, Ashkelon, Beit Mirsim, Far‘ah South, and Yavneh-Yam.²⁸ Despite being smaller structures most of the examples of four-pier gates appear to have been constructed with sufficiently wide passages so as to accommodate wheeled vehicles, like six-pier gates (see discussion below). Aside from the absence of central piers within the gate, the major difference of this type of gate from the six-pier type was that this type often lacked towers (except at Shechem). There appears also to be no evidence for the use of vaulted passages in four pier gates like those evident for six-pier gates.

Table 7. Four-pier gates of the MB. P=Passage.

Site	P. l	P. w	Entry w.	Pier w.	Bastion w.
Ebla (sw)	10.5	4.75	3	2.7	?
Akko	7	4.4	2	2	—
Ashdod (Area G)	6.5	2.9	3?	1.8	—
Ashkelon XXII (Ph. 14)	19	3.6	2.5	1.82–2.8	—
Ashkelon XXII (Ph. 13)	20	3.6	2.3>2.1	1.82, 2.8	—
Ashkelon XXI (Ph. 12)	29	7	5.5	—	—
Ashkelon (Ph. 11)	7.3	3.9	1.5	1.8–2	—
Beit Mirsim D–E	?	6.25	3.25	1.5	—
Far‘ah North	7	6	3.2	2	—
Megiddo XIII	6	4	1.5	1.8	—
Shechem XV (E)	13.9	8.35	3.3	3.2–3.35	5.45–5.5

c. Postern gates

Although postern gates are the least common type of MB gate, they persisted in use from the EB into the MB and during the LB. This type of gate represents the simplest gate plan, which was essentially composed of two piers. Most postern gates, which because of their non-monumental character have often escaped discovery, were narrow, non-descript passages through the town’s wall intended to serve only “foot and hoof”

²⁸The gate of the MB palace at Mari also featured a four-pier gate much like these (Parrot 1958:pl. 11).

traffic (e.g., Tuttul). Such gates can usually be characterized as an opening in the town wall rather than as a separately constructed fortified structure. Still, one sub-type of postern gate built during the MB featured corbel vaulted construction. The best example of this type of postern is the corbel vaulted postern gate on the northwest side of Ugarit dated to the LB. Such gates appear to have been the only type of gate that was constructed from floor to ceiling entirely of well dressed stone masonry. In addition to the gate at Ugarit, which may in fact be of late MB II (IIC) date (see Ugarit in Appendix A), we can also add the lesser known postern gate of identical design at Akko, which M. Dothan had dated to the late MB (IIC), but had identified as a drain (1993a:19f.)! This gate, though, did not feature steps within, but simply led below the third rampart into the site. This gate type continued to be built and used in the LB and examples are known mostly in Anatolia from sites such as Hattuša, Alaca Höyük, and Alishar Höyük (von der Osten 1937:figs. 27–29).

d. Other gate types

Various other irregular gate types are present in limited numbers throughout the Levant in the MB. At Beth-El a U-turn gate was excavated on the northwest side of the site. The complete length of its passage was over 20 m long. The “Sea Gate” at Byblos (Level VI) is also unique. It featured a set of stairs descending to the northwest and northeast from the northwest side of the site. What could be referred to as pierless direct-axis gates have also been identified at Qitar. These gates which were wider than posterns were probably built to accommodate wheeled carts and chariots.

e. Gates and types of traffic

As a result of the fact that most travel in the ancient Near East was done by foot, the majority of traffic through MB gates would have been pedestrian. It has in recent years been observed, however, that domesticated herd animals were also often stabled on the first floors of houses inside walled settlements in the Levant during the second and

first millennia B.C. (e.g., Stager 1985:13ff.; Schloen 2001:338ff.), and, therefore, this type of traffic would have been common at town gates. But what is less clear is the extent to which wheeled traffic could pass through particular gateways. The popular conception has been that gateways would have been constructed with passageways of sufficient width so as to permit the passage of chariots, insofar as they were in use at the start of the second millennium (see artist rendition of chariot passing through MB gate at Ashkelon Gore 2001:72). But this reconstruction has been advanced purely on the basis of the suggestion that gate passages were widened between the EB and MB (Herzog 1986:61). This has not, however, been conclusively demonstrated by comparing the width of passages with the axle lengths of chariots and carts since no MB examples are known (Littauer and Crouwel 1979:53f.).²⁹ Therefore, to adequately answer this question we must draw upon comparative evidence for the length of chariot axles, which can be derived from LB exemplars. These indicate a range from 1.98 to 2.36 m for their axle widths (ibid., 78), suggesting that gates with passages wider than 2.5 m were probably sufficiently wide for the routine passage of chariots or carts with equally wide axles, providing that no other obstacles such as low ceilings or steps would have inhibited their movements. This, therefore, demonstrates that most of the six-pier gates could have accommodated such traffic (see ‘Entry widths’ in Table 6 above). The gate at Dan with a passage of barely 2.5 m, in contrast, probably did not accommodate such traffic, which is confirmed by the presence of cobbled stairs leading up to the gate on both sides.

Some gateways indicate that measures were also taken to block them at different times, in order to actually limit the amount and type of traffic. At Ebla it is evident that at some point during the last phase of the MB (Mardikh IIIB) access to its southwestern

²⁹That chariots, vehicles intended for higher speeds and maneuverability, required a wheelbase broader than most four-wheeled carts and two-wheeled straddle cars or platform cars has been demonstrated by Littauer and Crouwel (1979:53f.).

gate (Area A) was limited by the erection of a 6 m long, 1.5 m wide fieldstone wall (M 317) across all but three meters of the courtyard between the inner and outer gateways (Matthiae 1970:65 and fig. 2). Although the passage width corresponds to that of the pre-existing passages between the inner and outer gates, the sharp turns required to maneuver through this gate reveal that wheeled vehicles were no longer welcomed to use this gate or pass through this quarter of the town.

f. Characteristics of MB gate construction

The foundation of gates, in contrast with the foundations of walls, were usually constructed of better dressed but still locally available stone (e.g., Ebla, Tuqan, Qatna, and Hazor), while superstructures were no doubt almost completely built of mudbrick as illustrated by the more completely preserved gates at Ashkelon, Dan, Alalah, and Munbaqa. If stone was occasionally required in the superstructure it was used for orthostats, corners, and voussoirs. This is illustrated by the use of stone for voussoirs at Ashkelon in places where mudbricks might have been especially prone to structural failure or where they would have been too easily damaged during use.

In most respects the style of construction of six and four-pier gates was identical, though orthostats were probably employed more routinely in the construction of the piers and foundations of six-pier gates (e.g., Alalah and Ebla). As Gregori has already noted (1986:91), these were both aesthetic and functional (i.e., load bearing), which is borne out by the fact that they were usually canted slightly inwards along the length of the passageway (e.g., Alalah and Ebla). These orthostats probably served to support barrel-vaulted ceilings, like those preserved at Munbaqa and Dan, but attested earlier at Byblos

and Ashkelon.³⁰ The average height of these vaults can probably be estimated to have been around 3 m (e.g., Dan).³¹

Evidence for the use of double doors is provided by the preservation of door sockets in both four- and six-pier gates (e.g., Ebla). The number of door sockets preserved in six-pier gates clearly indicates that only two sets of doors were in use, though three sets of piers existed. This seems to further support the observation that the central piers were intended to be load bearing rather than to provide for the installation of a third set of doors. Although no remains of any original MB doors, which were probably made of wood, have been recovered from these gateways, it is still possible to determine the original dimensions of these doors. This information can be deduced from the dimensions of preserved portals and the location of *in situ* door sockets. Two doors were usually paired at each entry point and they were, therefore, probably up to 3 m tall and between 1.25 and 1.5 m wide. Of course, the dimensions and shape of the door would have varied if the door was required to open into a barrel-vaulted passage where it would need to clear the ceiling. The locking and bracing mechanisms for the doors are also almost entirely absent from the archaeological record. However, an example of a socket for a cross bar, which would have been placed behind the inward opening doors of the outer piers, is attested in the Phase 13 gate at Ashkelon.

In general, unlike other aspects of fortifications during the MB it is not certain that the developments in gate architecture can be clearly tied to the presence or absence of a particular weapon type. That six-pier gates were the most fortified gate type up to

³⁰This observation supports B. Gregori's suggestion that the Alalah VII gate should also be reconstructed with a barrel vault (1986:93), in contrast to Woolley's reconstruction based on parallels with the Lion gate at Mycenae and LB Hittite architecture.

³¹On the use and history of vaulting in mudbrick architecture in Mesopotamia see works by D. Oates (1973; 1990).

that time is without a doubt, and it is possible that this is in part related to their association with earthen ramparts, although as I have suggested they may have also been associated with the increased use of the battering ram. Nevertheless, the persistent construction of other gate types such as the four-pier gate and the simple postern gate indicate that defense was not the only concern involved in gate construction. Unlike other features of MB fortification systems, the gate experienced nearly continual use during peace time and during war it was probably avoided by attacking forces as one of the most strongly fortified positions. Just as towers along walls would have been avoided because of the resistance posed by a larger number of soldiers and the fact that entry through these buildings would have been considerably more difficult, fortified gates were probably avoided for the same reasons (cp. Neo-Assyrian siege of Lachish). Of all of these gate types the one which posed the greatest vulnerability to the defenders would have been the postern gate, which it would have been necessary to block or fill prior to the start of a siege and to conceal its location as best as possible.

7. *FOSSES*

While the terms *fosse* and *moat*, like *rampart* and *glacis*, have been used interchangeably for many years by archaeologists in the Levant, a useful distinction can again be made in the employment of these terms to describe two distinct but related features that have been encountered in archaeological contexts. Despite the fact that these two terms are, for all intents and purposes, semantically equal as employed in English, in this work the term *fosse* has been used to refer to a dry ditch excavated in front of a fortification system. *Moat* on the other hand, which often evokes the image of a water-filled trench surrounding a Medieval castle, has been used in this work only to refer to ditches that were probably intended to hold water for defensive purposes, canals being the non-military equivalent. This distinction may be supported by the occurrence of various terms used in the Mari texts to refer to these ditch-like features (see discussion in

chapter five, section A.3). Nevertheless, the results of this archaeological survey suggests that there is no clear evidence that any MB features in the Levant should be identified as moats. While the bottoms of some fosses may be below the water table today in certain areas, the lack of data for the level of the water table in the MB at the time of their construction makes it impossible to be sure that they were intended to hold water (e.g., Achzib (?), Zeror). In fact, evidence from sites such as Lachish appears to suggest that the MB was actually drier than the preceding EB and that the water table was lower (Rosen 1986:73). While casual water in these fosses during certain seasons may have been advantageous in several respects as we shall see below, it was probably never considered a part of the main function for which they were constructed, namely defense. Therefore, all defensive ditches discussed in this work are referred to as fosses.

Table 8. Dimensions of MB fosses.

Site	Depth (m)	Width (m) ^a	Length (m)	Volume (m ³)
Achzib	4	?	475	?
‘Ajjul	3.7	10.7	1,220	48,300
Ashkelon XXIV	5.5	9	?	?
Timnah XI-XII	2	?	800	?
Burga	?	?	1,500	?
Far‘ah South	6	44	180	47,520
Haror	4	15	800	48,000
Hazor (West)	15	60	600	540,000
Lachish	2	9	140	2,520
Masos	2	3.5	450	3,150
Nagila	3	9.75	850	24,863
Qatna	5	70	4,560	1,596,000
Sefinat-Nouh	4.5	20	1,905	171,450
Selenkahiye	3	9	1,430	38,610
‘Umayri	5	6	?	?
Zeror	4.5	12.5	?	?

^aWidth here is an average between the width of the top and that of the base of the fosse.

Only one work has attempted to synthesize the data for fosses in the Levant, specifically for the southern Levant (Oredsson 2000, note his preference for the term “moat”). But wider consideration of MB fosses throughout the northern and southern

Levant is possible from the evidence available at a number of sites. In the south these include 'Ajjul, Ashkelon, Achzib, Burga, Ekron (MB?), Far'ah South, Haror, Hazor, Hebron, Kabri, Lachish, Malhata, Masos, Nagila, Timnah, 'Umayri, and Zeror. In the northern Levant fosses were also built at 'Acharneh (MB?), Ebla, Hadidi, Qatna, Sefinat-Nouh, Selenkahiye, and Umm el-Marra.

As defensive features, fosses are among the easiest, perhaps among the most primitive, type of fortification employed. In most regions of the Near East where fosses have been found nothing inhibited the straightforward excavation of earth around these sites (e.g., Hazor, Qatna, Sefinat-Nouh). Even in regions where bedrock was just below the surface fosses were still excavated (e.g., 'Ajjul, Achzib, Ashkelon, Lachish, Nagila, 'Umayri, Ebla, and Hadidi). As Table 8 above illustrates, the dimensions of fosses, like those of ramparts, are extremely varied.

It has long been recognized by excavators that the most likely source for material, be it earth or stone, for building ramparts was primarily, if not entirely, from the excavation of fosses around settlements. This observation has contributed to Oredsson's conclusion that MB moats were simply a byproduct of the building of ramparts (2000:52f.). In many respects this phenomenon is comparable to that related to mud extraction pits created during brick production which have been identified in Mesopotamia (see Wilkinson 2003:109–111). While it is certainly true that the majority of the materials excavated from fosses were used for the construction of ramparts, the lack of evidence for fosses at some sites which featured ramparts suggests that not all ramparts may necessarily owe their origin to the digging of fosses, especially when supplemental ramparts were employed. At Ebla, for example, materials used in the rampart also consisted of a considerable amount of occupational debris, which indicates that other materials were also sometimes needed for the completion of ramparts. As the sites listed above demonstrate, the use of the fosse appears to have been restricted to

areas around sites where freestanding ramparts had been erected (see also discussion of *Earthen Ramparts* above).

Fosses dating to the EB have been identified in the southern Levant at sites such as Kh. el-Makhruq, Jericho, er-Rujjum, and Bardawil (Oredsson 2000:40). Though they probably also existed in the north during the EB, evidence for them is at present lacking in this region. Interestingly, fosses are not attested at the most familiar of the fortified EB sites in the southern Levant such as Arad, Ai, and Yarmuth. Whatever the reasons for this, it is clear that the fosse was not consistently employed in fortification systems in the Levant prior to the MB and its use during the EB, therefore, was probably only a local development of a simple feature intended “to overcome topographical disadvantages” (ibid., 46).

There is, however, strong evidence for the use of the fosse in northern Mesopotamia where it appears to have been incorporated into defenses in the early part of the third millennium (e.g., Chuera and Terqa). Unfortunately, the lack of publication from these sites and the limited excavation of the defenses of other *Kranzhügels* hamper a more conclusive picture from this region. At least a couple of examples of moats, at Nippur and Ashur, suggest the incorporation of fosses into the defenses of these settlements in the LB (see Oredsson 2000), but the degree to which these features were common in this region earlier remains unclear.

Based upon the ubiquitous nature of this MB defensive feature, which is almost always found in conjunction with rampart construction in the Levant, I suggest that its purpose was first and foremost defensive, though still secondary to walls and ramparts in this capacity. The incorporation of these features into the defenses at sites that were almost always situated beside wadis or another body of water such as a shoreline of an estuary (e.g., ‘Ajjul), a river (e.g., ‘Acharneh?), or the Mediterranean Sea (e.g., Achzib and Ashkelon), if not upon a hilly precipice (e.g., Hebron), also suggests that the fosse

was intended to complete the outer line of defenses which was often already partly provided by these types of natural features. That the characteristics of most fosses were not particularly conducive to retaining water further supports this conclusion. Furthermore, there is no basis for assuming that when these features were excavated during the MB, which probably occurred during the summer, that the workers continued excavating materials below the water table in order to intentionally create moats. Instead, the filling of these fosses with water was probably only an occasional result due to seasonal rains or gradual, local environmental changes. Evaporation and the fact that the levels of the bottoms of the fosses were not deeper than the wadis to which they were often connected were both significant factors which would have made their retention of water nearly impossible.

Nevertheless, despite the fact that fosses were probably excavated with defense in mind, settlements also benefited from their creation in various other ways. First, as noted above, they were a primary source of building materials, not only for other defensive features such as the ramparts, but also for construction within the settlement. Second, fosses also served to protect the rampart both from rainfall erosion by channeling water away but also possibly from mining by enemies (Stager 1991b). Third, although it is not entirely clear that these features ever contained large amounts of water, it is possible that for short periods of the year fosses acted as reservoirs for the settlements which they surrounded. Their filling with water in the winter and through the early spring would have also coincided with the period when it was not yet necessary for shepherds to venture great distances from their settlements to find grazing land. These features might be compared to *jarrum* which were known from the Old Babylonian period (lit. a “pond” or “pool”; *CAD* 7, p. 326). Tony Wilkinson has suggested that such pools may, in fact, have actually been nearby mud extraction pits which often retained water (2003:119). Therefore, we might imagine that herds were frequently to be seen around fosses for the

short period of time during and after winter or spring rains. Additionally, once the fosses had dried up it would have been easy to reach the water table by sinking wells into their bases—an approach similar to the excavation of wells in the bottoms of wadis during the dry season for reaching water.

Because the fosse is a ubiquitous defensive feature that can be found in many periods throughout the ancient Near East (Oredsson 2000), the origin of the use of the fosse is difficult to trace. While it is possible that this very simple feature was introduced independently in various locations at about the same time and, therefore, that its employment in southern Mesopotamia, throughout the Levant, and elsewhere was related only insofar as the fosse aided the defense of settlements in these regions, it is also possible that a lack of evidence simply obscures our ability to outline the evolution of the fosse. Still, the earliest features excavated with any regularity that resemble fosses were, of course, the canal systems of southern Mesopotamia. These canals often ran up to, through, and even around settlements. While these features protected settlements from floods, created transportation networks, and enabled the irrigation of crops, they also provided a convenient means of demarcating territory (see, for example, *RIME* 3/2.1.1.28). For this reason, I would suggest, therefore, that canals probably also contributed to the defense of settlements, though their defensive purpose just like that of the fosse in the Levant was a secondary product of their creation.³² In light of the evidence from sites such as Tell ed-Der and Sippar (Tell Abu Habbah), where it has been suggested by Paepe et al. that artificial embankments (i.e., ramparts) were intended to limit the effects of floods (1978:33), it is difficult to imagine that the origin of the moat

³²This notion is similar to the suggestion made by Jacob Kaplan that “the builders of *Muriq-Tidnim* did not newly construct this entire wall but probably utilized parts of the existing levees of the main irrigation canals and only added the needed links between them to complete their continuous defence line” (1972b:12). See further discussion of this wall in chapter four.

(or fosse) in Mesopotamia was completely unrelated to the use of earthen embankments or ramparts. This would be especially true since ramparts and moats would have both functioned to keep water away from the foundations of town walls and since the construction of these two types of features involved a single process. The main difference between the use of earthen embankments in Mesopotamia and the Levant was, therefore, that the threat of wall collapse due to erosion was probably the main motivation for their use in southern (and even central) Mesopotamia. However, in the Levant and northern Mesopotamia such features, particularly ramparts, were of value only for the military advantages they could offer—which had probably already been apparent in southern Mesopotamia.

Though the evidence for the spread of the fosse as a “defensive canal” is limited, the foregoing reconstruction offers at least one interpretation as to its origin. Fosses, therefore, may have emerged in Mesopotamia where they developed out of major canal networks into site specific canals or moats. In their second stage, in the early part of the third millennium, they appear to have been incorporated into the defenses of settlements in northwestern Mesopotamia, some of which have been identified as *Kranzhügels* (e.g., Chuera, Terqa, Mari (?)).³³ While some of these sites, such as Terqa and perhaps Mari, were close to perennial rivers, which justified their continued use of canals for the management of water and dikes around their walls, most of the other sites were situated near the banks of wadis, which were filled with water only during a brief part of the year. It was, therefore, perhaps during this stage in the evolution of the fosse, that the dry ditch or true fosse came into widespread use. While occasional use of fosses occurred in the

³³ A defensive fosse dated to the late fourth millennium has also been detected at Tell Hamoukar in soundings in the northernmost part of Trench D off the northwest side of the mound (Gibson, et al. 2002:47f.). As such it appears to provide the earliest evidence for this type of feature in the regions under consideration here.

southern Levant during the EB, the lack of evidence for fosses at the best fortified sites in this period suggests that use of the fosse in this region during the third millennium was *ad hoc* and unrelated, therefore, to the gradual, contemporary proliferation of the fosse in northern Mesopotamia from the middle of the third millennium on.

Despite the benefits of excavating fosses, beyond those related to defense, by the EB IV the fosse had been introduced to the northern Levant as a completely defensive feature. Their excavation for the first time was inextricably linked to the construction of defensive ramparts (e.g., Ebla (?), Selenkahiye, and Umm el-Marra). Yet the greatest evidence for the continued spread of this feature along with rampart fortifications comes, of course, from the southern Levant where during the MB I (IIA) numerous examples of fosses are known (e.g., Achzib, Ashkelon, Burga, Kabri, and Zeror). This trend continued and clearly reached its apogee during the MB II (IIB–C) when freestanding rampart construction was at its peak throughout the Levant (e.g., Achzib, ‘Ajjul, Dan, Ekron (?), Far‘ah South, Haror, Hazor, Hebron, Nagila, Shiloh, ‘Umayri, and Qatna (MB II?)). Based upon these data I would concur with the traditional view that the fosse, like the rampart served militarily to improve the defensibility of settlements by limiting the accessibility of the approach against the walls with either the battering ram or the siege tower. In certain cases, though, the drawback to the scarps of fosses, like that of revetment walls discussed above, may have been that they also provided cover for enemy soldiers approaching the foot of the rampart before they could make their final assault. Even so, the fosse provided the necessary delay which worked to the advantage of the defenders, who it can be imagined may have frequently mounted counter attacks as the attacking force became bogged down in the fosse.

B. BUILDING MATERIALS USED IN MB FORTIFICATIONS

1. MUDBRICKS

Mudbricks used in MB wall construction in the Levant were always sun-dried and there is no evidence that they were ever baked. While the sizes of these bricks varied considerably, it does appear that square mudbricks of roughly 35 to 40 cm on a side and 10 to 15 cm thick were generally more common during the MB than during the EB (see Table 9 below). Mudbricks were also often trimmed for specific needs after being molded, usually where a normal size brick was too large. Although Arlene Rosen has thoroughly examined the morphological aspects of mudbricks (1986:75ff.), unfortunately, the data for mudbricks used in MB fortifications is insufficient for comparison with her findings. Few studies exist concerning mudbricks from MB sites (for Jericho see Cerulli 2000). Future collection of specific data from mudbricks could, however, yield useful information regarding their use, origin, and variation.

The color of bricks used in wall and gate construction, while seeming inconsequential, are more significant than has often been acknowledged, as they represent the source of materials available when the defenses were constructed. Reddish or brown bricks are often of a color comparable to local soils and, thus, they indicate that the source for these bricks was probably from outside of the settlement since no occupational debris, which is usually gray due to ash content, was used in the bricks (Oates 1990:388f.). G. Buccellati has, for instance, observed that red bricks, the soil for which was taken from the virgin soil at the level of the plain, are used in early construction at Urkeš (Tell Mozan) when no other material would have been available (personal comm. 2002). Such bricks, he suggested, were of an inferior quality since they contained less temper than bricks made from occupational debris, which were usually gray or black in color. The presence of occupational debris, which contains a considerable amount of ash, in gray bricks may have also contributed to the increased

impermeability to moisture in “gray” bricks. Ethnographic evidence, however, suggests that too much ash, taken from deposits consisting almost entirely of just ash (and therefore unlike occupational debris which also included silt and other materials), is considered “cheating” in modern mudbrick construction since these bricks are usually considered of poorer quality and thus do not last as long (personal communication, McGuire Gibson 2004). From these observations it is possible to suggest that new settlements or those which undertook large building projects for the first time, such as fortifications which required massive quantities of earth for brick production, were forced to produce bricks from the only material locally available in sufficient quantities, namely virgin soil—which was usually low in clay content. Consequently, this meant that the very buildings into which large quantities of manpower were being invested and upon which the settlement depended for its protection would often have been constructed with some of the most inferior materials.

Table 9. Dimensions of mudbricks (cm) used in EB IV to MB fortifications.

Site	EB IV	MB I (IIA)	MB II (IIB–C)
Abou	—	33 x 33 x 7; 28 x 28 x 7	35 x 35 x 8
Danne	—	38 x 38 x 10	—
Afis	—	30 x 30 x (?)	—
Ashdod	—	—	50 x 30 x 20
Ashkelon	—	35 x 35 x 10 45 x 33–35 x 10–12 50 x 36 x 10	—
Dan	—	—	30 x ? x 15
Ebla	60 x 40 x ?	—	32–35 x 30–32 x 10–12
Ferzat	—	—	43–44 x 43–44 x 10–11 36–39 x 36–39 x 10–12 44–57 x 44–57 x 11–15
Gerisa	—	35 x 35 x ? 50–55 x 40 x ?	—
Gezer	—	—	38 x 29 x 10
Habuba	34–38 x 48–50 x 10–12	38–40 x 38–40 x 10–12	—
Kabira	24–27 x 45–50 x 9–10	—	—
Hammam et-Turkman	—	—	35 x 35 x 8

Table 9. Dimensions of mudbricks (cm) used in EB IV to MB fortifications (cont.).

Site	EB IV	MB I (IIA)	MB II (IIB-C)
Hazor	—	—	40 x 30 x 15
Jericho	—	42 x 36 x 15	—
Kannas	40 x 40 x 10	—	—
Kumidi	—	36 x 36 x (?)	—
Mašin	—	38–40 x 38–40 x 12–14	—
Megiddo	—	35–40 x 35–40 x 10	—
Mevorakh	—	40–45 x ? x 15	—
Munbaqa	—	—	—
Poleg	—	60 x 50 x 12 55 x 35 x 12	—
Shechem	—	—	38 x 38 x 10–12 35–43 x 35–43 x 15–16
Sweyhat	50 x 40 x 10	—	—
Terqa	—	34–37 x 34–37 x 8–10 (34–37 x 17–20 x 8–10) half 32 x 32 x 10–11	—
Timnah	—	—	50 x 50–75 x ?
Tuqan	—	38 x 38 x 12	40 x 40 x ?
Tuttul	50 x 36 x ? 54 x 25 x ?	38–42 x 38–42 x 8–10	—
Zeror	—	30 x ? x 16	—

2. MUD MORTAR, MUD AND GYPSUM PLASTER

Mudbricks used in construction were usually bonded on all sides with mud mortar, the matrix of which can be primarily, though not always, distinguished from that of bricks by its color (G. R. H. Wright 1985a:359ff.).³⁴ This is often due to the presence of greater quantities of ash in the mortar, which made the mortar gray. Mortars were generally applied in relatively thin sections, about 2 cm thick, but if spacing needed to be maintained in a wall of header-stretcher construction then it could be applied in considerably thicker amounts in the vertical sections between bricks. While the use of mortar was important for bonding bricks in walls, the importance of the mortar itself

³⁴For an excellent review of mudbrick architecture in Egypt and general practices associated with mudbrick construction see A. J. Spender (1979) and B. Kemp (2000).

diminished once the structure had taken its complete form. At that stage the entire structure also needed protection against erosion.

While mudbricks could be faced with stone blocks, a technique more common in Egyptian architecture, in most instances other more readily available materials were used to protect mudbrick architecture and sloping surfaces such as ramparts and glacis from the elements. Mud and gypsum plaster were often used on the exterior face of walls and gates, and it is usually assumed that these materials were intended primarily to protect against erosion from precipitation. However, wind erosion was also responsible for the destruction of mudbrick structures. The erosion caused by wind can be seen on exposed mudbrick architecture on the plains of northern Syria which attests to the effects of long-term exposure of mudbrick architecture to the wind, which blows very strongly from west to east throughout much of the Levant. Deep ruts cut horizontal grooves through the bricks, undermining the strength of exposed structures. One strategy for dealing with the effects of wind and rain erosion was simply to apply mud plaster as often as necessary to the outer surfaces of the bricks. Although mud is no more resistant to wind and rain than are the mudbricks which they cover, the mud coating was easier to replace than an entire wall was if some of the bricks were too damaged.

Although the effects of rainfall and wind erosion upon mudbrick architecture and exposed slopes have been recognized, the long-term, detrimental effects of erosion from insects, rodents, and birds are not often considered (Rosen 1986:10f.). Insects, such as wasps, are known to bore into mudbrick walls in order to build nests (Voss 2002:381). Termites are known to consume temper materials used in mudbricks and mud mortar such as straw and chaff (e.g., Damluji 1992:148), which sometimes leads to the weakening of the bricks and the breaking away of mud plaster (Kemp 2000). Rodents also frequently burrow into mudbrick walls to build nests which undermine the base of mudbrick structures. Birds take straw and other materials from the surface of mud

structures to build nests and also degrade the surfaces of structures by hunting for insects. While these individual effects upon a mudbrick superstructure may seem only minor, prolonged exposure of large mudbrick structures to the combination of these perils in addition to other erosive forces would eventually have resulted in the loss of a structure's integrity and the need to completely rebuild it.

According to G. R. H. Wright the preferred matrix for **mud plaster** included as much sand as was possible (1985a:360), which was probably the result of the impermeability of silica. While mud plaster, if frequently maintained, could effectively protect the wall's structure, there is, in my opinion, no convincing data to suggest that mud plaster was at all useful in providing greater lateral strength to walls by preventing the movement of mudbricks "on their beds" as G. R. H. Wright has suggested (*ibid.*). Although mud plaster was most frequently used because of its availability, **gypsum plaster** (and less frequently lime plaster) was the most effective seal against all of the threats mentioned above.³⁵ Unfortunately, few studies of plaster recovered from sites have been done.³⁶ Yet, the results of these studies indicate that the plaster was predominantly a lime compound of calcium oxide obtained by usually burning gypsum but sometimes lime.

Aside from these specific reasons for plastering mudbrick structures, an examination of sites throughout the Levant, northwestern Mesopotamia, and the Nile

³⁵G. R. H. Wright has noted that gypsum plaster ($2\text{CaSO}_4 \cdot \text{H}_2\text{O}$) was more common than lime plaster (1997:372), because the production of lime plaster (CaCO_3) required calcining limestone at temperatures of around 900°C (p. 437f.). This, of course, required greater amounts of fuel such as wood, which are not known to have been heavily sought for such uses until the Iron I period. Gypsum plaster could be more easily obtained by calcining gypsum (Gk *gyposos*, "chalk"), calcium sulphate dihydrate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$), at temperatures of 100° to 130°C (p. 373).

³⁶Plaster from the interior walls of a MB house at Beth-Shemesh abutting the southern fortification wall were tested; the results indicated that the sample was 82% pure lime and 10% sand (Grant and Wright 1939:33f.).

Delta suggests that the selection of plastering technique was probably dependent upon the availability of materials and the amount of rainfall received in a region. Where drier conditions prevailed, the greatest concerns were insects and wind erosion and mud plaster was a sufficient protection (e.g., northwestern Mesopotamia and the interior of the Levant). Where greater amounts of rainfall were received, particularly along the coast (e.g., Aphek, Ashkelon, Beth-Shemesh, Megiddo), a less permeable barrier was necessary to protect structures.³⁷ Gypsum or lime plaster would have provided mudbrick structures and ramparts with greater longevity than mud plaster. Nevertheless, as would have been the case with mud plaster it was also necessary to reapply gypsum and lime plaster to surfaces, albeit less frequently, as has been indicated at a number of sites where multiple layers of plaster have been revealed.

Furthermore, the use of plaster in the construction of glacis (e.g., Jericho, etc.) indicates that it was also vital to maintaining the integrity of earthen ramparts with slopes between 30° and 40°. An added advantage of plaster along walls and slopes may have been that it made it more difficult for the enemy to surprise the defenders since they could more easily be seen against the bright background at night (see suggestion concerning plaster lined fosse at Buhen by Emery, et al. 1979:6). Nevertheless, the use of plaster in glacis construction was infrequent in comparison with mud plaster, probably due to the fact that it was much more costly and labor intensive to procure.

3. *WOOD*

The use of wood in the construction of fortifications has been attested at a number of sites (e.g., Alalah, Byblos, Akko (?), and Ashkelon). Given its limited availability and

³⁷This, however, does not appear to have been the reason for using plaster in many places in Egypt. Evidence of plaster has been recovered from the fortifications of Buhen, where it was used on walls, the fosse, and even in the loopholes (Emery, et al. 1979:6, 21–23, 27), and at Askut, where it was found on the mudbrick on the surfaces inside the girdle wall and gate (Badawy 1964:50; 1965:131).

the cost of incorporating it into mudbrick and stone fortifications, it would have been primarily intended to cover closed spaces which could not be spanned by other materials, as it was similarly used in palace construction. Otherwise it was used most extensively for the construction of the doors for gates. At Jericho in the excavation of an MB I–II (IIA–B) tower in Area A remains of a wood identified as poplar (*Populus*) have been recovered (Marchetti 1998:206f.).³⁸ This was used in the beams of a tower in the lower town to the south of the mound. Although the tower's length is unknown, the width of the interior space was just slightly less than 2 m meaning that the length of poplar segments were probably only a little more than 2 m long.

4. *STONE*

Stone in various forms, as discussed above, was frequently used to build fortifications. No data exist whereby the procurement of stone from a great distance can be postulated in the construction process for MB fortifications. Aside from the effort required to shape large chunks of stone into roughly hewn blocks for the foundations of gates (e.g., Tuqan), the cyclopean blocks used in revetment walls (e.g., Shechem), and the more delicately carved orthostats (e.g., Alalah, Ebla, Hazor, Shechem, etc.), a considerable amount of effort appears to have been expended to obtain crushed or chipped stone which was used in rampart fills. Still, such materials could be relatively easily procured from exposed sections of stone in wadi beds or particularly from the excavation of fosses through bedrock which accompanied rampart construction, particularly of the freestanding type.

³⁸It was not, however, possible to identify the species of poplar from this sample (Lazzeri and Macchioni 2000:335).

5. SOILS AND SOIL MICROMORPHOLOGY

Few of the previous studies of MB fortifications have investigated the micromorphology of soils used in the earthen ramparts and mudbricks beyond recording visual observations. Exceptions to this, however, include studies by Reuben Bullard for Gezer (1970), Arlene Rosen's general work (1986), Hanoch Lavee et al. for Shiloh (1993), and work by Mauro Cremaschi et al. at Qatna (forthcoming). Geomorphological data bear upon practical facts such as determining just how far it may have been necessary to transport materials for the construction of fortifications. Such analyses could also reveal that elements which are no longer visible, such as mudbrick walls were, in fact, present on the surface of stone foundations. Insofar as archaeologists have concerned themselves with the ancient potter's selection of clay for the production of ceramics, archaeologists should also concern themselves with the question of the geomorphological aspects of rampart and mudbrick architecture.

One such study of the rampart at Shiloh has yielded interesting results regarding soil selection for rampart and glacis construction (Lavee, et al. 1993). During the late MB II (IIC) the fortifications of Shiloh were supplemented by an earthen rampart and glacis which were probably only present in certain areas (Areas C and D). Since the deepest section was excavated in Area D where five main components of the rampart and glacis were revealed, their analysis sought to examine the geomorphology of these elements. The results of the grain size distribution make it possible to compare the percentages of particular grain sizes in each of the layers of the rampart. This is significant because if the percentage of clay or silt, for example, in different layers were found to be nearly identical then it would be possible to say that there was no process of material selection during construction. But the differences between the percentage of soils of different particle sizes in each layer revealed that the amount of clay used in each layer experienced the greatest variation between each layer (see fig. 13.10 in Lavee, et al.

1993).³⁹ Although it is true that one layer while containing a high percentage of small particles, which decreases its permeability, may also include much larger particles such as stones which increase its permeability, the results here suggest that the overall porosity of each layer can be determined by the percentage of particles with the smallest grain size that were contained in each layer. Since the layers with the highest percentage of silt content belong to the upper layers of the glacis, it is possible to suggest that this was part of a strategy intended to improve the durability of the rampart's surface, by providing it with, in my opinion, a separate clay glacis. Therefore, according to the excavator, a so-called micromorphological analysis of the matrices of the rampart and glacis confirms that the presence of the glacis around only some parts of the site can be correlated with the grade of the slope in that location.

C. GEOMORPHOLOGY AND MB FORTIFICATIONS

In addition to soil micromorphology studies, consideration of geophysical processes also can shed light on the geomorphology of sites and their fortifications. The best example of this type of study is the study by David Neev et al. of the coast of the eastern Mediterranean (1987). By examining the remains of a number of coastal sites the authors have provided important hypotheses concerning MB fortifications at these sites. They have argued rather convincingly, for example, that the site of Yavneh-Yam experienced subsidence which has resulted in the erosion of a portion of what would probably have been a rectilinear earthen rampart dated by Jacob Kaplan to the MB (Neev, et al. 1987:65–67). Yavneh-Yam, they insist, experienced a “history analogous to that of the first phase of settlement within the Tel Michal site” and these sites may “have been

³⁹ In addition to a graph showing cumulative percent it would have been useful if the components of the Shiloh glacis had been graphed to illustrate the percent for each individual particle size range in addition to a cumulative percent. The results, therefore, only illustrate the cumulative percent of grain sizes equal to or smaller than a given range in microns.

destroyed by the same tectonic movement along the coastline of Israel at the time of the eruption of Santorini” (ibid.). Furthermore, the authors claim that manmade structures had been observed in what would have been the westernmost corner of the square enclosure (see note on personal communication by Z. Ben-Avraham and fig. 23 1987:67). While Galili and Sharvit have argued that they themselves were unable to locate these structures during their research (1998:161), the proposed location of these remains corresponds well with the customary location of Bronze Age palaces, namely on the windward sides of sites. Furthermore, as I have suggested (see Yavneh-Yam in Appendix B), it is incorrect to postulate that the rectilinear enclosure at Yavneh-Yam was square when many rectangular examples are known (e.g., Hazor, Haror, Ekron(?), Deir Khabiye, etc.). It is easier to suppose based on the findings by Neev et al. that only a portion of the site, therefore, has been lost during the last four millennia rather than to presume that more than 200 m has disappeared—an assumption that cannot be confirmed from findings at other sites along the coast. Potential evidence against the suggestion that the site was designed with an open side on its west side has also come from underwater exploration of the adjacent coast where remains were identified as part of a terrestrial site and not cargo from ships (Raban 1993:964). Further study, however, is ultimately necessary in order to confirm which of these two assessments is correct. Unfortunately, the undated “rock-cut quarries” identified by Galili and Sharvit do not help us assess possible subsidence at the site prior to 500 B.C.

These examples of studies related to the geology and geomorphology of sites and their fortifications indicate that they can contribute significantly to the typical observations derived from archaeological excavations of the main features of MB fortifications. If such studies are systematically undertaken when fortifications are excavated, the fortifications can be understood within their environmental as well as their social and historical contexts.

D. A CHRONOLOGY OF THE EVOLUTION OF MB FORTIFICATIONS

It has been observed that fortifications constructed in the southern Levant during the MB, when urbanism was revived in this region, bore little resemblance to the fortifications of the EB (Kempinski 1992c; 1992d:175), despite the occasional use of similar defensive features such as the glacis, fosse, and bastion (Parr 1968; Kempinski 1992b:73; Oredsson 2000). In this regard George R. H. Wright's general description of EB fortifications is useful for emphasizing the overall differences.

The EB fortifications are comprised by very massive walls (ca 8–10 m broad at the base) of stone, mud-brick or mud-brick on a stone socle. Extensive tracts are enclosed so that an enceinte of several kms may result. The trace of the curtain generally consists of long more or less straight runs (ca 100 m) with obtuse angular changes of direction. The runs are often constructed as a succession of unbonded sections (ca. 15 m in length at e.g., Megiddo, Bab edh-Dhra, etc.). Face towers but not angle towers are well in evidence both rectangular and curvilinear (Arad), and in conjunction with these towers in one fashion or another appear a number of gates or posterns. On occasion the slopes below the walls are revetted with beaten earth etc. and outworks, especially ditches, are known (G. R. H. Wright 1985a:173).

Both the unique character of EB II–III fortifications in the southern Levant and the observation that the development of urbanism in the southern Levant had been interrupted during the EB IV are the clearest indications that MB fortifications of the southern Levant were not the result of local developments. Instead, the present evidence suggests that the technique spread from the northern Levant where urban centers had been continuously occupied since the EB. Comparisons made in this chapter between EB and MB fortifications demonstrate that most if not all of the components of MB fortifications owe the manner of their use and their particular style of construction to a systematic and strategic combination of a collection of architectural features which began during the late third millennium in the northern Levant. While many of these features are found in fortified settlements of the early and mid-third millennium in northern Mesopotamia, there is no evidence for the coordinated use of all of these defensive

elements in a regularized manner until the second half of the third millennium. Although Levantine fortifications of the MB cannot be considered carbon copies of the fortification strategies of any of the neighboring regions, the greatest similarities between MB fortifications in the Levant are to be found with those of northern Mesopotamia. Based on the evidence presented in this chapter and appendices A and B, the process through which classic ramparted fortifications of the MB II (IIB–C) in the southern Levant evolved from EB fortifications in northern Mesopotamia can be divided into four distinct phases (see Table 10 below for an overview of this development).

1. PRE-RAMPART PHASE (CA. 3000–2600 B.C.)

During the first phase, which can be referred to as the “Pre-Rampart” phase (ca. 3000–2600 B.C.), sites which have been referred to as *Kranzhügels* were established along the Euphrates River (e.g., Mari and Terqa)⁴⁰ and on the open plain of northwestern Mesopotamia along wadi systems (e.g., Abu Schachat, Bugha, Beydar, Glea, Khanzir, Mabtuh Gharbi, Mabtuh Sharqi, Maghr, Mahrum, Mu‘azar, etc.—see Figure 11 on p. 339 for their locations). Although the debate surrounding these settlements, their origin, and ethnic affiliation has been on-going since the work of Ursula Moortgat-Correns (1972), the questions which have been raised are gradually being answered by excavations at Tell Chuera (Orthmann, et al. 1995), Tell Beydar (Ismail, et al. 1996; Lebeau and Suleiman 1997; Van Lerberghe and Voet 2001), and Tell Mu‘azar.

As the German term for these settlements suggests, the remains of their **mudbrick defensive walls**, which were built with circular plans on the level of the plain, eroded to create “wreath-like”, encircling embankments that were extensively

⁴⁰ I am aware that Mari and Terqa have not been traditionally identified as Kranzhügels. However, the evidence for the underlying features which were responsible for the morphology of these two settlements are identical and basically contemporary with the evidence from Kranzhügels such as Chuera and Beydar, for example (see entries in Appendix A).

photographed from the air by Poidebard (1934). For this reason such sites can be identified as part of the “signature landscape” of this region (cf. Wilkinson 2003:7). These sites featured elevated upper towns surrounded by lower towns, though the settlement density of the lower towns remains a subject of debate. As evident at Beydar (see Appendix A), both the upper and lower towns were enclosed by thick mudbrick walls, and the settlements were also often situated adjacent to water courses or wadis. In this phase, the fortifications of sites usually consisted only of long, thick mudbrick walls encircling sites which were only broken by simple, postern gates. No evidence of ramparts or fosses is known at any of the these sites which are situated along wadis, however, modest earthen ramparts (referred to as dikes by Margueron 2000) and moats were built when the fortifications were in danger of being undermined by the Euphrates River or one of its branches (e.g., Mari “Ville I” and Terqa, Defensive Rings 1–2). In this sense neither the rampart nor the moat, insofar as they were present, appear to have been initially designed as defensive features.

2. EARLY RAMPART PHASE (CA. 2600–1925 B.C.)

The abandonment of most *Kranzhügels* in the Ḥabur region around the mid-third millennium, towards the end of the “Pre-Rampart” phase, created the conditions for the second phase in the evolution of fortification strategies in this region, which can be referred to as the “Early Rampart” phase (ca. 2600–1925 B.C.). This resulted in a nearly complete break with Mesopotamian fortification strategies, as an independent tradition of settlement defense developed from Terqa along the middle Euphrates to Ebla in the northern Levant. While most *Kranzhügels* located around the Jebel Abd-al Aziz and in the Ḥabur triangle were abandoned by the mid-third millennium, two sites, whose contemporaneous occupations and similar layouts I have suggested necessitates their identification as *Kranzhügels*, continued to be occupied. These sites, Terqa and Mari (see Appendix A), provide the clearest evidence that freestanding ramparts evolved from the

fortifications characteristic of *Kranzhügels*, as has been hypothesized by L. E. Stager (1999:237f.), although these specific sites were not those to which Stager was probably referring. Evidence from Terqa (Defensive Ring 3) and Mari (“Ville II”) demonstrates that rampart fortifications of the late third millennium owe their origins to the evolving fortification strategies of these and similar sites (e.g., Emar?) along the Euphrates River valley which continued to be occupied after *Kranzhügels* in the Jazira had been abandoned (ca. post-2500 B.C.). Sites such as Terqa and Mari, whose fortification walls had already been supplemented with low rampart-like features during the “Pre-Rampart” phase, were now fortified with **mudbrick walls** which were rebuilt atop the existing remains of earlier fortification walls. These walls were then supplemented with still larger **ramparts** built on top of the earlier embankments.

Aside from settlements like Terqa and Mari, which were located along the middle Euphrates, sites from the Euphrates bend to the northern Levant also appear to have begun adopting similar fortification practices during the “Early Rampart” phase at the end of the EB III and early in the EB IV. The known sites with this type of fortification include Selenkahiye, Sweyhat, Umm el-Marra, Byblos, and later Tuqan. Although less is presently known of the fortifications of Ebla, Afis, and even Aleppo in this period, it is likely that they were similarly fortified as suggested by their contour plans. That the ramparts of these sites were clearly built as defensive features is evident from the fact that no river systems or other environmental factors, such as rainfall, posed a serious threat to the walls of these settlements. These sites like *Kranzhügels* still usually featured **elliptical layouts** (e.g., Byblos, Umm el-Marra, Afis (?), Ebla (?), and Tuqan), but

roughly **quadrilateral plans** were also employed for the first time in this region (e.g., Sweyhat, Selenkahiye).⁴¹

In my review of weaponry of the EB IV and MB (see chapter two, esp. Table 3 on p. 92), I have suggested that the introduction of the battering ram in the EB IV, as attested in the Ebla archive, may account for the construction of ramparts already in this period. It is likely, therefore, that the use of this weapon in Mesopotamia and the northern Levant led to the proliferation of freestanding ramparts in this period, an architectural feature which was already present at settlements along the Euphrates River, for defensive purposes. By contrast the evidence for fosses in this period remains limited (e.g., Umm el-Marra), though this may be due to the depth at which these features are now located and it cannot be assumed that they did not exist at all. If, as I have suggested above, fosses were always associated with rampart construction it may be impossible to isolate a specific weapon or technique against which they were intended, and it may have been the case that under different circumstances the fosse served to counter different siege devices, particularly as attempts by attacking forces were made throughout this period to overcome these obstacles.

3. MATURE RAMPART PHASE (CA. 1925–1800 B.C.)

The third phase of development of fortifications in the Levant is characterized by the gradual infiltration into the southern Levant of freestanding ramparts as urbanism was revived in the southern Levant at the start of the MB I (IIA), ca. 1925 B.C. This phase in the evolution of Levantine fortifications, which can be referred to as the “Mature Rampart” phase (ca. 1925–1800 B.C.), is characterized less so by innovation than by the refinement of rampart construction, the diffusion of rampart architecture throughout the

⁴¹This is, of course, presuming that the massive fortifications of the Uruk colony at Habuba Kabira were an unrelated and much earlier (ca. 3500–3100 B.C.) occurrence of the use of the rectilinear plan for a fortified settlement in this region.

Levant, and the adaptation of ramparts to the defenses of other sites, such as tells, which featured previous settlement. There are no architectural or stylistic criteria, either morphological or compositional, by which the elements of freestanding ramparts of the MB I (IIA) in the southern Levant can be distinguished from those of the EB IV in the northern Levant, and for this reason ceramics serve as the only means by which they can be reliably dated. During this phase, as in the former phase, **freestanding ramparts**, which featured **elliptical** or **circular layouts** with **mudbrick walls** and rectangular **towers**, continued to be built in the north (e.g., Ebla, Tuqan). They were also gradually constructed for new settlements in the southern Levant, particularly along the main overland trade routes leading down the Great Rift Valley and through the Jezreel Valley to the coastal plain (e.g., Akko, Ashkelon, Burga, Qana (?), Shimron, and Zeror). The continuity in fortification construction, between the northern Levant in the EB IV and the southern Levant in the MB I (IIA) serves as further evidence of the cultural influence which the northern Levant exerted upon the south at the start of MB I (IIA).

Aside from the regional diffusion of the construction of freestanding ramparts which occurred during the “Mature Rampart” phase, two innovations are particularly characteristic of most sites in the southern Levant in this period. In past scholarship these two innovations have been referred to as the “wall rampart” (Kaplan 1975) and the “glacis” (Yadin 1955b; Parr 1968). Although all of the settlements with freestanding ramparts in the southern Levant were newly founded during the MB I (IIA), other sites with contemporary occupation sought to build what I have identified as **supplemental ramparts** (previously referred to as “wall ramparts”) against the walls of their towns, which often rested upon the edges of tells or mounds (e.g., Aphek, Jericho, Megiddo, Poleg, Zurekiyeh). This was probably done in order to construct defenses functionally equivalent to freestanding ramparts. Although in this period it is likely that such defenses were as effective as freestanding ramparts, during the next period when freestanding

ramparts reached the zenith of their construction supplemental ramparts appear to have been recognized as an inferior means of defense. While most sites with supplemental ramparts, like those with freestanding ramparts, were elliptical in plan, a few sites with supplemental ramparts do exhibit rectilinear plans (e.g., Aphek, Poleg, Zurekiyeh), but this appears to have been due only to the original shape of the mound upon which they were founded.

The second innovation of this period in the southern Levant was the regular adoption of unique surface treatments for slopes which I have suggested should be specifically referred to as **glacis**. These were constructed of cobbles, plaster, chipped stone, or brick and were intended to preserve the walls and ramparts of these MB I (IIA) settlements by preventing the erosion of their slopes from rainfall. Glacis were used not only with freestanding and supplemental ramparts, but also to protect the slopes of existing mounds (e.g., Gerisa). While Parr was right to note that similar features were present in EB defenses (1968), the intensive use and improvement of this technique for preserving slopes in this period makes its use particularly characteristic of the construction of MB fortifications. Nevertheless, in most instances the glacis appears to have functioned only to preserve fortifications against erosion and, thus, it does not appear to have been originally intended as a defensive device.

In addition to refinements in the construction of ramparts, the introduction of the **six-pier gate** at the end of the “Mature Rampart” period led to a vast improvement in the defensibility of gates at important urban centers. Although Gregori (1986) has suggested that this gate type developed as a result of the ever widening of the fortifications due to the use of earthen ramparts, that equally large ramparts had been present in the northern Levant prior to the introduction of this gate type suggests a different, perhaps multi-

causal development.⁴² This development, I suggest, was akin to the proliferation of ramparts which probably resulted from a period of ever widening hostilities during the MB I (IIA) when better defenses were required (see discussion of the history of warfare in chapter four). Like the introduction of rampart fortifications in the southern Levant, the introduction of this particular gate type was probably also from the north. It is possible that as a result of the use of rectangular bastions to flank the passage of this gate type, bastions were later added to fortification walls to supplement rectilinear towers in the next stage of fortification development.

4. *LATE RAMPART PHASE (CA. 1800–1550 B.C.)*

Towards the end of the MB I (IIA) new refinements in the construction of ramparts and changes in their layouts suggest that rampart fortifications had entered a new and final phase of their evolution. This period, which can be referred to as the “Late Rampart” phase (ca. 1800–1550 B.C.), saw the construction of **freestanding ramparts** and **defensive fosses** at the largest and most familiar MB settlements, once identified as “fortified camps” by Y. Yadin (1955b). These sites include Qatna, Sefinat-Nouh, Deir Khabiye, and perhaps Ugarit, as well as aṣ-Ṣour, in the northern Levant, and Dan, Hazor, Jaffa (?), Yavneh-Yam, Timnah, Ekron (?), Nagila, Lachish, Jemmeh, Haror, ‘Ajjul, Malhata, Masos, and Irbid in the southern Levant. Like the *Kranzhügels* of the third millennium and the elliptical plans of sites of the “Mature Rampart” phase, these sites can be considered the main elements of the “signature landscape” of the Levant during the second half of the Middle Bronze Age (cf. Wilkinson 2003:7).

While some of these settlements were newly founded in this period, it is clear that others featured some, though less extensive, occupation during the MB I (IIA) prior to the

⁴²It must be admitted, however, that the evidence for EB IV gates in the Levant is basically non-existent aside from that for the gate at Byblos.

construction of their fortifications (e.g., Qatna, Ugarit (?), Dan, Hazor, Ekron (?), Timnah). The rampart construction was also refined to incorporate techniques such as the use of interlaced layers of varied fill types in a systematic fashion (e.g., Gezer). In the present study the general plan of these fortified settlements has been recognized as distinct from those of the MB I (IIA), being regularly **rectilinear** rather than elliptical. Therefore, aside from clear improvements made during this period in the know-how of rampart construction, strategic attempts were also made to improve upon the circular/elliptical layout of freestanding ramparts which had been characteristic of the “Mature Rampart” phase. The reason for this may have been the realization, as noted above, that straight wall segments were easier to defend than curvilinear wall segments. Similar realizations may also have led to the addition of **rectangular bastions** to walls in addition to **rectangular towers** (e.g., Ebla and Gezer). These efforts, therefore, suggest a high degree of centralization in the process of fortification construction in this period, which as I shall argue in chapter five can be considered a trademark of the complexity of MB kingdoms in the Levant.

While sites with massive freestanding ramparts are the main type of monumental architecture known in this period, **supplemental ramparts** were probably more common as fortification construction was undertaken at a larger number of sites which included resettled tells and new highland settlements. During the early MB II (IIB) sites further inland were also settled and fortified with supplemental ramparts as the process of settlement in-filling in the southern Levant continued (e.g., Bira (?), Keisan, Far‘ah South, and Sera‘). At the same time or only slightly later sites in the hills of the southern Levant, which were now settled, were similarly fortified (e.g., Dothan (?), Shechem, Far‘ah North, Beth-El, Beth-Zur, Jerusalem (?), Hebron, and Beit Mirsim). This process of settlement in the highlands resulted in a proliferation of fortified sites during the MB II (IIB–C), as for example, at Shiloh, and also Jenin, Ibleam, en-Najjar, Kebara, Kheibar,

Qarqaf, Qumei, and el-‘Urma. In Transjordan a similar settlement process led to the construction of a few sites with comparable fortifications (e.g., Nimrin, Pella, Sahab, and ‘Umayri).

One particular hallmark of fortifications during the “Late Rampart” phase, especially during the late MB II (IIC), appears to have been the construction of massive **revetment walls** built of cyclopean masonry. While examples of other revetment walls of cyclopean masonry at Hazor and Ebla may antedate those of Shechem, Jericho, and Byblos, there is no evidence to suggest that revetment walls were a regular part of fortifications before the “Late Rampart” period. The fact that revetment walls of this type appear to have been entirely absent from sites during the “Early” and “Mature” phases suggests that they should perhaps be identified as a type of “retrofit” kit for rampart defenses which were intended to improve the functionality of traditional ramparts during a period when the means of waging siege warfare continued to be refined. However, they may also have simply been a part of the process of maintaining existing ramparts. Furthermore, it is possible that in some instances their construction was intended to compensate for the absence of fosses or solid mudbrick fortification walls, which may have been replaced by the rear walls of buildings at some settlements. At Shechem, for example, this appears to have been the case even though considerable effort was invested in a massive revetment wall around at least the eastern half of the site. Whatever the case may be, most revetment walls and ramparts appear to have been built before the middle of this phase.

5. POST-RAMPART PHASE (AFTER CA. 1550 B.C.)

A shift towards unfortified settlements which has been considered characteristic of the southern Levant during the LB (“Post-Rampart” phase, post ca. 1550 B.C.) appears to have already begun during the late MB II (IIC). Z. Herzog has argued, for instance, that the socio-economic conditions prevalent during the Hyksos period, namely a lively

international trade, led to the omission of walls at sites like Tel Michal, Tel Mor, and Ashdod (1989:31–37), when they were first settled during the late MB II (IIC; i.e., the later part of the “Late Rampart” phase). The fortifications of Ashdod, however, did include a small rampart, a thin fortification wall, and a simple four-pier gate, similar to the contemporary gate at Ashkelon from the early MB II (IIB). At the same time, however, a new strategy for the defense of settlements appears to have emerged as evidenced at Tel Michal. Although this site has been traditionally identified as featuring ramparts and it has been claimed that rampart construction continued into the early LB at newly founded sites (see, for example, remarks concerning possible ramparts at Kinneret and Kh. Rabud by Gonen 1992:218), the evidence from small settlements such as Michal (where I have noted no such rampart existed) actually suggests that fortification wall construction atop ramparts or on the edges of tells already ceased during the late MB II (IIC). Such new settlements, instead, appear to have relied upon the height and steepness afforded by their topography and whatever defense the rear walls of the buildings of their settlement could provide.

Although at the present time Michal remains the main example of this strategy, the proposed shift in defensive strategies may at least partially account for the gradual cessation of construction of MB II fortifications and the lack of construction of rampart fortifications at LB settlements in the southern Levant. It is possible that the gradual population growth during the MB II (IIB–C) had placed a premium upon space within settlements, which had been, of course, primarily limited by fortification walls (e.g., Megiddo). The gradual need for more space within these settlements, particularly at smaller sites—a fact also supported by the proliferation of buildings the walls of which created the site’s perimeter during the late MB II (IIC; e.g., Shiloh, Shechem, and Michal)—and the inability to maintain these fortifications would have led to building on top of and outside of the earlier fortification walls. This may also account for expansion

of some sites with earthen platforms, not to be identified as ramparts (as at Michal), which appears to have often continued into the LB (as perhaps at Kinneret and Kh. Rabud). In this scenario monumental gates, particularly of the six-pier type would have remained in use for some time during the Late Bronze Age, but would have been abutted by structures other than a town wall.

While such changes occurred in fortifications strategies in the southern Levant, changes were less apparent in the north. A number of settlements provide evidence of the continuation of similar fortification strategies, characterized by the maintenance of rampart fortification systems. Ramparts in this period were in use at Alalah, Ugarit (if not during the late MB), Byblos, Biruta, Qatna (?), Carchemish, and Emar in the Levant, as well as Munbaqa in northwestern Mesopotamia. Other settlements in the northern Levant at which fortifications have been attested during the Late Bronze Age include Kumidi and Hadidi.

Table 10. Major developments in defensive architecture from ca. 3000 to 1500 B.C.

Period	Developments
EB II–III ca. 3000–2600 B.C. (PRE-RAMPART)	<ul style="list-style-type: none"> • <i>Walls</i> serve as the primary type of fortification in Mesopotamia (e.g., <i>Kranzhügels</i> in northwest). • <i>Ramparts</i>, which may initially have served as dikes, are first employed as defensive features at sites along the Euphrates with occupation through the end of this period. • The <i>moat</i> may have accompanied these ramparts to divert water away from mudbrick defensive walls. • Settlements in the southern Levant were fortified in various ways with <i>walls</i> but only occasionally with <i>glacis</i> and <i>fosses</i>. • Almost nothing known of fortification strategies of sites in the northern Levant in this period except for Byblos.
EB IVA–B ca. 2600–1925 B.C. (EARLY RAMPART)	<ul style="list-style-type: none"> • The fortifications of sites along the Euphrates are enlarged with new <i>ramparts</i> and <i>fortification walls</i>. • Fortified settlements are present throughout the northern Levant with <i>walls</i>, <i>ramparts</i>, <i>fosses</i> (?), and monumental <i>gates</i>. • Few fortified settlements attested in the southern Levant (e.g., Iskander); most sites appear to have been unfortified.

Table 10. Major developments in defensive architecture from ca. 2500 to 1500 B.C., continued.

Period	Developments
early MB I (IIA) ca. 1925–1800 B.C. (MATURE RAMPART)	<ul style="list-style-type: none"> • A common fortification strategy emerges for the first time in the Levant which included various defensive features. • <i>Freestanding ramparts</i> were built with <i>elliptical</i> plans (e.g., Ashkelon, Burga, Ebla, Kabri, Tuqan), <i>fortification walls</i>, <i>fosses</i>, and <i>glacis</i>. • <i>Supplemental ramparts</i> are common at sites with pre-existing occupation in the lowland regions. • <i>Rectangular towers</i> are used with both rampart types. • Few if any highland sites were fortified in this period.
MB I–II (late IIA–IIC) ca. 1800–1550 B.C. (LATE RAMPART)	<ul style="list-style-type: none"> • New fortified sites are established on the open plain. • <i>Freestanding ramparts</i> are built with <i>rectilinear</i> plans and <i>fosses</i>, both of which reach a peak in construction. • <i>Six-pier gates</i> emerge as the most common gate type. • Where earlier freestanding ramparts existed, their sides are straightened and large <i>rectangular bastions</i> are added at some sites. • Highland sites are now fortified with <i>supplemental ramparts</i> and massive <i>revetment walls</i>. • Towards the end of this period fewer walls are erected at new settlements, and it is possible that at small sites only the rear walls of structures served to defend the site atop the edge of tells and the crests of ramparts.
MB II (IIC)–LB I after ca. 1550 B.C. (POST RAMPART)	<ul style="list-style-type: none"> • Last ramparts are built in the late MB–early LB (?). • <i>Six-pier gates</i> continue in use and are maintained, but the walls adjoining them fall into disrepair and are probably only replaced by the rear walls of other buildings. • Under Egyptian imperial control almost no fortifications appear to have been erected, and some features such as <i>fosses</i> are co-opted for building space, while others may have been gradually filled in by erosion of the ramparts and fortification walls. • Features such as <i>ramparts</i> and <i>walls</i> may also have served as a source of building materials during later occupation.

SECTION TWO:

THE HISTORICAL CONTEXT OF MIDDLE BRONZE AGE FORTIFICATIONS IN THE LEVANT

CHAPTER FOUR:
A HISTORY OF WARFARE IN THE LEVANT
CA. 2400 TO 1500 B.C.

The worst policy is to attack cities. Attack cities only when there is no alternative.

Sun Tzu, *The Art of War*

Having reviewed in the preceding two chapters the developments in weaponry and defensive architecture between ca. 2400 and 1500 B.C., it is necessary to consider the historical framework—the political, economic, and social milieu—in which the construction of these fortifications was undertaken. In this chapter specific historical questions such as the frequency of military activity during this period and the effects of particular campaigns are addressed in an attempt to understand the impetus for the construction, if not the particular style, of fortifications that developed during the Middle Bronze Age in the Levant. The social and economic factors related to the construction and use of these fortifications, which are also integral to the historical setting of MB fortifications, will be considered in detail in the following chapter.

Despite the overwhelming evidence for fortifications during the MB, there has been considerable debate concerning the need for this particular type of fortification in this period. Against whom, for example, were such fortifications built? Was internecine feuding between rival cities the main threat or were more distant and larger kingdoms a threat to even the smallest and most remote of settlements? Or from a completely different perspective, was this period so politically unstable so as to require towns and villages to protect themselves against roving threats such as armed nomads, brigands, or

rebels? These are the types of questions concerning the historical setting which must be addressed in order to assess the purpose for which MB fortifications were constructed.

Given the geographical scope of this region, from the northern border of Egypt to central Anatolia and the middle Euphrates, it is, of course, impossible to speak of a single set of historical circumstances, which persisted throughout this 1,000 year period and which would have affected the entire region, that would account for the evolution of the fortification types discussed in the previous chapter. Nevertheless, in this region at specific points within this great span of time particular events and conditions appear to have encouraged the gradual adoption of a unique means of fortifying settlements. The geographical and historical scope of this inquiry can be limited to the major phases of the evolution of MB warfare and defenses which I have defined in the foregoing chapters. Therefore, in the present chapter I have investigated the most likely military threats, both exogenous and endogenous, which were present in northwestern Mesopotamia and the Levant during the second half of the third millennium (ca. 2400–1925 B.C.) and the first half of the second millennium (ca. 1925–1525 B.C.).

With respect to the military activity of the two major periods into which this chapter is divided it is worth noting that this activity can be basically characterized as the result of endogenous and/or exogenous threats. It has been generally assumed that the source of military aggression in the late third millennium was exogenous, inspired by Mesopotamian expansion into the north and perhaps Egyptian campaigns like that of Weni in the south, while military aggression in the first half of the second millennium is usually characterized as endogenous, as primarily internecine warfare. It is necessary, therefore, to reevaluate whether such generalizations are supported by the data, and to do so the state of political and military affairs during these periods must be examined through both historical and archaeological sources.

The use of archaeological data for this particular historical inquiry is of necessity born out of the paucity of historical sources for the Levant which are dated to the end of the third millennium and the Middle Bronze Age—a condition that is in stark contrast to that prevalent in Mesopotamia. While explanations can be offered for the lack of texts from the Levant for these periods, such explanations are superfluous, since as discoveries at Ebla have demonstrated our understanding of a region can change dramatically, almost overnight. Even so, texts alone cannot answer our historical questions. While texts can often help identify the agents of events and their dates, datable archaeological evidence is required to verify the claims made by the authors of these texts, a fortiori for claims regarding military victories. In this regard evidence for destruction levels offer a primary means of identifying sites that may have been involved in conflicts during this period. This type of evidence also makes it possible to assess the degree to which these conflicts may have affected settlements not mentioned in these texts. For this reason, I will seek in this chapter to bring together all of the available archaeological data for destructions of sites in the Levant from ca. 2400 to 1500 B.C., though few of these destructions have been radiocarbon dated. As will be demonstrated, in combination the historical and archaeological evidence reveal that references to the military victories provided by textual sources were not the product of the imagination of self-aggrandizing megalomaniacs; rather, they reflect an important aspect of the milieu of the day, namely, the continual military threat posed by distant political powers.

While the lack of Early and Middle Bronze Age sources for the southern Levant has frequently discouraged attempts at a historical synthesis of these periods, in this chapter I have relied upon the useful historical overviews provided by Horst Klengel for the history and historical sources for Syria (1965–1970; 1992). Various other sources also enable a reconstruction of the historical framework of this period to some degree, if often

lacking in dynastic intrigue and other details (Astour 1992; 2002; Yuhong 1994; Archi 1998; Oates and Oates 2001).

A. MILITARY ACTIVITY IN THE LEVANT CA. 2400 TO 1925 B.C.

From 2400 to 1925 B.C. historical developments in the northern and southern Levant appear to have progressed along separate lines. The major historical and political events for the northern Levant are usually related to either exogenous military pressure by Mesopotamian kings on long-distance campaigns into the northern Levant or endogenous pressure from Ebla, the dominant polity in the region. By contrast the evidence for the political and military history of the southern Levant is quite meager. Despite archaeological evidence for the destruction of some settlements in the southern Levant during this period and reference to a military campaign led by Weni during the first part of the Sixth Dynasty (ca. 2373–2296 B.C.), historical evidence for Egyptian involvement in the southern Levant is scant. For this reason it is usually assumed that most destructions in this region were the result of internecine feuding between rival settlements or possibly natural catastrophes such as earthquakes.

1. THE NORTHERN LEVANT

The military history of the northern Levant begins with the mere suggestion of military involvement by the king of Uruk, Lugalzagesi just after the mid-third millennium (ca. 2350 B.C.). The event in question, which was recorded in Early Dynastic royal inscriptions, is characterized as the subduing of all lands between the “Lower” and “Upper” seas (Persian Gulf and Mediterranean Sea) and the placement of “their routes in good order” (*SARI* Um 7.1, p. 94). At present, however, nothing beyond this short statement can be added regarding the frequency or nature of this or any subsequent action in the northern Levant by Mesopotamian kings during the remainder of the Early Dynastic period (EB II–III).

Nevertheless, the epigraphic evidence from Mesopotamia in the mid-third millennium provides a picture of the ever-increasing reach of Mesopotamian polities. Eanatum of Lagaš (ca. 2450 B.C.), for example, had already claimed to have defeated the king of Mari and to have undertaken campaigns well into Elam (*SARI* La 3.5, p. 42). And, while references to the northern Levant in Mesopotamian texts are also found during the Akkadian period, it is likely that during this same period the kingdom of Ebla filled any power vacuum that might have existed and, thus, was a likely party to any military conflicts that might have occurred.

The history of Ebla's military and political interaction with its vassals and enemies has been summarized by a number of authors (Pettinato 1981; 1991; Klengel 1992; Astour 1992; 2002). However, for this period the Ebla archives provide only a glimpse into the political landscape and military activity in the Levant since, as Klengel notes, "there is little evidence for the political relations of Ebla with other Syrian or Mesopotamian centres" (1992:28) and "as southern Syria is concerned, there are no undisputed...identifications of places" (*ibid.*, 30). Still, one Ebla text (TM.75.G.2367), which has been variously described as a "military bulletin" (Pettinato 1991:237–240) and an "introductory letter" (Edzard 1981), provides a record of what were at least a series of military actions throughout the northern Levant and northwestern Mesopotamia.¹

- 1) Thus says Enna-Dagan, ruler of Mari, to the ruler of Ebla: The cities Aburu and Ilgi, the lands of Belan, Anbu the ruler of Mari defeated; tells and ruins in the mountains of Lebanon he left.
- 2) The cities Tibalat and Ilwi, Sa'umu the ruler of Mari defeated; in the mountain terrain of Anga'i-x he left tells and ruins.
- 3) The lands of Ra'ak and Irum, Ash'aldu and Badul, Sa'umu the ruler of Mari defeated, in the border of x-an, in Nahal, he left tells and ruins.
- 4) And the cities Emar and Lalanium and the canebrake (*GA.NU.UM, apum?*), (that) of Ebla, Ištup-Išar, the king of Mari, defeated; in Emar and in Lalanium he left tells and ruins.

¹For bibliographic references concerning this text and its interpretation see *COS* III, p. 236.

- 5) And the city Gallabi [and x] the liberated canebrake (GA.NU.UM, *apum?*), Iblul-il, the ruler of Mari and Apishal(?), defeated; in Zahiran he left also seven tells and ruins.
- 6) Iblul-il, the ruler of Mari and Shada and Addali and Arisum, the lands of Burman which (include) the city Sugurum, Iblul-il defeated and left (in) tells and ruins.
- 7) Also the cities Sharan and Dammium, Iblul-il the king of Mari, defeated; he left two tells and ruins.
- 8) Against the city Nerad and against the fortress of Hazuwan Iblul-il, the king of Mari, went forth. And he received the tribute of Ebla in its midst, (in) Nema.
- 9) Also Emar he defeated(?), he left tells and ruins, did Iblul-il, the king of Mari.
- 10) And Nahal and Nubat and Shada, the lands of Gasur(?), he defeated in Kanane; he also left seven tells and ruins.
- 11) Iblul-il, the king of Mari, both Barama—for the second (time)—and Aburu and Tibat, the lands of Belan, defeated; Enna-Dagan, the ruler of Mari, left tells and ruins.
- 12) The two nations(?) in oil, the(ir) lands I bound.
- 13) ...Iblul-il, the king of Mari,...

COS 3.90

In this text Enna-Dagan, who may have been the new king at Mari or an Eblaite military commander (cp. translation in Pettinato 1991:237ff.), recounts in a letter to the king of Ebla Mari's history of military victories over rulers from "the mountains of Lebanon" to sites that are probably located in northern Mesopotamia. Although Pettinato has suggested that the text should be identified as the events of a single campaign led by Enna-Dagan (1980), Edzard and others have suggested that it constitutes a series of military actions taken by Mari against its neighbors in the years prior to Eblaite intervention, written in a style comparable to examples from the Neo-Assyrian period (Edzard 1981; Kienast 1980). Unfortunately, Ebla and Emar are the only places mentioned in the text about whose locations are certain.² Furthermore, it is impossible to know exactly when these places were defeated since the reigns of many of the kings of Mari supposedly identified in this text remain unattested.

²While it is nearly impossible to be certain of the location of many of the places mentioned in this text, various attempts have been made to locate the sites. See, for example, the map by Astour (1992:27).

The text, however, serves to illustrate that polities in northern Mesopotamia as well as in the south posed a threat to the northern Levant in the mid-third millennium. Mari is no less than 460 km by the overland route via Emar and Aleppo from Ebla. If Edzard's interpretation is favored, then the text not only attests to intervention by Mari in the affairs of the northern Levant during this period, but perhaps also reprisal activity by Ebla against Mari which may, ultimately, have resulted in the installation of Enna-Dagan as king. It is perhaps in this manner that we can understand why an Akkadian campaign was directed against Ebla within a relatively short time after Ebla's intervention in northern Mesopotamia.

The Enna-Dagan text also demonstrates that Ebla, and possibly yet undiscovered political centers like it in the southern Levant, wielded sufficient military power to enable it to control not only a large area within the Levant but also to defeat powerful polities in Mesopotamia. There are also implications for the southern Levant, if, in fact, Ebla exerted military and political might in the south to the degree that is attested to the north and east. But despite the threat that Ebla may have posed to settlements throughout the Levant and beyond, much of the northern Levant was still exposed to military incursions by Mesopotamian kings, as was so clearly demonstrated by the destruction of Ebla ca. 2190 B.C. by Naram-Sin.

Evidence, however limited, from the upper Ḫabur kingdom of Nagar also provides a glimpse of political and military developments during the mid to late third millennium B.C. To date, though, neither texts nor evidence of the town walls of Nagar in Phase L (ED IIIB), presently identified as Tell Brak, have come to light. But the building of town walls at Leilan and Mozan (see Appendix A), as the excavators of Brak have noted, may coincide with "the expanding power of the already urban Nagar and/or a

threat from Hurrians to the north” (Oates and Oates 2001:380).³ The fiery destruction of Phase H revealed at **Nagar** (Tell Brak) in Area CH (Level 6), Area ER (Level 5), and in Areas ST and DH can be identified as either the result of the arrival of Akkadian power or local conflicts (Oates, et al. 2001:382, 391).

The inscriptions of Akkadian kings, who record their campaigns against towns and regions in the northern Levant, provide the next source for military activity during the third millennium (see Table 11 below). These texts cover Sargon’s campaign against Mari, Iarmuti, and Ebla (*RIME* 2.1.1.11–12), and Naram-Sin’s campaign against Armānum and Ebla (*RIME* 2.1.4.26). It is important to remember that by claiming to have defeated these towns Sargon, who inherited the title of ‘King of the Land’ (*RIME* 2.1.1.1) by defeating Lugalzagesi, was further legitimizing himself as Lugalzagesi’s successor, who as noted above had himself led an expedition as far as the “Upper Sea”. Although details concerning Sargon’s western campaign, in which he claimed to have conquered Mari, Iarmuti, and Ebla, as well as thirty-four other towns, are not mentioned elsewhere, the range and effectiveness of these campaigns are certainly plausible given the scope of earlier military activity. In fact, they can be understood to be the projection of Akkadian military might as far as possible to the west into the northern Levant as to the east into Elam. While this assertion does not remove the possibility that Sargon’s claim could have been entirely fabricated, it appears to be substantiated by the archaeological record which consists of destruction levels that are contemporary with the events described. Furthermore, Sargon’s admission of a need to put down “rebel cities” in

³There is no historical parallel from this region in this period for assuming that the settlement at Tell Brak lacked city walls in the mid-third millennium because it may have been powerful enough that it “needed no such protection” as the excavators have suggested (Oates and Oates 2001:380). It is more reasonable to assume that the remains of the fortifications have not yet been encountered since as the excavators have noted there have been “only very restricted exposures of this date” (ibid.).

the region (*RIME* 2.1.1.12, lns. 1–10),⁴ his display of obeisance to the “god Dagan in Tuttul” (*ibid.*, ln. 6’–12’), and his having engaged in thirty-four specific battles (*RIME* 2.1.1.11, ln. 1ff.), in each of which he claims to have been victorious, are all events which were not previously mentioned by Lugalzagesi. These details, therefore, emphasize Sargon’s particular claim to have destroyed these towns some of which, like Ebla, had not been previously mentioned by Mesopotamian kings.

Table 11. Akkadian kings and the Levantine towns they pacified.

King	Inscription	Settlements
Sargon (2270–2215 B.C.)	<i>RIME</i> 2.1.1.11–12	Mari Iarmuti Ebla
Naram-Sin (2190–2154 B.C.)	<i>RIME</i> 2.1.4.26	Armānum Ebla Ulišum Amanus

The territory, which had originally been added to the Akkadian empire during the reign of Sargon, was further widened during the reign of Naram-Sin to include new towns such as Armānum and Ulišum, which was inhabited by “people whom the god Dagan had given to him for the first time” (*RIME* 2.1.4.26, lns. ii 8–19). The text was clearly intended to convey that new territories had been added by Naram-Sin while also quelling revolts within the empire in towns such as Ebla. Although the exact location of the capital of Akkad has not been established, the Akkadian accounts of conquests in the northern Levant suggest that the range of military action overland against centers in the Levant had in this period nearly doubled with campaigns being made against towns over 750 km away!

⁴The reference to “rebel cities” in this text and Naram-Sin’s description of a people given to him for the first time (*RIM* E2.1.4.26) lead one to contemplate whether much of the Akkadian empire in the west was actually built on the military exploits of Lugalzagesi (if not also his predecessors), since no former expeditions by Sargon are mentioned and yet already cities are described as rebelling.

Accompanying Naram-Sin's account of this campaign is a lengthy description of the fortifications of Armānum.

From the fortification wall [BÀD *danīm*] to the great wall [BÀD.GAL]: 130 cubits [\approx 65 meters] is the height of the hill (and) 44 cubits [\approx 22 meters] is the height of the wall [BÀD]. From the quay wall [BÀD *kārim*] to the fortification wall: 180 cubits [\approx 90 meters] is the height of the hill (and) 30 cubits [\approx 15 meters] is the height of the wall. Total: 404 cubits [\approx 202 meters] in height, from ground (level) to the top of the wall. He undermined the city Armānum...

From the river to the quay [*kārim*] wall; 196 cubits [\approx 98 meters] is the height of the hill (and) 20 cubits [\approx 10 meters] is the height of the wall. From the quay [*kārim*] wall to the fortification wall: 156 cubits [\approx 78 meters] is the height of the hill (and) 30 cubits [\approx 15 meters] is the height of the wall.

RIME 2.1.4.26, Ins. iv 20–vi 17

Although it is impossible to know exactly why the fortifications of Armānum warranted such a detailed account, it is likely that the Mesopotamian king's campaign into the Levant had brought him into contact with an example of a completely foreign means of fortifying a settlement. The reconstruction offered by F. R. Kraus (Kraus 1948:fig. 7) and improved upon by Benjamin Foster (1982:35) of this description are probably very close to what the descriptions were actually intended to convey. Unfortunately, no consensus has emerged for the site to be identified with Armānum, though Armi of the Ebla texts which is ultimately identified with Aleppo of the second millennium, has been suggested. However, W. G. Lambert has suggested that Aleppo is to be identified with Ḫalam in the Ebla texts (1990).

That the Amanus region remained open to the Akkadians at least for some time following Naram-Sin's campaign(s) is evident from Šar-kali-šarri's account of his apparently uneventful expedition to obtain cedars from the Amanus Mountains for the construction of a temple for Aštar (*RIME* 2.1.5.5, esp. Ins. 53–57). Nevertheless, Akkadian rule over this region was certainly not without challenge, particularly by Amorite groups in the surrounding highlands who were defeated in a number of

encounters according to at least one of the year names of Šar-kali-šarri (see Frayne 1993:183).

Although the Akkadian empire's control over Subartu (and possibly the northern Levant) was brought to an end by the Gudeans, the rise of the Ur III empire (ca. 2048–1940 B.C.) soon assumed its role in this region, which may account for the continuation of unrest between the Amorites of this region and the inhabitants of southern Mesopotamia. During the thirty-seventh year of his reign Šulgi appears to have conducted raids against the Amorites (Frayne 1997:107). In the same year construction was begun on a wall which was intended to discourage Amorite raids.⁵ This wall was known as the “Wall of the Land” (also referred to as “The Wall Facing the Highland”).⁶ As Frayne has noted, that the purpose of the wall was to keep out the Tidnum (Amorites) is evident from several references that confirm that “troops working on the wall had to contend with attacks by Tidnumite nomads” (Frayne 1997:106). This construction project demonstrates that the Mesopotamian military strategy of constructing a defensive line, similar to Hadrian's Wall, was as strategically successful as the French Maginot line. But the strategy continued in force during the reign of Šu-Sin with the construction of another wall of this type no less than twenty-five years later. This wall, called Muriq-Tidnim (lit., “It keeps the Tidnum [Amorites] at a distance”),⁷ was begun and seemingly completed in the fourth year of the reign of Šu-Sin (*ibid.*, 290ff.). The construction of “Muriq-Tidnim”

⁵ Although the “Wall of Ur” built by Ur-Nammu is sometimes considered the first of such walls in the Ur III period, the evidence, as D. Frayne notes, suggests that the wall, in fact, belonged to the sacred temenos and not the city itself (see *RIME* 3/2.1.1.4 and commentary).

⁶ Although this wall has not been definitively identified, various suggestions have been made including those by R. D. Barnett (1963:20ff.), though they were subsequently refuted by J. Reade (1964). For textual references that might suggest the relative length of these walls, see Barnett (1963:21) and Wilcke (1970).

⁷ See also reference to this wall in *RIME* 3/2.1.4.17.

may have been a passive aggressive strategy to mitigate the effects of campaigns, perhaps by Šu-Sin himself, into Subartu against Mari, Urkeš, and Tuttul, and in the northern Levant against Ebla, Mukiš, and Lebanon. These place names are attested on a tablet identified as a campaign record probably to be attributed to the reign of Šu-Sin (*RIME* 3/2.1.4.2). One text from the reign of Šu-Sin provides an excellent example of the effects of such campaigns in a region.

The men who had evaded battle and who, like birds, saved their lives (by fleeing) to their cities, did not escape his hand. Against [their] cities he himself screeched like the Anzu bird. He turned their established cities and villages into (ruin) heaps. He destroyed their walls. He blinded the men of those cities, whom he had overtaken, and established them as domestic (servants) in the orchards of the god Enlil, the goddess Ninlil and of the great gods. And the [wom]en of [those cities], whom he had overtaken, he offered as a present to the weaving mills of the god Enlil, the goddess Ninlil and of the great gods.

RIME 3/2.1.4.3

While the kings of the Ur III dynasty had meted out more than their share of destruction upon settlements throughout the Near East, the fate of their glorious town is all too well known. The “Lamentation over the Destruction of Ur” records the ravages done to the town of Ur by its enemies at the end of the third millennium (ca. 1940 B.C.). This literary piece also serves as an excellent contemporary record of the nature of siege warfare in this period.

By its walls, as far as they extend in circumference, laments were uttered,
 At the..., the weapon makes all cower before it,
 In Ur, the large axes wreak havoc before them,
 The spear, “the might of battle” is hurled straight (to its mark),
 The large bows, the throw-stick, the sling are all devouring,
 The “head” arrows filled their bodies like heavy rain,
 The large stones that of themselves (strike) afar, crush the bones,
 Daily the evil wind brings them back against the (people of the) city,
 Ur that relied on its lions, was given over to carnage,
 Its people were turned over the power of the enemy.

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Aside from the textual sources which attest to military conflicts in this period, there is evidence of a number of destructions attributed to the second half of the third

millennium which might also shed light on the nature and frequency of warfare. In addition to the destruction of Nagar (Tell Brak) cited above, evidence from **Ebla**, which is probably the best known, attests to its destruction not only ca. 2200 B.C. (Mardikh IIB1) perhaps by Naram-Sin, but also again at the end of the EB IV, ca. 1950 B.C. (Matthiae 1980b:111). Although various arguments have been made to suggest that the Akkadians were not responsible for the first destruction of Ebla (see summary provided by Astour 2002:68–76), the general consensus is that the destruction must be attributed either to Sargon (Schwartz and Weiss 1992:238ff.) or to Naram-Sin (Matthiae 1980b:177). The evidence consists solely of the destruction of Palace G located on the acropolis. Unfortunately, no carbon-14 dates have been provided and, therefore, the debate concerning the date of its destruction remains mired in relative ceramic chronologies. Along with Ebla **Tuqan** also appears to have suffered destruction by fire at the end of the EB IVB, ca. 1950 B.C. (Matthiae 1979:8).

Byblos also experienced major destructions which are nearly contemporary with those at Ebla in the second half of the third millennium B.C. Despite the general difficulties inherent in relying upon archaeological data from excavations at Byblos, Dunand asserted that the first destruction of Byblos could be dated ca. 2150 B.C. attributing this destruction to the arrival of the Amorites.⁸ It was in this destruction that the first phase of the northeast gate was destroyed by fire and M. Saghieh's analysis suggests that the second phase of this gate was also destroyed by fire again at the end of the third millennium (1983:131f.), making its second destruction contemporary with that of Mardikh IIB2, ca. 1950 B.C. Although it is only usually stated that **Ugarit** experienced a period of abandonment between ca. 2150 and 1950 B.C. (Yon 1997b:258), C. Schaeffer

⁸M. Saghieh has suggested this date (1983:131), which is corrected from Dunand's date of 2200 B.C.

suggested that a conflagration took place at the site (Ancien 2) between about 2350 to 2250 B.C. (1948:35f.), despite the fact that he never intimated who or what may have been responsible for this.

Hama level J5 was also destroyed around 2250 B.C. according to Ejnar Fugmann (1958:271f.). Excavations at **Hammam et-Turkman** (anc. Zalpah) have also revealed two extensive destruction layers during the last quarter of the third millennium, ca. 2200 and 2000 B.C. (van Loon 1988:699); these are roughly contemporaneous with those attested at **Nagar** (Tell Brak), of Phase L which was discussed above and Phase N (Oates and Oates 2001:394). The second destruction of Zalpah actually resulted in an occupation gap at the site during the early second millennium (van Loon 1988:699). Other destructions at the end of the third millennium in northwestern Mesopotamia can be found at Sweyhat, Hadidi, and Selenkahiye. **Tell es-Sweyhat** was supposedly destroyed in a fire during the Ur III period (Holland 1977:58). **Tell Hadidi** is said to have been destroyed ca. 1950 B.C. (Dornemann 1978:24; 1985:50), and **Selenkahiye** was destroyed in a conflagration following Period IV at the end of the EB IVB (ca. 1950 B.C.), which has been confirmed by radiocarbon dates (van Loon 2001:603ff.).

In reviewing the evidence for the destruction of sites in northern Mesopotamian and the northern Levant at the end of the third millennium, it is not difficult to understand how Kenyon was led to assume that changes which were evident in the archaeological record of the southern Levant in this period were in some way related to the volatile events attested in the northern Levant (see Kenyon 1966). Nevertheless, a direct link between these two regions has never been clearly established. The “Amorite Hypothesis” advanced by Kathleen Kenyon, which posited a violent migration of Amorites out of the northern Levant into the south that would have resulted in the destruction of settlements in the southern Levant at the start of both the EB IV and MB I (IIA), remains, therefore, only a hypothesis. Despite this realization, the fact that subsequent research has not

completely eliminated the notion of an Amorite cultural migration from the northern into the southern Levant is perhaps the clearest testimony, I believe, of the continued relevance of the hypothesis to the study of the Middle Bronze Age in the Levant (see, for example, Lönnquist 2000). While our view of the nature of the movement of groups from northern Mesopotamia into the Levant has certainly changed from one of swift conquering hordes to that of a gradual diffusion of cultural traits by various mechanisms, there is a growing realization among scholars that unlike other proposed migrations of ethnic groups in the ancient Near East this one cannot be entirely dismissed (Mendenhall 1992b; 1992a; Lönnquist 2000).

2. *THE SOUTHERN LEVANT*

To better understand the contrast that exists between the northern and southern Levant during the EB IV (ca. 2300–1925 B.C.)⁹ we must briefly review the archaeological and historical evidence for settlements in the southern Levant up to ca. 2300 B.C. as it pertains to the history of warfare. This evidence consists on the one hand of the destruction of sites in the southern Levant and on the other hand of a single Egyptian campaign led by Weni during the Sixth Dynasty. Although Egyptian expeditions to the Sinai were probably commonplace at this time, as they had been during earlier dynasties, these economic expeditions do not appear to have influenced the settlement pattern or defensive strategies of the inhabitants of the southern Levant in any discernible way.

It has, in fact, been suggested that the onset of the EB III (ca. 2700 B.C.) brought about a new phase in relations between Egypt and the southern Levant which resulted in

⁹Various dates have been proposed for the start of the EB IV: 2350 B.C. (Dever 1995:282), 2300/2240 B.C. (A. Mazar 1990:151ff.), 2300 B.C. (Gophna 1992b:127), and 2250 B.C. (Stager 1992:41). The difficulty, of course, is partly related to the inherent nature of sites with limited periods of settlement and the possibility that changes in the material culture upon which our periodizations are based were gradual. In the present work the median date of 2300 B.C. has been adopted, since an analysis of the dates for this period is not of principal concern to this study.

its being bypassed in favor of maritime trade with coastal Lebanon at Byblos (Ben-Tor 1992:118–120; Stager 1992:41). Despite the apparent disinterest of Egypt in this region at this time, a few sites still flourished as large fortified towns in the southern Levant, occupied from the EB II through the end of the EB III. Destruction levels at some of these sites during this period attest to a degree of, perhaps intermittent, internal unrest (A. Mazar 1990:141), but the evidence for these does not present a set of contemporaneous and related events like those in the northern Levant and Mesopotamia. These destructions occur throughout the entire EB II–III period (more than 700 years), and the sites were often resettled following their destruction. EB II–III sites which were destroyed include **Tell el-Far‘ah North** (late EB II, de Miroschedji 1993:436), **Kh. el-Makhruq** (end of EB II and EB III, Z. Yeivin 1993:929f.), **Tell es-Saidiyeh** (late EB II, Tubb 1993:1300), **Ai** (end of EB III, Callaway 1993:39), and **Jericho** (end of the EB III, Kenyon 1993:678f.). There is no evidence to suggest that there existed a systematic approach to fortifications in the southern Levant in this period, as noted in the previous chapter, which, therefore, makes it difficult to suggest how these fortification strategies may have related to the emergence of particular threats.

In addition to the evidence for the destruction of settlements in the EB II–III, there is only the historical evidence of military expeditions led by the Egyptian commander Weni in Dynasty VI during the reigns of Teti I, Pepi I, and Mernere (ca. 2373–2296 B.C.). In his tomb chapel autobiography he described his role in several campaigns against the “Sand-dwellers”, a general term for the inhabitants of the southern Levant.

His majesty sent me to lead his army five times, to attack the land of the Sand-dwellers as often as they rebelled, with these troops. I acted so that his majesty praised me [for it beyond anything].

Told that there were marauders among these foreigners at the nose of the Gazelle’s-head, I crossed in ships with these troops. I made a landing in the back of the height of the mountain range, to the north of the land of the Sand-dwellers,

while half of this army was on the road. I came and caught them all and slew every marauder among them.

AEL 1, p. 20

This final campaign, possibly his sixth (“five times” mentioned above plus one), has been usually considered to have taken place north of the Carmel Range in the vicinity of modern Haifa. Unfortunately, beyond this description, however, there is little that can be said and we remain uncertain concerning the frequency of such Egyptian campaigns.

The following period, EB IV (ca. 2300–1925 B.C.), has been traditionally characterized as a de-urbanized period in the southern Levant, when many EB II–III settlements were abandoned or shrank considerably in size. The possible reasons for this shift in settlement are numerous, but one of the differences routinely noted in this period is the complete absence of fortification systems around settlements, whether they were newly established or continued to be settled since the EB II–III. The only attested exception to this is, of course, Khirbet Iskander in Transjordan (see Appendix B). Therefore, there appears to have existed a gap in the construction of fortification systems in the southern Levant between the Early Bronze Age and the Middle Bronze Age, which does not appear to have existed in the northern Levant.

Whatever the reasons for the nature of EB IV settlement, the limitations of the data means that we are unable to speculate concerning the nature of political relations between settlements in the region and neighboring regions in this period. Our only data, therefore, concerning the relations of the inhabitants of the southern Levant with their neighbors is derived from Egyptian sources. These consist primarily of several literary sources and tomb reliefs (Redford 1992:66ff.), which depict Asiatics in Egyptian battle scenes during Dynasty XI (ca. 2189–1968 B.C.), which corresponds to a large part of the EB IV (see discussion of these scenes by A. Schulman 1964). Donald Redford has observed that from the reign of Mentuhotep II (ca. 2038–1987 B.C.) reliefs suggest that Asiatics were once again the target of Egyptian military activity (1992:69f.) However,

that these reliefs cannot be so easily interpreted as evidence for attacks against Asiatic settlements, let alone Asiatics themselves, has been noted by Alan Schulman (1982:168, 172–175). The question which remains, therefore, for all of these reliefs is: do the fortified centers which are depicted as defended by Asiatics represent Asiatics living in settlements in Egypt during the Eleventh Dynasty or are these settlements located in the southern Levant? Schulman has suggested that all of the scenes dated to the Eleventh Dynasty from the reign of Mentuhotep II on belong to various depictions of the siege of Herakleopolis by this king (*ibid.*, 182f.). But whether this is actually the case remains to be proven. This is true particularly in light of the collection of dead soldiers (see discussion in chapter two, section D) who have been traditionally assigned to Mentuhotep II but have now been redated by Dorothea Arnold to the reign of Sesostris II (1874–1866 B.C.). This would remove the weight of the traditional argument of interpreting scenes of warfare from the latter half of the First Intermediate Period and the first part of the Middle Kingdom solely in relation to Mentuhotep II's famous battle (see n. 40 on p. 88 in chapter two).

B. MILITARY ACTIVITY IN THE LEVANT CA. 1925 TO 1500 B.C.

During the Middle Bronze Age a diverse collection of sources provide us with a broader picture of political affairs in the Levant. Beginning after ca. 1800 B.C. we are informed of numerous kingdoms ruled by Amorite dynasties (Klengel 1965–1970; 1992:39ff.). These include kingdoms based at Emar, Aleppo, Alalakh, Ugarit, Byblos, Qatna, and Hazor. But among these kingdoms only the affairs of the largest, Yamhad (Aleppo) and Qatna, are treated in detail in the Mari texts (Klengel 1992:59). While the kingdoms of Ugarit, Byblos, and even Hazor may have remained aloof from the main political events of the day, this is again most likely only the result of the limited number of references to these powers than evidence of their inactivity or distance from international affairs in the Middle Bronze Age.

The historical sources for the Levant between ca. 1800 and 1600 B.C., which consist primarily of the Mari texts and the tablets from Alalah Level VII, allow us to identify the major military conflicts that occurred in the northern Levant in this period, in addition to the smaller conflicts within, for example, the kingdom of Mari. Unfortunately, we still lack sufficient historical records for the first part of the Middle Bronze Age (ca. 1925 to 1700 B.C.) in the northern Levant, the period during which Amorite dynasties probably emerged in this region, but also for the remainder of the period in the southern Levant. Nevertheless, when the aforementioned sources are considered, specifically for the purpose of examining military conflicts, they illustrate the degree to which hostilities were present and the reasons why it was considered worth investing effort in the construction of the defenses of MB settlements.

1. THE NORTHERN LEVANT

Although historical sources for the northern Levant are wanting for the period from ca. 1950 to 1800 B.C., events in neighboring regions suggest that the period would not have been without its share of military activity as well. While competition between rival neighboring kingdoms in Babylonia dominated political affairs, it seems that Assyria was not equally restrained and was, therefore, more involved in military action in distant regions (see Yuhong 1994). There is, for instance, unequivocal archaeological evidence that **Kültepe/Kaneš** was destroyed, presumably by the Assyrian king Puzur-Assur ca. 1786 B.C., bringing to an end the Level II settlement of the *kārum*, though the evidence for the destruction of the mound is less certain (Özgüç 1997:266). Unfortunately, the campaign of Puzur-Assur would seem to be the only one which can with some certainty be reconstructed, though it was probably not an isolated event in the history of Assyria before Šamši-Adad I. But if Assyria is correctly identified as the aggressor in this event then the campaign covered no less than 840 km to achieve its objective. After a few decades of abandonment the site was resettled (Kārum Level Ib)

and continued to flourish until it was again destroyed during the first half of the eighteenth century (Bryce 1998:24).

Our sources continue during the reign of Yaḥdun-Lim king of Mari (ca. 1756–1746 B.C.).¹⁰ They indicate that Mari was engaged in a struggle for supremacy with the kingdom of Yamḥad, that Mari may have carried out a campaign to the Mediterranean, and that it was engaged in battle in the same year with a coalition of rulers from the middle Euphrates Valley led by Yamḥad (Klengel 1992:50).

In that same year,—La'um, king of Samanum and the land of the Ubrabium, Bahlukullim, king of Tuttul and the land of the Amnanum, Aialum king of Abattum and the land of the Rabbum—these kings rebelled against him. The troops of Sumu'epuh of the land of Yamḥad came as an auxillary force (to rescue him) and in the city of Samanum the tribes gathered together against him, but by means of (his) mighty weapon he defeated these three kings of...He vanquished their troops and their auxiliaries and inflicted defeat on them. He heaped up their dead bodies. He tore down their walls and made them into mounds of rubble.

COS 2.111

However, Yaḥdun-Lim succeeded in defeating this coalition at Samanum and thus maintained control over this part of the Euphrates. The only archaeological evidence that can be related to these events comes from the second phase of Palace A at **Tuttul** (Tell Bi'a), which was destroyed during the Middle Bronze Age, possibly by Yaḥdun-Lim (Einwag 2002:146). Associated with this destruction was a mass grave containing eighty individuals. Ultimately, Ilakabkabu, father of Šamši-Adad killed Yaḥdun-Lim and thus began to bring about a replacement of Mari's regional dominance by Assyria (Klengel 1992:51).

The defeat of Mari by Šamši-Adad (1749–1717 B.C.) was probably likely to have contributed to efforts by Sumu'epuh, the first attested ruler of Yamḥad, to consolidate power over an area that may have stretched from the Orontes on the west, to the

¹⁰Dates used for reigns in this section follow the conventional dates of the middle chronology.

Euphrates on the east, and to the border with the kingdom of Qatna on the south (Klengel 1992:52). But expansion to the east by Yamḥad in this period was quickly checked by Šamši-Adad's installation of his son, Yasmah-Adad, on the throne at Mari replacing Yaḥdun-Lim's son Sumuyamam. This ultimately led to hostilities between Šamši-Adad and the kingdom of Yamḥad. Šamši-Adad is recorded thereafter, probably feeling that his rear was secure, to have ventured to the "Great Sea" and the land of "Laban", possibly through Yamḥad's territory if not Qatna's.

At that time I received tribute of the kings of Tukriš and of the king of the Upper Land, within my city, Aššur. I set up my great name and my monumental inscription in the land of Lebanon on the shore of the Great Sea.

RIMA 1 0.39.1 lns. 73–87

In a continued effort to cut Yamḥad off from any military support, Šamši-Adad signed a treaty with Qatna and formed a coalition against Yamḥad, some of the members of which had been former allies of Yamḥad (Klengel 1992:52ff.). It may have been in direct response to this event that the fortifications of sites such as Ebla and Tuqan, which belonged to Yamḥad but were located in the buffer zone between Yamḥad and Qatna, were renovated in the later half of the eighteenth century B.C. The town wall of **Ebla** (Mardikh IIIB) was equipped for the first time in this period with large fortified bastions (see Appendix B). At the start of the MB II (IIB) the town wall of **Tuqan** was destroyed and was then rebuilt with towers (Matthiae 1982a:318). The clear buttressing of the wall's defenses at both of these settlements with the addition of towers and bastions would seem to be a clear sign that political and military circumstances had deteriorated.

Perhaps because Sumu'epuh conducted raids against settlements in the northern part of the kingdom of Qatna, Šamši-Adad dispatched troops from Mari to Qatna for its defense (Klengel 1992:66). These events eventually precipitated a direct conflict between Šamši-Adad's forces and those of the kingdom of Yamḥad, which may have lasted several years and was continued by Sumu'epuh's son, Yarim-Lim I. The conflict during

Yarim-Lim I's rule (1717/16–1701 B.C.) is a quintessential example of the nature of military alliances in this period, which brought distant powers into conflicts which were far from their own borders. Thus, for example, Yamḥad had enlisted the assistance of Ešnunna and Babylon against Šamši-Adad, their common neighbor and mutual enemy (ibid., 55). The conflict between the rulers of Yamḥad and Šamši-Adad was ultimately resolved only with Šamši-Adad's defeat and death in 1712 B.C., which left only five major kingdoms identified in Mesopotamian texts from this period: Yamḥad, Qatna, Babylon, Larsa, and Ešnunna (ibid., 57).

Following the defeat of Assyria, Yarim-Lim I of Yamḥad formed an alliance with Zimri-Lim of Mari (Klengel 1992:55) and probably also with Išihī-Adad's successor, Amutpi'el, of Qatna, if this was not realized later during the reign of Yarim-Lim I's successor Ḥammurapi I when Babylon joined this alliance (ibid., 58). For these reasons military activity during the remainder of Yarim-Lim I's reign was probably negligible, though activity within the kingdom of Mari is clearly recorded. **Tuttul** (Tell Bi'a) appears to have been destroyed again by Zimri-Lim of Mari as evidenced in the destruction of the final phase of Palace A (Einwag 2002:147).

The land of Yamḥad appears to have continued nearly without military conflict during the reign of Ḥammurapi I of Yamḥad (ca. 1701–? B.C.), successor to Yarim-Lim I, despite the fact that the king of Yamḥad continued to furnish troops for Babylon (Klengel 1992:59). Ḥammurapi I was also able to establish peaceful relations with Qatna to the south, while the kingdom of Yamḥad in this period may have controlled territory as far east as Šubat-Enlil, the former capital of Šamši-Adad. But the greatest difficulties faced in this period, beginning in the reign of Abba'el, son of Ḥammurapi I, came from within the kingdom with events such as the revolt and subsequent destruction of Irrite in northern Mesopotamia. From the reigns of Yarim-Lim II, successor of Ḥammurapi I, to the end of the reign of Irkabtum little is known of the foreign relations of the kingdom of

Yamḥad. Our information only resumes with a final note regarding a conflict that may have occurred between the kingdoms of Yamḥad and Qatna with the involvement of Ešnunna during the reign of Yarim-Lim III (see AT *6 and Klengel 1965–1970:vol. II, p. 106).

It was perhaps during this period beginning with Yaḥdun-Lim and followed shortly afterwards by Šamši-Adad, when non-Levantine powers sought to assert their control over portions of the northern Levant, that it is appropriate to set the start of the “Late Rampart” phase of fortification construction (ca. 1800–1550 B.C.). Thus, we may understand that the efforts undertaken to fortify sites such as **Qatna**, **Aṣ-Ṣour**, **Tell Sefinat-Nouh**, **Deir Khabiye** just south of Damascus, **Laish (Tel Dan)**, and **Hazor** with a single fortification technique, which employed fosses and rectilinear, freestanding ramparts crowned by thick mudbrick walls, were the direct result of the growing conflict between these major kingdoms which had been ignited around the mid-eighteenth century B.C. Although of these sites we are at present only certain concerning the dates for the construction of the ramparts of Hazor, Tel Dan, and to a certain extent for Deir Khabiye (see Appendix B), there is no evident reason to doubt that the ramparts of Qatna, Sefinat-Nouh, and aṣ-Ṣour were not also built at this time. In fact, the dating I have proposed for the six-pier gate, two of which have been identified at Qatna, at the start of the second half of the Middle Bronze Age suggests that the phase of rampart construction at Qatna associated with these gates—and there probably was only one as indicated by geomorphological studies—should be dated to this period. Fortified sites with rectilinear plans in the southern Levant such as at Yavneh-Yam, Timnah, Haror, ‘Ajjul, Masos, and those which can probably also be identified at Ekron, Nagila, and Jemmeh, should be seen in the light of the emergence of a *koine* of fortification strategies which was adapted to the defensive needs of the time (see section C.2 below for discussion of the MB *Kingdom of Ashkelon* during the MB).

While the discussion of the historical sources above provides in a strict sense the extent of the textual data for military activity in the northern Levant, it is imperative to add to this what is known of the destructions of major Mesopotamian cities during the First Dynasty of Babylon. During the reign of Ḫammurapi of Babylon (1728–1686 B.C.) Babylonia was involved in military action as far west as Mari on the middle Euphrates. Ḫammurapi's destruction of **Mari** is clearly attested in the archaeological record (Margueron 1997b), an event which was responsible for the preservation of the Mari texts found in the remains of the palace of Zimri-Lim. According to Ḫammurapi's year names the town was captured in his thirty-first year (1698 B.C.) and its walls were destroyed in his thirty-third year (1696 B.C.). Although this was the only major foreign conquest by Ḫammurapi, Samsuiluna (1685–1648 B.C.), Ḫammurapi's successor, was also involved in major siege operations against the large fortified town of **Šubat-Enlil** (Tell Leilan I) in the Ḫabur triangle around 1664 B.C., and the site was not resettled until modern times (Weiss 1997:347). Despite the fact that the exploits of these two kings of Babylon do not appear to have ever taken them further west into the Levant, these major attacks against the capitals of two important early Amorite kingdoms, Assyria and Mari, must have been watched closely by the Levantine kingdoms of Yamḥad and Qatna, whose territories bordered the kingdom of Mari. Similarly, the kings of the southern Levant, such as the king of Hazor, must also have been aware of these destructions. Although the probability of such events befalling the Amorite kingdoms of the southern Levant may have been low, it is not difficult to understand how the prospect of the complete devastation of their capitals and their kingdoms would have served as the main motivation for undertaking and maintaining such massive fortification systems.

By the end of the Old Babylonian period, the major turn of events for the kingdoms of Yamḥad and Qatna (and Babylon) was, of course, the emergence of the Hittite empire at the start of the sixteenth century B.C. While this cannot be correlated

with a unique phase in the construction of fortifications in the northern Levant, events related to it serve to underscore the continual military threat that was posed by neighboring powers even at the very end of the Middle Bronze Age and the start of the Late Bronze Age. The destructions of Alalah and Ebla have usually been credited to the military campaigns of either Ḫattušili I (ca. 1586–1556 B.C.) or Muršili I (ca. 1556–1526 B.C.).¹¹ The fiery destruction of the palace and temple at **Alalah** (Level VII) has also been attributed to the Hittites, most recently to Ḫattušili I (see D. L. Stein 1997:56; Bryce 1998:76, n. 39). **Tuqan** also experienced a destruction ca. 1600 B.C. (Matthiae 1979:9), which seems to have been followed by a renovation of its fortifications, particularly with the addition of towers to its walls (Matthiae 1982a:315). **Afis**, ancient Apsuna, was also destroyed towards the end of the MB II (Mazzoni 2002:131). Although Ebla is not mentioned by either of these kings, **Ebla** (Mardikh IIIB2) was also destroyed, perhaps by Muršili I, towards the end of the Middle Bronze Age (see the Epic of Deliverance in Neu 1995:75–97). Evidence of the carnage of this battle has been recently revealed on the exterior slope of the rampart to the east of the Area EE bastion (so-called “fortress). Here six soldiers were buried in a mass grave which has been dated ca. 1550 B.C. (i.e., 1600 B.C. in Matthiae 2000:591, fig. 18). Peter Parr also reports that the site of **Kadesh** (Tell Nebi Mend) was destroyed around 1550 B.C. (i.e., 1600 B.C. in 1997:115). Each of these sieges was conducted against settlements with massive earthen ramparts, thick mudbrick walls, and strong gate systems, and yet each siege was successful.

Whether or not the perception of the risk of military incursion from Mesopotamia was as great in the southern Levant south of Hazor as it had been to the north cannot yet be demonstrated. Nevertheless, it is extremely likely that the persistent threat posed initially by Mari and followed immediately by Šamši-Adad and Yamḥad were considered

¹¹Dates after Trevor Bryce (1998:xiii).

sufficient impetus for the expenditure of large quantities of labor and resources for building fortifications throughout the Levant. Added to these events was, no doubt, an awareness of the devastating destructions of Mari and Šubat-Enlil by Babylonian forces, which could not have been ignored by Levantine kings and their subjects. If the threat of invasion and siege by a neighboring, if not distant, power was not sufficiently clear to inhabitants of the northern Levant during the first half of the Middle Bronze Age, it was made all the more poignant following the incursions and victories of the Hittites over many fortified centers at the end of the MB. In the following section we will consider the evidence from the southern Levant and evaluate to what extent similar conditions may have prompted the construction of fortifications there.

2. THE SOUTHERN LEVANT

Owing to the fact that only a handful of references provide us with any historical data for the southern Levant during the Middle Bronze Age, and most of these consist of references to Hazor in the Mari texts, our review of the history of this region during this period must rely heavily upon archaeological evidence despite its inherent ambiguities. The archaeological evidence consists of two sets of data. The first data are dates that can be established for the construction of fortification systems in the southern Levant during the course of the Middle Bronze Age. These allow for a tentative chronology of the construction of MB defenses at sites in the southern Levant which are described in detail in Appendix B. Although much more work must be done to examine the latest dated ceramics that have been recovered from the defenses of these sites in order to determine *terminus post quem* dates for the construction of their fortifications, preliminary data enable at least an initial reconstruction of the order of their building (Table 12 below).

Within the proposed chronological framework for the development of fortification strategies in the southern Levant, the archaeological data for destructions and abandonments provide a second set of important data for assessing historical events in

this region during the Middle Bronze Age. In general, despite the suggestion that internecine warfare may have been common in the southern Levant throughout this period (see Dever 1985:73), archaeological evidence only suggests two periods during which destructions—our only potential evidence of conflict—and abandonments were most common. The data for these events cluster around the mid-MB I (IIA) and during the transition between the Middle and Late Bronze Ages (i.e., late MB II (IIC)/LB I).

Table 12. Proposed phases for the initial construction of MB fortifications at sites in the southern Levant. Drawn from results of the present study and Cohen (2002a).

Date of Construction	Site
MB I (IIA) Phase 1	<i>No fortified sites known</i>
MB I (IIA) Phase 2	Akko, Aphek, Ashkelon, Burga, Irbid (?), Mevorakh, Zeror
MB I (IIA) Phase 3	‘Ain Zurekiyeh, Tell Beit Mirsim, Gerisa, Jatt, Kabri, Megiddo, Poleg, Shush (?), Yoqne’am
MB I (IIA) Phase 4	Jerusalem, Qashish
MB I–II (IIA–B)	Dan, Hazor, Jericho, Pella, Shimron (?), Yavneh-Yam
Early MB II (IIB)	Achzib, ‘Ajjul, Timnah, Beth-El, Beth-Shemesh, Bira, Ekron, Haror, Jaffa, Jemmeh, Kabri, Keisan, Lachish, Malhata, Nagila, Nahariya, Khirbet Najjar, Nimrin, Poran
<i>Sites with general attribution to the MB II (IIB–C)</i>	Abel Beth-Ma’akha, Amman, ‘Avdon, Dothan, Esur, Far‘ah South, Giv‘at Sharett, Hammah, Hebron, Ibleam, Jenin, El-Kebara, Kh. Kheibar, Kurdane (Aphek), Manahat, Me‘amer, Nebi Rubin, Khirbet Qarqaf, Khirbet Qumei, Shuweiket er-Ras
Late MB II (IIC)	Abu Kharaz, Abu Zarad, Ashdod, Beth-Zur, Deir-‘Alla, Far‘ah North, Gezer, Khirbet Marjama, Masos, Michal, Rehov, Rukais, Sahab (?), Sera‘, Shechem, Shiloh, Ta‘anach, ‘Umayri, Khirbet ‘Urma

The earliest evidence for the disruption of settlement during the MB that may relate to a military conflict can be dated very specifically to Phase 3 of the MB I (IIA), following S. Cohen’s phasing of the MB I/IIA, see 2002a). The evidence consists of a constellation of settlements including Tel Hefer, Nami, Burga, Zeror, and Poleg, which appear to have been established between Phases 1 and 2 of the MB I (IIA) along the northern end of the coastal plain between the Nahal Kishon and the Nahal Yarkon. The 4 ha settlement of **Tel Hefer** (Tell el-Ifshar), which was founded in Phase 1 of MB I (IIA), remained unfortified from its foundation until its Phase 14 (Area A). Hefer had been

destroyed twice during the previous phase (Phase 15, Area A=Phases C and E, Area C, Paley and Porath 1993), and this may have been the reason for the construction of its fortifications. **Tel Nami**, which was first settled during Phase 2 of the MB I (IIA) (Cohen 2002b:89), appears to have experienced “an intense conflagration” during its MB I (IIA) settlement (Artzy and Marcus 1991:13*).¹² Although evidence for the exact date of this destruction is not available, the site was not resettled until the LB II. Additionally, during Phase 3 of the MB I (IIA) the 20 ha site of **Tel Burga** less than 20 km to the south-southeast appears to have been abandoned (no Phase 4 settlement is attested, Cohen 2002a:76), as were **Tel Zeror** (possible Phase 3 settlement, but no evidence for Phase 4; *ibid.*, p. 96), and **Tel Poleg**, which was first occupied during Phase 3 of the MB I (IIA; *ibid.*, 89). Although the circumstances surrounding these abandonments have not been explored, the destructions at Hefer and Nami, the abandonments of Burga, Zeror, and Poleg in the late MB I (IIA Phases 3–4), and the lack of settlement at all of these sites during the MB II (IIB–C), all suggest that a similar set of circumstances may have precipitated a change in the settlement pattern along this part of the coast around the mid-MB I (IIA, Phase 3).

Though it cannot yet be proven, perhaps this disruption in the settlement pattern is to be related to our only reference to military activity during this period, which concerns an Egyptian military incursion into the Levant (i.e., *Retenu*) during the reign of Sesostri III (1866–1827 B.C.) which is found on the Khu-Sebek stele.

His majesty proceeded northwards to overthrow the Asiatics. His majesty reached a foreign country of which the name was *Skmm*. His majesty took the right direction in proceeding to the Residence of I.p.h. Then *Skmm* fell, together with the wretched *Retenu*.

ANET, p. 230

¹²Similar evidence of a destruction, which has been dated to the transition between Phases 1 and 2 of the MB I (IIA), can also be found at Tel Hefer (Cohen 2002a:82).

Although *Skmm* referred to in this text has been traditionally identified with the site of Shechem in the hill country north of Jerusalem (see *ANET*, p. 230, n. 7), the text suggests that the name did not refer in this case to a specific town but rather to a territory (a “foreign country”) or the lands of a kingdom by this name. This interpretation is in keeping with the manner in which kingdoms in the Levant were identified, usually as “the lands of GN” where the GN was that of the leading polity (e.g., Qatna, Hazor). In any case, it may be significant that the reign of Sesostriis III, and hence the date of this inscription, fall within the crucial transition between Phases 2 and 3 of the MB I (IIA), according to Cohen (2002a:130ff., esp. fig. 27), which would further support that activity by this particular pharaoh may have been responsible for the above mentioned events in this part of the coastal plain.

If correct, it is then possible that the settlement of Shechem in the hills of the southern Levant, was not itself the target of this attack, which would have been less likely given the meager settlement there and in the surrounding area during the MB I (IIA) (see Cohen 2002a:92). Instead, *Skmm* may have referred to a kingdom, part of whose territory was located along the coastal plain of the southern Levant, much of the population of which was forced to relocate to the highlands in the east and to the south in newly established MB I (IIA) settlements during Phases 2 and 3. While this reconstruction is admittedly speculative, it offers a more tangible alternative regarding the potential target of Sesostriis III’s punitive campaign and a reason for the abandonment of these settlements. Why military force would have been required against this kingdom can only be speculated, but the strategic location of these settlements in the narrowest part of the coastal plain, at the mouth of the Aruna pass, arrayed around a large seaport at Nami, would have enabled this polity to effectively hinder Egyptian traffic by sea and along the main overland route to the northern Levant.

Whatever interpretation one might assign to the Khu-Sebek inscription, James Weinstein is correct to conclude that there is no evidence for an Egyptian empire in the Levant during the Middle Kingdom (1975). Furthermore, despite Susan Cohen's nuanced analysis of relations between Egypt and the southern Levant in this period (2002a:esp. pp. 128ff.), no new evidence is available whereby greater military or political involvement by Egypt during this period can be suggested. Historical data from Egypt during the Second Intermediate Period (Dynasties XIII–XVII) also provide no new evidence warranting speculation that the constructions of fortifications during the remainder of the Middle Bronze Age were motivated by any events related to Egypt. In fact, on the whole no evidence whether historical or archaeological exists whereby it can be suggested that this period in the southern Levant was anything but mostly peaceful until the rise of Egypt's New Kingdom during the LB. One can only suggest, therefore, that the impetus for fortifying settlements in the southern Levant in a fashion identical to those in the northern Levant from the MB I (IIA, Mature Rampart phase) through the MB II (IIB–C, Late Rampart phase) was still predominantly related to the obvious and long-term threat posed by the nearest rival kingdoms such as Qatna, Yamḥad, and most significantly, Hazor, in addition to similar powers in Mesopotamia.

Aside from the destruction of Tel Nami during the MB I (IIA), the remaining evidence for the destruction of sites in the southern Levant must be relegated to the transition between the end of the MB II (IIB–C) and start of the LB I (ca. 1600–1500 B.C.). Space does not permit a lengthy reassessment of the evidence from each of these sites here, but these destructions should be understood as a reflection of the events that brought about the eventual demise of the massive MB fortification systems, regardless of who was responsible for these feats. James Weinstein has already compiled a list of the sites with destructions (some of which were followed by abandonments) that have been dated to this period and have usually been attributed to Egyptian military activity at the

start of Dynasty XVIII (1981). These include **Dan**, **Hazor** (Stratum 3), **Ta'anach** (A. E. Glock 1993:1432), **Shechem** (Stratum XVII), **Shiloh**, **Beth-El**, **Gibeon**, **Jericho**, **Beth-Shemesh** (Stratum V), **Beth-Zur**, **Malhata** (Kochavi 1993:935f.), **Tell Beit Mirsim**, **Lachish**, **Tell Nagila**, **Tell el-'Ajjul** (City III and Palace I), **Ashkelon**, **Tell el-Hesi**, **Gezer** (Stratum XVIII, Dever 1993a:501), **Gerisa** (Herzog 1993a:481), **Jaffa**, **Aphik**, **Mevorakh** (Stern 1984:37), **Akko** (M. Dothan 1993a:20), and **Achzib** (Prausnitz and Mazar 1993:32). The site of **Kabri**, at which the destruction has been dated ca. 1600 B.C. (Kempinski 1993a:841), and **Tel Kitan** (Stratum IV) (Eisenberg 1993:881), can also be added to this list. From the Egyptian Delta, it is also warranted to add the possible evidence for the fiery destruction of at least part of **Avaris** (Level D/2 in Area H/I), but certainly also the abandonment of most of the settlement which has been usually related to the historical account of the expulsion of the Hyksos (Dever 1990a:77; Bietak 1996:67). Weinstein was probably correct, however, that no clear evidence has been revealed for destructions at Beth-Shean (?), Tell el-Far'ah North, Tell el-Far'ah South, and Megadim (Weinstein 1981:2, 5). Although precise dates for all of the aforementioned destructions are central to the debate concerning the chronology of the period, particularly with respect to the end of the Middle Bronze Age, it is sufficient for our purposes to note that this debate remains on-going. It can only ultimately be resolved through the discovery of more Egyptian textual sources, which can provide greater details regarding the campaigns of early Eighteenth Dynasty pharaohs, and through more refined means of dating the strata in question (C14 dates for the MB are nearly non-existent, see comments by Weinstein 1984:309).

C. THE POLITICAL LANDSCAPE OF THE LEVANT IN THE MIDDLE BRONZE AGE

1. TERMINOLOGY FOR MIDDLE BRONZE AGE POLITIES

Because of a lack of historical evidence for the identification of polities in addition to Hazor in the southern Levant, various attempts that have been made to

identify other MB polities which might have existed rely almost exclusively upon archaeological evidence (Kempinski 1992d:193f.; Ilan 1995; Bunimovitz 1995:323). While there has usually been no opposition to the traditional use of the term *kingdom* for polities in the northern Levant, such as Yamḥad, Qatna, Byblos, Ugarit, Aleppo, and Alalakh, the lack of historical sources for the south has resulted in the use of increasingly diverse terminology to describe the political organization of this region in the Middle Bronze Age. These terms have, of course, included well-known terms such as *kingdom* and *city-state*, but now also include more ambiguous terms such as *polity* and *gateway* (Ilan 1995:305; Knapp 1989:145, n. 58).

The adoption of this new terminology has been, I believe, the result of a mistaken attempt to emphasize the perceived contrast between the political organization of states in the northern and southern Levant, as well as an attempt to emphasize the differences in political organization in the southern Levant during the Middle and Late Bronze Ages (see observations in Bunimovitz 1993). These various attempts, however, have relied upon the presupposition that fewer large political centers existed in the southern Levant than in the north during the Middle Bronze Age and that small, independent polities were common in the southern Levant, which have for this reason usually been referred to as *city-states*. W. G. Dever summarized this precise distinction in his review of the Middle Bronze Age in the southern Levant.

Palestine, by contrast, remained at an intermediate level of political development, which is usually referred to as that of the *city-state*. Although the term *city-state* is frequently used, it is rarely defined. Often the implication seems to be that while the regional urban centers each control their own hinterland, they are in turn united in a larger centralized confederation—that is, they constitute a true state. Yet there is little evidence of that in Palestine of the Middle Bronze Age. Rather, it seems to have been bound together only by what we may call a common southern Canaanite culture. Politically it probably remained divided: each city-state enjoying quasi-independence and dominating the surrounding countryside, most likely rivaling other urban centers. (Dever 1987:165)

The artificial contrast drawn between Middle Bronze Age polities in the northern and southern Levant appears, however, to be dependent upon two questionable observations. The first observation is that the identifications of MB polities, whether in the north or the south, have been dependent upon textual references which establish their relationship with respect to other political centers in this period. This is most apparent for Hazor, the largest MB settlement in the southern Levant and the only such settlement aside from Laish (Tel Dan) which is mentioned in the Mari texts (see, for example, ARM VI 23 and 78, VII 236, XII 747, XXIII 556, XXV 43 and 103, etc.). Similarly, in the northern Levant textual sources have shed light on major polities like Yamḥad and its vassals such as, for example, Alalaḥ. However, the lack of references to polities in the southern Levant, aside from the references to Hazor, has resulted in the assumption that Hazor was the only polity of such size in the south, an observation sometimes suggested to be supported by rank-size analysis of MB II (IIB–C) settlement. Nevertheless, the same evidence for the settlement pattern of the region around Hazor has not been used to provide clear identifications of lower tier settlements which would have belonged to this kingdom. As Elizabeth Stone has observed, secondary centers are an important characteristic of the settlement hierarchy of city-states in Mesopotamia during the Old Babylonian period (Stone 1997:22ff.), and there is no reason to believe that they cannot be identified around the largest sites such as Hazor and Ashkelon.

The second observation concerning the erroneous contrast drawn between polities in the northern and southern Levant also involves acknowledging that our understanding of LB polities in the south has actually limited our recognition of the MB polities that preceded them. This is particularly true because the prevailing interpretation of the political organization of the LB in the southern Levant has been substituted for the dearth of evidence for the political organization of this region during the MB. The main source for a discussion of LB polities in the southern Levant remains, of course, the Amarna

texts (Moran 1992), a large number of which record correspondence between Egypt and its Canaanite vassals (e.g., Jerusalem, Lachish, Megiddo, Akko, Ashkelon, Gezer, etc.). Despite their forced allegiance to the Egyptian throne many of the Late Bronze Age settlements mentioned in these texts have been traditionally characterized as quasi-independent city-states (Leonard 1989; Bunimovitz 1995:326f.). Yet the term city-state, if it is to be used consistently, is wholly inappropriate in this context, since the Greek city-states of the first millennium B.C. to which comparisons are essentially being made were identified with this term particularly because of the autonomy that they displayed in the political and military arena. Thomas H. Charlton and Deborah L. Nichols describe this phenomenon in the following manner.

The term *city-state* links the phenomenon of the state and a particular kind of settlement pattern. In general we understand city-states to be small, territorially based, politically independent state systems, characterized by a capital city or town, with an economically and socially integrated adjacent hinterland. The whole unit, city plus hinterlands, is relatively self-sufficient economically and perceived as being ethnically distinct from other similar city-state systems. City states frequently, but not inevitably, occur in groups of fairly evenly spaced units of approximately equivalent size (Charlton and Nichols 1997:1).

Dever qualified MB city-states in similar terms by identifying them as “enjoying quasi-independence”, “dominating the surrounding countryside”, and “most likely rivaling other urban centers” (Dever 1987:165). But in Greece, once the Greek city-states of the Iron II were unified, as they ultimately were under Philip of Macedon, the very identity of these 750 city-states—their autonomy—gradually disappeared (I. Morris 1997:103). In light of the characterizations of Canaanite polities in the Amarna texts, it would seem incorrect to suggest that these LB polities were politically and militarily autonomous to the degree necessary to identify them as *city-states*, no matter what other characteristics they may share with Greek city-states.

I am suggesting, therefore, that our interpretation of LB polities needs to be revised and should be shaped by our understanding of MB polities and *not* vice-versa.

Any decision regarding the use of the term *city-state* for MB polities must account for the similarities that existed between Mesopotamian city-states (see, e.g., Stone 1997) and polities in the northern Levant. It should not be molded by a rigid model which asserts the unique evolution of states in the southern Levant, which would be discordant with contemporaneous political developments in the northern Levant. Such a discontinuity does nothing more than impose modern political boundaries upon the ancient landscape. While it is possible to identify Canaanite material culture in the south as distinct from the material culture of the northern Levant during the MB, these minor regional variations do not constitute evidence of a difference in the underlying political or even social organization of these regions. Furthermore, there is no archaeological or textual evidence that can demonstrate that *no* other major political powers other than Hazor existed in the southern Levant during the MB II (IIB–C). In fact, as I will demonstrate below, there appears to be archaeological evidence to suggest that Ashkelon was the second major MB political center (see discussion below), if it is not also possible to identify a coastal kingdom at Kabri (cf. Peilstocker 2003) or, as I would suggest, at Akko, in addition to that which may have existed in the vicinity of Nami during the MB I (IIA) as mentioned above.

Finally, based upon our understanding of the society and economy of the Levant during the MB and LB, I suggest that an interpretation of the political developments in this region during this period should be based on an understanding of the influence of the patrimonial household model (PHM), as advanced by David Schloen (2001). Use of this model yields a different, but much more reliable and consistent picture of the development of states within their social context throughout the Levant during the Middle and Late Bronze Ages. Taken together with the above observations the PHM sheds a new light on our understandings of socio-political developments in the Levant subsequent to the Middle Bronze Age. With the PHM, for instance, we may view Egyptian

administration of the Levant during the LB as directed by a policy of replacing the most influential rulers at the end of the MB (i.e., those ruling over kingdoms such as Hazor) with selected provincial rulers (*rābiṣu*) while maintaining most of the pre-existing organization within these former kingdoms.

In this respect the division of the southern two-thirds of the Levant into two or three provinces for Egyptian administration in the LB (see Moran 1992:xxvi ff.) simply resulted in the replacement of the titular and functional role formerly played by the kings of several important Levantine kingdoms at the end of the MB. The administration of these kingdoms, which could conceivably have been previously described by the phrase “the land of PN” (Akk *māt-GN* or *GN^{KI}*), was replaced by several provincial centers established at Gaza, Kumidi (Kamid el-Loz?), and Sumur. These were probably intended to maintain control specifically over the former vassals or districts in the largest kingdoms, of Ashkelon, Hazor, and Byblos (see discussion of the identification of MB districts for the southern Levant in chapter five, section A.5). While they did not use these particular towns as their bases of operation the settlements they chose were, in fact, located in proximity to these “capitals”. Because Egypt’s control over territories further north was never stable enough, the establishment of other administrative centers to replace Qatna and Ugarit, which ultimately fell under Hittite rule (Klengel 1992:95), was never realized. Nevertheless, by the time this part of the northern Levant was overrun by the Hittites in the fourteenth century similar practices were employed to maintain control of that region. Šuppiluliuma, therefore, installed his sons as administrators at Aleppo (Yamḥad) and Carchemish (Bryce 1998:190f., 194, 203f.), and accepted oaths of loyalty from his vassals at Ugarit and Nuḥḥašše (ibid., 189).

For a number of reasons, therefore, it is becoming increasingly clear that previous assumptions regarding the political organization of the Levant in the MB must be understood independent of the political events of later periods. As demonstrated by the

evidence for the MB kingdoms of Hazor and Ashkelon, large urban centers comparable to Qatna, because they remain the subject of only a handful of historical references archaeology must be relied upon to answer as many questions about these kingdoms as possible. What, for example, were their functional boundaries? What settlements were considered to belong to these kingdoms? Where were they located? How large were the populations of these kingdoms? Such questions underscore, therefore, the importance of employing archaeology, particularly in the absence of textual sources, in an attempt to identify these and other polities in the southern Levant during the MB.

2. IDENTIFYING MIDDLE BRONZE AGE KINGDOMS: THE KINGDOM OF ASHKELON

Although much of the discussion of the southern Levant in the MB has been concerned with the identification of polities such as Hazor, Shechem and Sharuhem (Tell el-‘Ajjul?)—the center of a theoretically unified Hyksos kingdom (e.g., Kempinski 1992d:189, 193f.)—no studies have to date drawn upon the evidence for MB fortifications as a reflection of political organization during this period. As noted above, historical records from Mesopotamia for the second millennium mention only Hazor and Laish (Tel Dan) in the southern Levant and only Hazor is usually identified as a first tier polity, or kingdom. Nevertheless, as I have noted, this cannot be construed as evidence that no kingdoms comparable to Hazor existed in the southern Levant since, for example, Ashkelon was of comparable size and was certainly also an important trading entrepôt (Stager 2001; 2002). Furthermore, Ashkelon is included among towns mentioned in the Execration texts dated to the MB I (IIA), in which three of its rulers are mentioned: *H'ykm*, *Hktnw* (?), and *Mwri* (Ritner 1997:51). Additionally, it is possible that Ashkelon

is even mentioned in one Mari letter, though, unfortunately, the relevant signs have been damaged (ARM VI 23).¹³

In light of the phasing proposed in this work for the development of MB fortifications (see chapter three, section D), there appears now to be sufficient evidence to warrant the proposed identification of the MB kingdom of Ashkelon. This can be done by combining the data for (1) the settlement pattern in the coastal plain around Ashkelon during the MB II (IIB–C); (2) Ashkelon’s importance in rank-size analysis; (3) geographic features which would have provided the polity of Ashkelon with easily defined borders; and most importantly (4) the construction of freestanding rectilinear rampart fortifications during the MB II (IIB–C) at all of the major sites located at an average distance of one day’s journey from Ashkelon.

As a result of the present study of MB fortifications, it can be established that the disparity in actual size between the largest fortified settlements in the southern Levant at the start of the MB II (IIB–C), Hazor (ca. 63 ha) and Ashkelon (ca. 50 ha), should be greatly reduced (see entries in Appendix B). This observation, therefore, enables reconsideration of the identification of Ashkelon as a peer polity (or kingdom), or to use David Ilan’s more abstract terminology, as a “first order gateway” (1995). Similar conclusions have, in fact, already been arrived at in previous settlement studies, which

¹³The significant portion of this text reads, “Further, a group of travelers in transit from Babylon, Ešnunna, Ekallatum, Karana, Qatna and Arrapha on their way to Yamḥad, Qatna, Hazor, and [...] have arrived here. Shall I let them go or stop them?” (translation from Yadin 1972b:4). In his transcription of the text J. Kupper suggested that four signs in the broken portion are missing, though a suggested identification could only be made for the second sign. Thus, the reading was X-šu(?)–X–X(ki). The sign read by Kupper as *šu* is the OB sign no. 354 in Borger (1981). None of the proposed reconstructions of the name, as either *Egypt* (Alt 1954) or *Laish* (Yadin 1972b:n. 4, p. 4f.), have, however, utilized this sign in their readings and no acceptable alternative reading has to my knowledge been proposed for this sign. The sign identified by Kupper, though, could have been mistaken, I believe, for a similar OB sign, no. 15, which has the value *ka*. The significance of this is that, if this new suggested reading is correct, it would enable a reconstruction of the name of Ashkelon, [Aš]-ka-[lu-na(ki)], as it was also written in Middle Kingdom execration texts. This reconstruction features not only the correct number of signs but an equally probable reading of the only, somewhat legible, sign. The order of the places mentioned in this text would also run geographically from north to south, from Yamḥad to Ashkelon, with stops at all of the major cities between them.

have indicated that there was, according to Shlomo Bunimovitz, a “large, comparatively integrated urban system—a united polity” in the southern coastal plain during the MB II (IIB–C) (1995:323). Consequently, by combining the data regarding the MB settlement pattern of the southern coastal plain (Gophna and Ayalon 1980; Gophna and Beck 1981; Broshi and Gophna 1986; Bunimovitz 1989), which allow us to identify several tiers of settlement within the kingdom of Ashkelon, with the evidence for a unified defensive strategy during this period, it is possible to propose the broad outline of the development of the MB kingdom of Ashkelon.

Recent study by Susan Cohen (2002b) of the settlement of the southern Levant in the MB I (IIA), which was based upon the seriation of MB I (IIA) ceramics from Aphek, has provided the first detailed phasing of settlements within this period, thus demonstrating the “gradual growth” of settlement in this period, particularly along the coastal plain. From her work we observe that, initially, during Phase 1 settlements such as Aphek, Ifshar, probably Akko, and perhaps Ashkelon¹⁴ appear to have been founded along the coastal plain, perhaps as trading ports (Stager 2001;2002), and were probably also fortified (2002b:107ff.). In Phase 2, a number of new settlements along the coast, mostly *north* of the Yarkon River, such as Nami, Burga, Zeror, ‘Ain Zurekiyeh, and Gerisa were founded and fortified, filling in the landscape around earlier settlements. Settlement infilling continued during Phase 3 with foundations in the north at Kabri, Bira, and Mevorakh, all of which were fortified, and in the south at a number of sites *between* the Yarkon River and the Nahal Sorek, such as Yavneh-Yam and Gezer. Poleg appears to have been first occupied and settled in Phase 3.¹⁵ Between Phases 3 and 4 upland polities

¹⁴At present the ceramic evidence from Ashkelon reveals that the earliest occupation was contemporary with Phase 2 (Stager 2002).

¹⁵Cohen has noted that the distinction “between the Phase 2 and Phase 3 ceramic assemblage is hardly well defined” and that, therefore, “it often proved impossible to determine whether a site belonged to Phase 2 or to Phase 3” (2002a:109).

such as Shechem, Jerusalem, and Beit Mirsim had emerged, though only Beit Mirsim and Jerusalem appear to have been fortified during these phases. The progression of settlement continued southwards in Phase 4 with the founding of Lachish and Tell el-Hesi. The overall picture which emerges, therefore, is one of an almost ink-blot like spread down the coast of the southern Levant during the MB I (IIA), gradually spreading inland around coastal centers, but with most settlement still pooling in the coastal plain.

Since a ceramic sequence comparable to that of Aphek's MB I (IIA) assemblage has not yet been proposed for the MB II (IIB), we must rely, therefore, upon settlement data for the MB II (IIB–C) to broadly define the settlement trend of infilling which continued and was centered at that time in the area *south* of the Yarkon River. To the southeast of Ashkelon, for example, in the early MB II (IIB) new settlements were founded at Nagila, Haror, and Jemmeh in this period. It is during this period that fortifications were erected at these settlements and at the previously occupied settlements of 'Ajjul, Yavneh-Yam, Ekron, Timnah, and Lachish, with large freestanding earthen ramparts featuring rectilinear plans—the newest and most common approach to fortifications in the early MB II (IIB). It is fortuitous, therefore, that a unified program of fortification construction within the small region around Ashkelon enables the identification of these sites as second tier settlements within the MB II (IIB–C) kingdom of Ashkelon. Were it not for the fact that Ashkelon had already been equipped during Phase 2 of the MB I (IIA) with a massive rampart of elliptical plan over 1,900 meters long, it too would probably have been fortified with this type of defense at the start of the MB II (IIB).

The settlement data from second tier sites in the kingdom of Ashkelon consists, primarily, of eight sites featuring fortifications constructed during the first half of the MB II (IIB). After subtracting the area occupied by their ramparts they range in size from as little as 2 to as much as 22 ha (see Table 13 below). While it is also likely that several

other sites, which are similarly oriented to Ashkelon may belong to this constellation, at present insufficient information concerning their MB defenses is available. However, the eight excavated sites that feature clear evidence for their MB fortifications include Yavneh-Yam, Ekron, Timnah, Nagila, Lachish, Haror, Jemmeh, and Tell el-‘Ajjul. Since their fortifications and their net settlement sizes are described in detail in Appendix B the following discussion of these aspects of these settlements has been abbreviated.

The evidence from **Ashkelon** itself suggests that its earliest MB occupation is dated to Phase 2 of the MB I (IIA, Cohen 2002a:73). At that time Ashkelon was fortified with a massive freestanding rampart more than 40 m wide at its base with an elliptical layout which enclosed a settlement of approximately 50 ha. It is thought that the settlement functioned at that time as a port along the coast of the southern Levant funneling “hinterland commodities” such as oil and wine (Stager 2002:360). If so, then its role as such only grew during the MB II (IIB–C) when it was positioned at the center of a settlement pattern with more than eight fortified sites arranged around it radially to its east at an average distance of 29 km.

Yavneh-Yam, located 33 km up the coast from Ashkelon, was surrounded by a freestanding earthen rampart of rectilinear plan which Jacob Kaplan has suggested was constructed during the MB I (IIA) (1993). The construction of the fortifications of Yavneh-Yam, as discussed in Appendix B, can probably be dated to the late MB I (IIA) at the earliest, but should more probably be dated to the start of the MB II (IIB). Its inhabitable area was probably only around 17 ha and not 64 ha as J. Kaplan suggested (1993)

Twenty-two kilometers southeast of Yavneh-Yam and 31 km to the northeast of Ashkelon in the coastal plain lay the site of **Ekron**. According to Trude Dothan and Seymour Gitin, the site’s overall shape was the result of the “fortifications that encompassed both the upper and lower cities in the Middle Bronze Age” (1997:30). The

straight lines of the ramparts and the fosse which comprise these fortifications can actually be discerned in aerial photographs of Ekron (T. Dothan and Gitin 1993:1051). If these lines are, in fact, those of the MB ramparts, then these defenses were approximately 2,200 m long and enclosed a space of about 22 ha.¹⁶

The site of **Timnah** is located 5.4 km east of Ekron at the mouth of the Sorek Valley. Recent excavations by Amihai Mazar have confirmed his hypothesis that the site took its shape from the initial, rectilinear plan of the rampart fortifications that were erected during MB II (IIB) on the south bank of the Nahal Sorek (1997b). The rampart and wall, which belongs to Strata XII–XI, were excavated in areas A and B on the north side of the mound. The ramparts are about 720 m long and enclosed a settlement of only 2.25 ha. The planned character of the settlement and the amount of work required in the building of its ramparts suggests that it functioned primarily as a fortress outpost along the Nahal Sorek for the settlement of Ekron.

The site of **Lachish** is located in the western foothills of the hill country approximately 30 km east-southeast of Ashkelon. Lachish is flanked on its north and south sides by the Nahal Lachish (Wadi Ghafr). Although the site featured MB I (IIA) occupation (Cohen 2002a:86), the construction of the rampart during the MB II (IIB) was, according to Ussishkin (1993b:898), most likely responsible for the shape of the mound today, which is roughly rectilinear—almost square (335 m x 235 m)—with its four corners oriented to the cardinal points of the compass. Sherds recovered from the rampart's layers only suggest a date within the MB II (IIB–C) for its construction. With a rampart 30 m wide and approximately 1,020 m long, the site was only 5 ha in size.

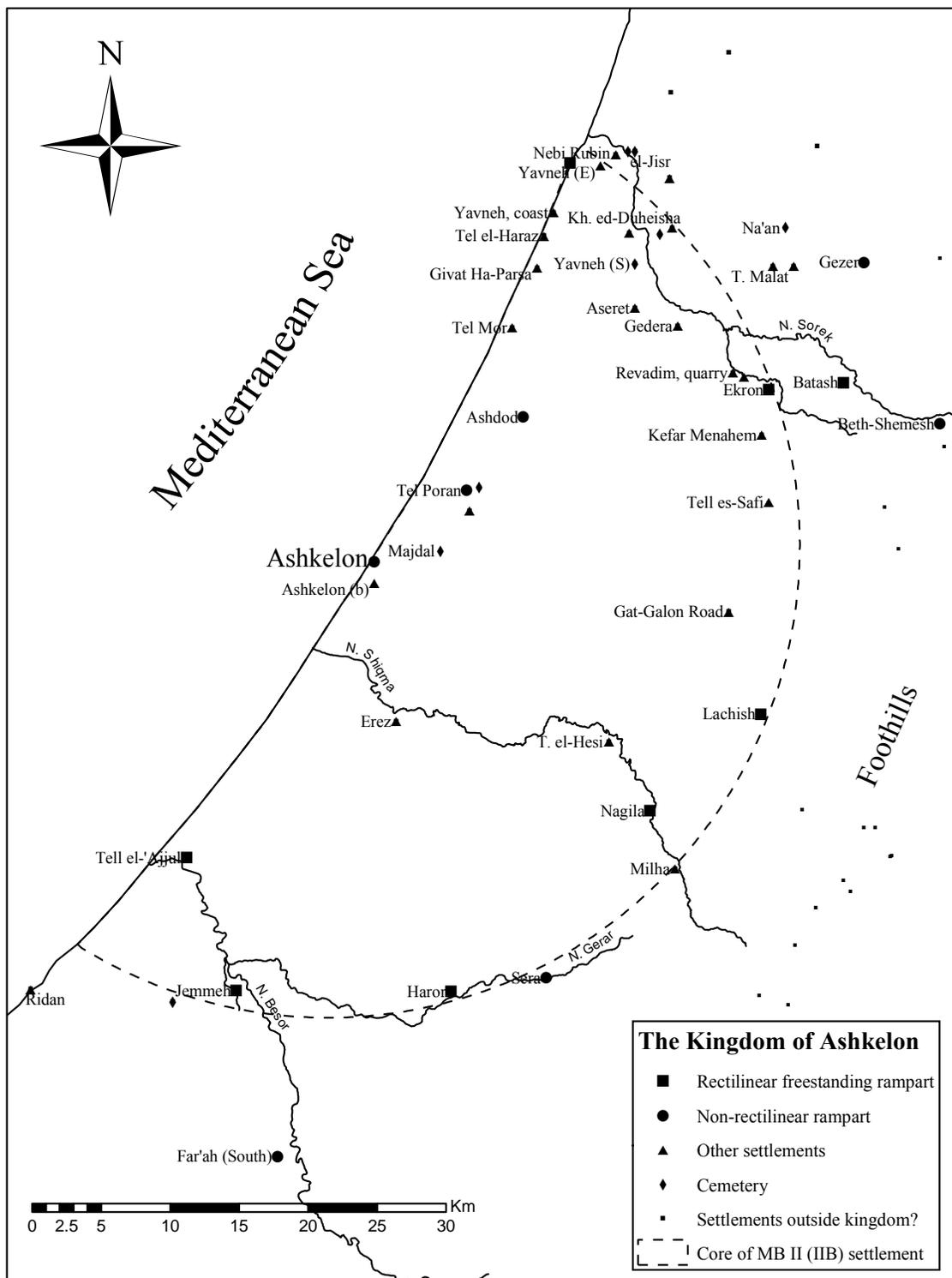
¹⁶Barry Gittlen has speculated that it may have been as much as 32 ha (1992:52*), however no basis for this figure has been provided and there would seem to be little reason to believe that the MB settlement had outgrown its enclosed area.

Tel Nagila is located along the Nahal Shiqma approximately 27 km southeast of Ashkelon. The Stratum XI settlement of the MB II (IIB) was founded after an occupational gap. Area C on the northwest provided the most information about the site's fortifications, which consisted of a rampart, glacis, town wall, and a fosse at the foot of the rampart. Although the excavators were unable to determine during which part of the MB II (IIB–C, Strata XI–VII) the fortifications were constructed, the settlement's 2.6 ha size and its rectilinear plan, suggest a foundation contemporaneous with Timnah.

Tel Haror is located along the Nahal Gerar 31.6 km to the south-southeast of Ashkelon. The site was first settled at the start of the MB II (IIB) and grew to approximately 16.2 ha in size in this period when the ramparts were constructed around the lower town (Oren, et al. 1991:73). These rectilinear, freestanding, earthen ramparts, formed a trapezoidal shaped enclosure against the base of the upper town, which can be clearly seen in aerial views (Oren 1996:22; 1997a:474).

Tell Jemmeh, which is located 32.7 km south-southeast of Ashkelon and up the Nahal Besor from Tell el-'Ajjul, was first occupied during the MB II (IIB) (Van Beek 1993:668). Both Petrie and Van Beek encountered the site's modest MB II (IIB) freestanding rampart during excavations. Originally the site's northern defenses were built along the Nahal Besor, but the wadi has now greatly eroded much of this side of the mound. That the site's plan was probably rectilinear is suggested by three pieces of evidence which include: (1) the roughly square shape of the mound in Petrie's original plan (1928:pl. 4), (2) the straight lines of the rampart and fosse which are evident in black and white aerial photographs of the site (Van Beek 1993:667), and (3) the orientation of the Dynasty XVIII buildings excavated by Petrie on the west side of the mound—the west wall of this complex was found to be parallel to the line of the west rampart and fosse (see Petrie 1928:pl. 6). If this reconstruction is correct then the site was roughly square in shape with sides 170 m long and approximately 2.9 ha in size.

Figure 9. The kingdom of Ashkelon during the MB II (IIB–C).



The last fortified settlement around Ashkelon during this period for which there is evidence is **Tell el-‘Ajjul**, which is located 25.5 km to the southwest of Ashkelon along the coast. The MB II (IIB–C) settlement was enclosed on three sides by a fosse from which the excavated limestone was used to build up the rectangular freestanding rampart enclosure of about 10 ha. Aharon Kempinski has already observed that the settlement of Tell el-‘Ajjul had all of the earmarks of a “planned settlement” lacking an organic phase of growth (1992e:125f.). This is particularly true in light of the evidence from contemporaneous settlements at Nagila, Haror, Yavneh-Yam, Ekron, Timnah, and Jemmeh. It suggests that, like the plans of these settlements, ‘Ajjul’s rectilinear plan was laid out before large-scale settlement had begun at the site.

Many other sites that have been identified in the southern coastal plain must also have belonged within the kingdom of Ashkelon during the MB II (IIB–C), however at present most of these sites lack published evidence of the extent of their MB settlements or their fortifications. These include sites such as Tell es-Safi (size uncertain), Tel Sera‘ (2 ha), and possibly Tell el-Hesi (4.4 ha). In addition to these there are also numerous MB II (IIB–C) villages averaging 2 dunams in size such as those near Poran, around Yavneh-Yam, and at Aseret, Erez, Kh. Ed-Duheisha, the Gat-Galon Road site, Gedera, Giv‘at Ha-Parsa, Kefar Menahem, Tell el-Haraz, Tel Milha, Revadim, and Yavneh (Shikun Holot) (see Figure 9 above for site locations). Furthermore, MB cemeteries to the northeast of Ashkelon (Majdal), at Kisufim, and in the vicinities of Poran and Yavneh-Yam also suggest the presence of other, yet undetected, villages within this region which belonged to this period.

Sites just beyond the clear belt of settlements located around Ashkelon which were described above, such as Tel Ridan in the south, were also, no doubt, settlements belonging to the kingdom of Ashkelon. Tell el-Far‘ah South, Gezer, and Beth-Shemesh, which were important late MB II (IIC) sites, for example, and were all approximately 42

km as the crow flies from Ashkelon, each featured similar fortifications (though of later date and no longer of a rectilinear plan) with six-pier gateways (see Table 6). These features suggest that these sites may also relate to a second phase of expansion of the kingdom of Ashkelon at the end of the MB II (IIC), if not the emergence of smaller “sister” polities on the fringes of the kingdom. At the end of MB II (IIC) most new settlements, except for the sites of Ashdod, Mor, and perhaps Tell el-Hesi, appear, therefore, to have been limited to areas beyond the beltway settlements of the kingdom of Ashkelon that had been fortified in the first half of the MB II (IIB).

With a total settled area of approximately one-hundred and eighty hectares (see Table 13 below), the population of the kingdom of Ashkelon at the end of the Middle Bronze Age can be estimated to have been around 45,000, presuming a density of about 250 individuals per settled hectare.¹⁷ To what extent settlements north of the Nahal Sorek must also be included within the kingdom of Ashkelon in the MB remains to be determined. However, if this reconstruction is correct, then about one-third of the population of the southern Levant west of the Jordan Valley may have been under the immediate hegemony of the kingdom of Ashkelon by the end of the Middle Bronze Age. The pattern of settlement along the coastal plain north of the kingdom of Ashkelon during the MB II (IIB–C), therefore, appears to consist almost entirely of small settlements of less than half a hectare which in-filled the existing landscape (Broshi and Gophna 1986).

¹⁷While it may have been true, as Broshi and Gophna have noted (1986:86), that “quite extensive ‘bald’ areas were found” within ramparted settlements, I am not convinced that these areas comprised a greater percentage of the area within MB settlements than within settlements in various other periods, particularly in the Iron Age when storehouses and palaces covered large areas. For this reason and since I have already accounted for the area occupied by the fortifications at these settlements, I have not reduced the size of ramparted settlements by an additional, but arbitrary 50% has been done by Broshi and Gophna.

Table 13. Settlements in the kingdom of Ashkelon by the end of the MB II (IIC). Broshi and Gophna's (1986) designations are used. Area is less the area occupied by ramparts.

Settlement	Area (ha)	Phases	MR No.
Ashkelon	50	MB (IIA–B/C)	MR 107.119
Ekron	22	MB (IIA–B/C)	MR 1356.1315
Yavneh-Yam	17	MB (IIA–B/C)	MR 1212.1479
Haror	16.2	MB II (IIB–C)	MR 11257.08795
Tell es-Safi*	15	MB (IIA?–B/C)	MR 1359.1237
Tell el-‘Ajjul	10	MB (IIA?–B/C)	MR 0934.0976
Tel Poran	10	MB [†]	MR 1137.1242
Gezer	7	MB II (IIA–B/C)	MR 1425.1407
Ashdod	5.3	MB II (IIC)	MR 1178.1295
Lachish	5	MB (IIA–B/C)	MR 1357.1083
Tell el-Hesi*	4.4	MB II (IIB)	MR 124.106
Tell el-Far‘ah South	3.1	MB II (IIB–C)	MR 100.076
Jemmeh	2.9	MB II (IIB–C)	MR 097.088
Nagila	2.6	MB (IIA–B/C)	MR 127.101
Beth-Shemesh	2.5	MB (IIA–B/C)	MR 148.129
Timnah (Tel Batash)	2.25	MB (IIA–B/C)	MR 141.132
Tel Sera‘	2	MB II (IIB–C)	MR 119.088
Yavneh, coast	0.7	MB II (IIB–C)	MR 1530.1970
Mor	0.6	MB II (IIC)	MR 117.136
Tel Poran (b)	0.2	MB II (IIB–C)	MR 1139.1227
Aseret	0.2	MB II (IIB–C)	MR 1259.1374
Erez	0.2	MB II (IIB–C)	MR 1086.1075
Duheisha, Kh. Ed-	0.2	MB II (IIB–C)	MR 1286.1432
Gat-Galon Road	0.2	MB (IIA–B/C)	MR 1327.1154
Gedera	0.2	MB (IIA–B/C)	MR 1290.1361
Giv‘at Ha-Parsa	0.2	MB II (IIB–C)	MR 1188.1403
Kefar Menahem	0.2	MB II (IIB–C)	MR 1351.1282
Tell el-Haraz	0.2	MB II (IIB–C)	MR 1193.1426
Tel Milha	0.2	MB [†]	MR 1288.0968
Revadim quarry	0.2	MB (IIA–B/C)	MR 1330.1327
Yavneh (Shikun Holot)	0.2	MB II (IIB–C)	MR 1255.1428
Yavneh, coast	0.2	MB II (IIB–C)	MR 1200.1443
Majdal*	0.1	MB IIB–C?	MR 1118.1198
TOTAL (HA)	181.25		

*Size during MB uncertain.

[†]Occupational phases within MB uncertain

In the absence of textual data and further archaeological studies, it is not yet possible to determine the relationship of sites in the foothills and highlands, such as Tell Beit Mirsim, and those as far away as Hebron and Jerusalem, to the kingdom of Ashkelon. It is possible, however, that such settlements developed as a result of the growing demand for horticultural and viticultural products, namely olive oil and wine, to be shipped out of the port of Ashkelon. Nevertheless, a preliminary examination of the fortifications of these settlements suggests that “native” settlements of the MB I (IIA) may, in fact, have adopted the fortification types known in the coastal plain during the MB II (IIB–C). This would then account for the incorporation of cyclopean masonry, a new technique, into the construction of rampart fortifications at sites such as Hebron and Shechem, even further to the north in this period.

Although further consideration of the size of Ashkelon in the MB I (IIA) and of the sites that fell under its rule at that time is necessary, the settlement pattern in the southern coastal plain during the MB II (IIB–C) suggests that the MB polity of Ashkelon and its territory can be delineated (see Figure 9 above). The core of this kingdom throughout the MB II (IIB–C) consisted, therefore, of at least eight fortified settlements which were arranged around Ashkelon at a distance of 25 to 33 km, one day’s journey away (i.e., 27 to 37 km, Beitzel 1992:646f.). All of these sites were situated on major routes leading either along the coast or along wadi basins or valleys into the highlands, and on routes leading away from Ashkelon. Furthermore, this polity can be defined by the natural borders that conveniently circumscribed its territory: the Nahal Sorek on the north, the foothills on the east, and the Nahal Beersheba and Nahal Gerar on the south, and of course, the Mediterranean Sea on the west. As later studies of roads in ancient Israel also indicate, each of the major sites in the kingdom was probably connected to its nearest neighbors by a network of roads, which established a ring-road around Ashkelon (see Dorsey 1991).

The nuclear area bounded by the belt of settlements around the kingdom within the “ring-road” and defined by its natural borders would have been approximately 1,700 km² with a perimeter more than 210 km long. (Here we should accept Na’aman’s warnings concerning “avoiding exact calculations of the areas of kingdoms” (1997:619f.), since we cannot be certain without texts just how much of this area or how much beyond it Ashkelon actually controlled.) A kingdom of this size, therefore, is also very comparable to the general size postulated for Early State Modules (ESM), which average 1,500 km² in area and were usually situated about 40 km apart (Renfrew 1975:12–18, fig. 6). The size of the kingdom of Ashkelon in the MB II (IIB–C) also falls within the attested range of other Bronze Age kingdoms in the northern Levant, most notably the kingdoms of Mukiš and Ugarit (see discussion of settlement patterns in these kingdoms in chapter five, sections A.4 and A.8).

The proposed reconstruction of the political landscape of the kingdom of Ashkelon in the Middle Bronze Age is also supported by historical and archaeological data for the coastal plain from later periods. In the Late Bronze Age, for instance, the Amarna texts inform us of two major Canaanite kingdoms located along the coast, Akko and Ashkelon, with smaller—what might be called “spin-off” kingdoms—at Gezer, Gath, and Lachish (see Na’aman 1997:esp. 619). This reconstruction, based largely on historical texts, has also been supported by theoretical models of LB polities advanced by Shlomo Bunimovitz (1989; 1995) and Israel Finkelstein (1996b). While Ashkelon is known as an important center in the mid-fourteenth century B.C., as demonstrated by the correspondence of its king, Yidya, with the Egyptian pharaoh (EA 287, 320–326, and 370), it is unfortunate that so little is known about it in this period. Nevertheless, it has been suggested that the LB kingdom of Ashkelon had been bounded by the kingdoms of Gezer and Gath (Tell es-Safi?) on the north, Lachish on the east, and Gaza on the south; its area was calculated by Finkelstein to have been approximately 650 km² (1996b:233).

Despite a considerable reduction in its overall size after the MB, that it, in fact, continued to be an important center on the coastal plain towards the end of the LB may explain why Merneptah was required to march against the Canaanite town around 1207 B.C., as recorded on the Merneptah Stele (*AEL* 2, p. 77) and at Karnak (Yurco 1986).

The most convincing data by far, however, for the present reconstruction of the MB and, for that matter, the LB kingdom of Ashkelon, is the organization of the Philistine pentapolis during the early Iron Age. These five settlements, though not always identical with the MB settlements of the kingdom of Ashkelon, seem to have occupied, almost identical positions in the landscape of the southern coastal plain. As Lawrence Stager has demonstrated, the core area dominated by the Philistine pentapolis in the Iron I can be identified by the presence of Philistine monochrome ware (1995). Four of the five settlements of the pentapolis—Ekron, Ashdod, Gaza, and probably Gath—that effectively delineate the borders of the Philistine heartland during the earliest phase of their occupation, were located along the belt of second tier MB settlements around Ashkelon, with Ashkelon's position, of course remaining unchanged. Only in the second phase of Philistine settlement did the Philistines settle beyond the limits of the pentapolis, a phenomenon that may have repeated that of the expansion of the kingdom of Ashkelon at the end of the MB. That the initial phase of Philistine settlement corresponded with the political landscape of the MB and LB kingdoms of Ashkelon is, however, not surprising, and it may suggest that the Philistines recognized the value of adopting the existing political organization of the region after they arrived. As in so many other cases involving political change in the ancient Near East, the quickest means of ruling a region with pre-existing socio-political networks was simply the replacing the seat of power, which in this case would have been Ashkelon.

Ashkelon in the MB II (IIB–C), therefore, serves as an excellent example of how in the absence of historical records various archaeological data can be combined to define

a polity, its territory, and its historical development. In the case of Ashkelon during the MB II (IIB–C) the data consist of the dominant position of Ashkelon based on rank-size analysis, the distinct distribution of settlements around Ashkelon, the identification of the geographical boundaries of the proposed polity, and ample archaeological evidence of a unified phase of fortification construction at sites within the territory of this polity during this period. When these aspects are then viewed in light of the historical developments of the political landscape in this region during the LB and Iron I this reconstruction gains even greater strength. The demonstrable growth of the polity of Ashkelon in the southern coastal plain during the MB II (IIB–C) offers, therefore, an explanation why settlement in this region spread inland as it did and was not restricted to settlements along the Via Maris, in contrast to interpretations which have linked the settlement pattern to the growth of, for example, Avaris (Tell ed-Da‘ba) (Kempinski 1992d:184).

D. MIDDLE BRONZE AGE FORTIFICATIONS IN THEIR HISTORICAL CONTEXT

Benjamin Mazar once suggested that the emergence of ramparted tells during the MB II (IIB–C) should be linked to the reign of Šamši-Adad in Assyria (1968:83). Similarly Moshe Dothan attempted to suggest that certain settlements established during the last phase of the MB along the southern coast, such as Ashdod and Mor, could be attributed to the “activities of Apophis” (1973). While few scholars like Mazar and Dothan have attempted to identify the particular historical context of the development of fortifications during the Middle Bronze Age, this review of the political and military history of the Levant from 2400 to 1500 B.C. facilitates a renewed attempt to identify historical factors which were probably pivotal to the evolution of fortification systems and strategies during this period.

The first observation of considerable significance is that after ca. 2400 B.C. the military and political future of the northern Levant was inextricably related to political

developments in Mesopotamia. As Table 14 below illustrates, from the first attested intervention by Lugalzagesi of Uruk (ca. 2300 B.C.) through the end of the period documented by the Mari texts, the northern Levant was under a nearly continuous military threat from Mesopotamian powers willing to travel greater distances for their victories. Furthermore, insofar as political unrest was not already present between Levantine kingdoms, such as Yamḥad and Qatna, it was surely fomented by Mesopotamian powers, such as Assyria under Šamši-Adad. It is also significant that neither historical or archaeological data appear to support the notion of widespread internecine feuding between polities in the northern or southern Levant, though we cannot discount that such conditions existed, as they evidently did between the main city-states of Babylonia. But it is altogether possible that the resources of the Levant were quite sufficient to accommodate the growing population during this period such that a competition for resources between states within the Levant was not a main source of conflict as it appears to have been in Mesopotamia in the Old Babylonian period (Dalley 1984:413; Stone 1997). Furthermore, the presence of convenient natural boundaries that circumscribed many of the kingdoms of the region such as Byblos, Ugarit, Hazor, and even Ashkelon, facilitated a clear recognition of each polity's territory, thus removing another major factor that contributed to conflicts between Mesopotamian city-states in this period.

While it is possible that these factors contributed to less warfare in the Levant than in Mesopotamia, it is also quite likely that a lack of historical sources from the Levant has skewed our perception of this period. Certainly Ebla like Mari, if Enna-Dagan's report is any indication, must have leveraged considerable force to establish itself as the dominant polity in the northern Levant during the mid-third millennium, but unfortunately the Ebla archives do not preserve these events. Similarly, we are in the dark concerning the history of the region from the sack of Ebla (ca. 2200 B.C.) to the start of

the reign of Yaḥdun-Lim of Mari (1756 B.C.), a period of more than four-hundred years! Numerous destructions attested at sites throughout the northern Levant during this period also suggest that the political circumstances were no different than during either the preceding or following periods.

Table 14. Significant historical events between ca. 2400 and 1450 B.C. Dates for reigns of Mesopotamian kings follow low chronology subtracting 64 years from dates given in Oppenheim (1977:335ff.).

	Date	Event
ca.	2373–2296 B.C.	<ul style="list-style-type: none"> • Egyptian campaigns by Weni into the southern Levant
	2300	<ul style="list-style-type: none"> • Lugalzagesi campaigns to the Upper Sea
	2270	<ul style="list-style-type: none"> • Reign of Sargon (2270–2215) begins • Uruk conquered and Lugalzagesi defeated by Sargon • Sargon campaigns against Mari, Iarmuti, and Ebla
ca.	2250–2200?	<ul style="list-style-type: none"> • Emar, the land of Lebanon, Ebla, and other towns in northern Levant and northwestern Mesopotamia defeated by Mari • Mari defeated by Ebla and installs (?) Enna-Dagan as king • Hama (J5) destroyed • Hammam et-Turkman and Tell Brak (Phase L) destroyed
	2190	<ul style="list-style-type: none"> • Reign of Naram-Sin (2190–2154) begins • Ebla revolts and is destroyed by Naram-Sin
	2153	<ul style="list-style-type: none"> • Armānum, Ulišum, and the Amanus region attacked • Reign of Šar-kali-šarri (2153–2129) begins • Šar-kali-šarri ventures to Amanus • Amorites defeated by Šar-kali-šarri
ca.	2150	<ul style="list-style-type: none"> • Byblos destroyed
ca.	2038	<ul style="list-style-type: none"> • Reign of Mentuhotep II begins • Herakleopolis (?) besieged • Asiatics depicted in siege scenes in Egypt
	1994	<ul style="list-style-type: none"> • Amorites raided by Šulgi (yr. 37) and “Wall of the Land” begun
	1973	<ul style="list-style-type: none"> • Reign of Šu-Sin (1973–1965) begins • Šu-Sin campaigns against Mari, Urkeš, Tuttul, Ebla, Mukiš, and Lebanon
	1970	<ul style="list-style-type: none"> • Šu-Sin (yr. 4) builds Wall of “Muriq-Tidnim”
	1940	<ul style="list-style-type: none"> • Ur destroyed
ca.	1950	<ul style="list-style-type: none"> • Byblos, Ebla, Tuqan, Hadidi, Selenkahiye, Sweyhat, and Hammam et-Turkman destroyed
	1866	<ul style="list-style-type: none"> • Reign of Sesostri III begins • Sesostri III campaigns against <i>Skmm</i>

Table 14. Significant historical events between ca. 2400 and 1450 B.C., continued.

	Date	Event
ca.	1786	<ul style="list-style-type: none"> • Kārum Kaneš (Level II) destroyed by Puzur-Assur (?)
	1756	<ul style="list-style-type: none"> • Reign of Yaḥdun-Lim (1756–1746) of Mari begins • Yaḥdun-Lim campaigned to Mediterranean? • Coalition of Yamḥad defeated by Yaḥdun-Lim at Samanum • Tuttul (Palace A) destroyed by Yaḥdun-Lim
ca.	1750	<ul style="list-style-type: none"> • Tuḡan destroyed
	1749	<ul style="list-style-type: none"> • Reign of Šamši-Adad (1749–1717) begins • Šamši-Adad’s campaign (?) to the “Great Sea” • Qatna and Assyria formed coalition against Yamḥad
	1728	<ul style="list-style-type: none"> • Ḥammurapi (1728–1686) becomes king in Babylon
	1717/16	<ul style="list-style-type: none"> • Reign of Yarim-Lim I (1717/16–1701) of Yamḥad • Ešnunna and Babylon joined Yamḥad in alliance against Assyria and Qatna
	1712	<ul style="list-style-type: none"> • Šamši-Adad defeated • Yamḥad, Qatna, and Mari formed alliance • Tuttul (Palace A) destroyed again • Conflict between Yamḥad and Qatna renewed (?) with the involvement of Ešnunna during the reign of Yarim-Lim III
	1698	<ul style="list-style-type: none"> • Ḥammurapi (yr. 31) defeated Zimri-Lim and captured Mari
	1696	<ul style="list-style-type: none"> • Ḥammurapi (yr. 33) destroyed the walls of Mari
	1685	<ul style="list-style-type: none"> • Samsuiluna (1685–1648) succeeds Ḥammurapi as king of Babylon
	1664	<ul style="list-style-type: none"> • Šubat-Enlil destroyed by Samsuiluna
ca.	1586	<ul style="list-style-type: none"> • Hattušili (1586–1556) becomes king of Hatti • Alalaḡ (Level VII) and Uršu (Warsuwa) besieged by Hattušili
ca.	1586–1526	<ul style="list-style-type: none"> • Ebla (Mardikh IIIB), Tuḡan, and Kadesh destroyed
ca.	1556	<ul style="list-style-type: none"> • Muršili I (1556–1526) succeeds Hattušili
ca.	1531	<ul style="list-style-type: none"> • Aleppo and Babylon attacked by Muršili I of Hatti
ca.	1530–1500	<ul style="list-style-type: none"> • Start of Dynasty XVIII, Reign of Ahmose • Battle at Avaris • Three year siege of Sharuhen
ca.	1525–1450	<ul style="list-style-type: none"> • Numerous destructions attested in southern Levant
ca.	1475	<ul style="list-style-type: none"> • Thutmose III marched against Canaanite coalition at Megiddo

It is also particularly clear concerning the political milieu of the Levant between 2400 and 1500 B.C. that there existed a nearly perpetual military threat to the security of the population of this region. This continual concern taken together with an

understanding of the development of new military technologies, such as the introduction of the battering ram and the composite bow (see chapter two, section C.1.b), provide a picture of the clear and present danger that was probably quite evident to Levantine towns throughout this period. Furthermore, understood within the context of the massive building projects of Mesopotamian cities, the construction of large earthwork fortifications, crowned by mudbrick walls, supplemented by towers and bastions, and breached only by well-fortified gates can be viewed as a necessary factor for surviving the Middle Bronze Age arms race (see chapter three). As we shall see in the next chapter the toll borne by the population of the Levant for the construction of these fortification systems was not only bearable but was, in light of the historical circumstances, extremely worthwhile in the long-run.

THE UNIVERSITY OF CHICAGO

THE ARCHITECTURE OF DEFENSE: FORTIFIED SETTLEMENTS OF THE
LEVANT DURING THE MIDDLE BRONZE AGE

VOLUME TWO

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE DIVISION OF THE HUMANITIES
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

DEPARTMENT OF NEAR EASTERN LANGUAGES AND CIVILIZATIONS

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SECTION TWO:

THE HISTORICAL CONTEXT OF MIDDLE BRONZE AGE FORTIFICATIONS IN THE LEVANT

(CONTINUED)

CHAPTER FIVE:
FORTIFICATIONS AND THE SOCIETY AND ECONOMY
OF THE LEVANT DURING THE MIDDLE BRONZE AGE

...only contextual research, both of the factual and technical facets of this phenomenon, and of the socio-political aspects can clarify its place within the functional, social, symbolic and ideological worlds of the Middle Bronze Age in Palestine.

Shlomo Bunimovitz (1992)

During the past two decades much of the research on Middle Bronze Age fortifications in the Levant has focused upon assessing the cost and social significance of their construction (e.g., Herzog 1992:1035ff.; Finkelstein 1992; Bunimovitz 1992). Whether or not one is willing to accept that such ramparts were actually intended as fortifications and not just as a “cheap means for delimitation of the city’s borders” (Herzog 1992:1035, see also discussion in chapter one), it is necessary to attempt to answer these and other questions related to their socio-economic function and value. For example, what was the relationship between the construction of fortifications and the settlement pattern of the Levant as a whole during the Middle Bronze Age? How can the number of people involved in the construction of these fortifications be estimated? How long did these defenses take to construct? Broader social questions also need to be asked, such as: of whom did the labor force consist? Was forced, *corvée*, or hired labor used in these projects? And from where was this labor force drawn?

This chapter will explore, therefore, the following specific issues related to the fortification of settlements and the society and economy of the Levant in the Middle Bronze Age. The first part of the chapter will address the different types of fortified and

unfortified settlements and their hierarchical settlement patterns during the Bronze Age as revealed by textual sources and archaeological surveys of the Levant and Mesopotamia. As part of this section native terms for fortified settlement types and the elements of their fortifications are also reviewed. In the second part a typology of fortified settlement types is proposed and is related to the basic settlement pattern identified for the Bronze Age Levant. The third part of the chapter will address the socio-economic impact of fortification construction during the Middle Bronze Age by considering evidence for the organization of labor in this period. An attempt will be made to establish a reliable means of estimating the labor and resources required during the various phases of MB fortification construction. The fourth and final part of this chapter will place the debate regarding the functional and symbolic role of Middle Bronze Age fortifications within the greater debate regarding social complexity in the Levant, wherein the conclusions that can be formed regarding the socio-economic function of these fortification construction projects are summarized.

A. EVIDENCE FOR BRONZE AGE SETTLEMENT TYPES AND PATTERNS

Because the construction of particular styles of fortifications and the decisions regarding the location of each settlement were integrally related to the physical landscape, seeking to capitalize on its advantages while limiting its disadvantages, it is necessary to address the functional inter-relationship between these fortifications and the landscape. In this section, using both archaeological and textual sources, I will attempt to illustrate this relationship and demonstrate how the typical Middle Bronze Age settlement pattern incorporated various concerns regarding defense. This can be clearly demonstrated by placing the MB settlement pattern of the Levant within its cultural and historical context through a review of the evidence for continuity in settlement types and patterns during the Bronze Age (ca. 2500–1500 B.C.) in the Levant and Mesopotamia. From this evidence it is possible to identify basic archetypes of fortified settlements in the

Levant during the MB and to suggest Northwest Semitic terms that may have been used to describe these settlements from the Middle Bronze Age onwards.

As suggested in chapter four regarding the kingdom of Ashkelon, a preconceived hierarchical settlement pattern, which was probably influenced by centrally located political centers, can be clearly identified as the underlying pattern of settlement throughout much of the Levant during the Middle Bronze Age. Although there has, thus far, been no comprehensive discussion of this settlement pattern with regards to MB settlement in the Levant, Carlo Zaccagnini's study of *The Rural Landscape of the Land of Arrapḫe* (1979) located in northern Mesopotamia has provided the basic outlines of such a settlement pattern. In this study he has identified the native terminology used at Nuzi to refer to settlement types and the hierarchical settlement pattern of the kingdom of Arrapḫe. While Zaccagnini's study represents a textually based interpretation of the settlement types and pattern of northern Mesopotamia in the Late Bronze Age, these elements appear to be reflected in the Bronze Age settlement patterns of northern Mesopotamia and the Levant. By reviewing this evidence I will seek to provide a fuller account of the diachronic evolution of this settlement pattern, which Tony Wilkinson has essentially characterized as the "Landscape of Tells" in northern Mesopotamia and much of the Levant that began in the third millennium B.C. (2003:esp. pp. 118ff. and fig. 6.16). Although it has been emphasized by Wilkinson that this settlement pattern, as evident in particular in the landscape of the Jazira (*ibid.*, 109ff.), was primarily motivated by concerns related to agricultural production, a defensive strategy was clearly grafted onto this hierarchical organization of settlements for each polity in order to guarantee the safety of their settlements.¹

¹Since almost nothing is known of the fortifications of small, rural agricultural estates, no effort is made in this section to deal with the lengthy discussion related to such estates which are mentioned in the archives of Ebla and Ugarit.

1. *THE JAZIRA DURING THE THIRD MILLENNIUM*

As a result of an increased exploration of Syria in the past fifteen years the settlement pattern of the Jazira has received considerable study (e.g., Wilkinson and Tucker 1995; Sallaberger and Ur forthcoming, etc.).² The basic conclusions of these studies have been recently summarized by Tony Wilkinson in his treatment of “The Landscapes of Tells” (2003:100ff.). Wilkinson demonstrates that Early Bronze Age settlement in the Jazira can be understood as a “modular landscape” consisting of a hierarchical arrangement of tells each of which was surrounded by its own zone of cultivation. Landscape features such as linear hollows, mud extraction pits (for making mudbricks), and field sherd scatters help delineate the boundaries of these settlements and their agricultural land.

Although textual sources from sites such as Beydar are at present being examined for the details that they may provide regarding the political relationships between these settlements (see, for example, Sallaberger and Ur forthcoming), Wilkinson has suggested that Zaccagnini’s study of the records for the Late Bronze Age kingdom of Arrapḫe (see discussion below) provides a framework for the settlement pattern described by archaeological survey data for the Early Bronze Age in the Jazira (ibid., 118ff.). He has suggested, therefore, identifying various EBA landscape features with Akkadian terms such as, for example, the central tell settlement (*ālu*), its surrounding fields (*kirū*), its more distant fields (*ugāru*), nearby mud extraction pits (*jarru*), hollow ways/roads (*harrān*), and smaller nearby settlements (*dimtu*), to name only the most obvious features (ibid., see fig. 6.16). In the following sections it will be shown that these as well as other features can be identified through both textual and archaeological sources as the

²For a more complete list of surveys see T. J. Wilkinson (2000:esp. p. 224, Table I).

characteristic elements of the settlement types and settlement pattern of the Levant throughout the Bronze Age.

A forthcoming analysis of the settlement pattern of the province of Nabada centered at Tell Beydar demonstrates the pattern identified by Wilkinson (Sallaberger and Ur forthcoming). Using textual and archaeological sources the authors of this study have suggested the following hierarchical settlement pattern for Early Jazira III–IV settlements in the province of Nabada belonging to the kingdom of Nagar:

- 1) A provincial capital (e.g., Tell Beydar, 22.5 ha),
- 2) Smaller tell settlements (ca. 7 to 10 ha),
- 3) Villages (ca. 2.5 to 4 ha), and
- 4) Hamlets (ca. less than 2.5 ha).

It will be demonstrated below that this four tier hierarchy provides the basic outline of the settlement pattern characteristic of the Levant throughout the Bronze Age.

Because of the widespread abandonment of smaller settlements and the settlement nucleation that occurred in the Jazira during the late third millennium through the Middle Bronze Age (Wilkinson 2000:235), it is not easy to recognize the continuation of the nested, hierarchical settlement pattern characteristic of the Early Bronze Age in this region during the Middle Bronze Age. However, despite the reduction of settlement in marginal areas located further away from the main river basins, major settlements such as Mari, Terqa, and Tuttul were not only occupied during the MB but remained major political centers. Therefore, there is a basis for viewing this change in the settlement pattern as merely a response to gradual changes in political and/or environmental spheres, particularly since this region was evidently resettled during the Late Bronze Age (*ibid.*).

2. EBLA DURING THE BRONZE AGE

The earliest evidence from the Levant for this settlement pattern, which has been revealed in archaeological surveys, is attested in the region around Ebla and probably

dates to as early as the mid-third millennium B.C. Jan-Waalke Meyer has identified various settlement types belonging to a hierarchical settlement pattern that centered on Ebla (1996:144ff.). Using survey and archaeological data he has identified four-tiers of settlement within the 800 km² territory surrounding Ebla based upon settlement size and fortifications. The site hierarchy includes:

- 1) a single, large fortified town with upper and lower towns (e.g., Ebla, ca. 45 ha),³
- 2) smaller, similarly organized and fortified towns (e.g., Tuqan and Afis, ca. 15 to 20 ha),
- 3) large walled villages lacking acropoleis (ca. 2 to 4 ha),⁴ and
- 4) small unwallled villages (ca. 2 ha or less).⁵

Meyer's interpretation of the settlement pattern, which is largely based upon Central Place Theory (CPT), is basically identical to that which has been suggested for the kingdom of Ashkelon in the previous chapter (see section C.2). While archaeological soundings and surveys of the landscape around Ebla remain limited, there is no evidence to suggest that the settlement pattern identified by Meyer was different in this region for the period from the late third millennium through the mid-second millennium. This would seem to be supported by the archaeological phases of the main excavated sites in this region such as Ebla (from at least ca. 2350 B.C.), Tuqan (from at least ca. 2150 B.C.),

³Settlement sizes cited for the first two categories here have been reduced to reflect the actual inhabitable area within the fortifications during the EB IV and MB (see Appendix B).

⁴None of the settlements in this category, which include Sheikh Mansur, Tell el-Agharr, Tell Kathri, Tell Dadikh, Tell el-Hasmi, Tell Manabih, Tell Ram Handane, Tell er-Rabikh, Tell Hader, Tell Bajer, and Tell Mastuma, have been excavated, and, therefore, the sizes provided can only be considered their gross size (Meyer 1996:145).

⁵Among these settlements are Tell Abiad, Tell Deber, Tell el-Mahdi, Tell Khursiyyan, Tell Suffane, Tell Zartine, Tell Serji, Tell Jalas, Tell Qumhane, Tell es-Sfine, and Tell Denit.

and Afis (from at least ca. 2350 B.C.). Therefore, we can identify this settlement pattern as having emerged no later than ca. 2350 B.C. in the northern Levant but quite possibly originating even earlier in third millennium.

Evidence for the terminology for fortified settlements in this period is rather limited. In the letter of Enna-Dagan written in Eblaite, discussed in chapter four, several terms are mentioned. As in later periods the logogram URU was used to identify a settlement and similarly its use does not provide any information about the nature of a settlement's defenses. However, two other terms used in this text may have been intended to provide such information. The first term GA.NU.UM/*apum*, which is usually translated "reed thicket" or "canebrake" (*CAD* 1/2 p. 199f.), if it was not also a toponym, may have been an allusion to a particular type of fortified settlement (see *COS* 3.90, lns. 4f., and n. 4), such as the "canebrake of Ebla" or the "canebrake of Gallabi". In this respect this term may, therefore, parallel the use of *appārum* in OB texts which seems to have referred to a marshy area which surrounded some settlements (see discussion in following section). Perhaps, slightly more plausible is the reading of the Eblaite logograms E-NA for E-NA₄ in ln. 8 of the Enna-Dagan text as "fortress", literally "house of stone", as first read by Pettinato (*ibid.*, n. 6). However, beyond these observations there is little textual data for the identification of specific settlement types.

In addition to this evidence it is also possible to identify specific fortified areas within towns during this period thanks to Akkadian sources. In the Levant these distinctions appear to have been quite clear, for example, from the names used for the different walls which enclosed the town of Armānum during the last quarter of the third millennium as described in Naram-Sin's account of his siege of this town (see discussion in chapter four). The walls are referred to as the "great wall" (BĀD.GAL), the "fortification wall" (BĀD *danīm*), and the "quay wall" (BĀD *kārim*), and each wall was progressively taller as one moved from outside the town into the citadel (see discussion in chapter

three, section A.4.a). Because of the descriptions of these walls we can also distinguish three separate parts of Armānum and settlements like it in the Levant during this period. These include the *kārum*, the **lower town** enclosed by the BÀD *danīm*, and the **upper town** or citadel enclosed by the BÀD.GAL. While references to upper and lower towns, which are usually a reflection of the different elevations between them (if they do not also imply the presence of a wall between each of these areas), are not common with reference to Mesopotamian towns, the spaces delimited in Mesopotamian and Levantine towns in this period were still basically the same. Therefore, in the OB period, as discussed below, references are made to the inner (cp. upper) and outer (cp. lower) towns and the outer town wall. Despite the fact that a handful of inscriptions, mostly year names, attest to the construction of town walls during the Akkadian and Ur III periods at sites such as Akkad, Ur, and Nippur,⁶ these inscriptions do not provide the type of detailed descriptions which are available in the same sources from the Old Babylonian period.

3. *THE KINGDOM OF MARI AND OLD BABYLONIAN SETTLEMENT PATTERNS*

The settlement pattern of much of Mesopotamia, affected as it has been by the presence of the Euphrates and Tigris Rivers, presents a unique set of circumstances, which in many respects were truly unlike those which affected settlement in the Levant and the Jazira (e.g., Falconer 1987). The differences have been characterized by Tony Wilkinson as those which distinguish a “landscape of irrigation” (Mesopotamia) from a “landscape of tells” (Jazira to Levant) (2003), or as Falconer has suggested, the Levant represented “a heartland of villages” (1987) while Mesopotamia was a “heartland of

⁶These include the wall of Akkad in Naram-Sin’s reign (year name iii, *RIME* 2.1.4, p. 85), the walls of Ur (*RIME* 3/2.1.1, p. 11) and Nippur (*RIME* 3/2.1.1.38) during Ur-Nammu’s reign, and the building of the “Wall of the Land” in Šulgi’s sixth year (*RIME* 3/2.1.2, p. 106), and the rebuilding of the wall’s of Ur and Nippur by Ibbi-Sin (*RIME* 3/2.1.5.1).

cities” (cp. Adams 1981). While environmental factors may have affected the distribution of settlements and may also underlie some differences in the economies of these regions, to what degree, however, did fortifications and the defensive strategy of most of Mesopotamia actually differ from that of the Levant during the Bronze Age? Were not OB settlements as vulnerable, if not more vulnerable than many settlements in the Levant simply because of the notably flat landscape. The evidence, both archaeological and textual, seems to suggest that settlements in both regions were similarly vulnerable, and that similar defensive strategies were pursued for their settlements.

As historical sources have suggested and data from both surveys and excavations have demonstrated (e.g. Adams 1965:esp. p. 49), the first half of the second millennium in Mesopotamia was fraught with warfare between competing states, often identified as city-states. Despite this evidence very little work has been done to synthesize the data regarding OB fortifications and fortified settlements and the terminology used to describe them (see review of studies of Mesopotamian fortifications in chapter one, section E.1).⁷ However, in his well known Ph.D. dissertation *Warfare in Mari and Ancient Israel* Albert Glock addressed some of the Old Babylonian terminology for fortified settlements in the kingdom of Mari (1968).⁸ His work, therefore, provides the initial basis for the creation a list of fortified settlement types and the fortified complexes within them which are attested for the OB period.

⁷Robert Adams, for example, neglects to address the abundant terminology for fortified settlements in his treatment of the OB settlement pattern, stating simply that “Of course, references to other special-purpose sites of limited size, such as fortifications, are not uncommon throughout the historic record” (1981:137).

⁸Unfortunately, Van De Mierop’s recent work on *The Ancient Mesopotamian City* (1997) does not provide an extensive discussion of Akkadian terminology for settlement types, particularly those which were fortified.

It is important to note, however, that the limited occurrences of many of the OB terms and our inability to correlate settlement types and defensive features mentioned in texts with excavated remains has often complicated distinguishing between the meanings of various terms. It is difficult, therefore, to identify the English equivalents for many OB terms. For instance, in Glock's discussion of defenses, following in the tradition of most Assyriologists, he translated *ālum* (usually lit. "town") as "fortress" in some contexts (ibid., 159; after *CAD* 1/1, p. 379.), while in others he noted that *birtum* was used to refer to a "fortress", especially when referring to the frequency with which 300 soldiers (*ṣābum birtum*), a garrison, occupied these types of settlements (ibid., 110, n. 71). Adding to this confusion is the supposedly unequivocal evidence for the identification of the term *dūrum*, which often occurred in construct with divine and royal names, also as "fortress", perhaps specifically a royal fortress. Therefore, despite the work of both Albert Glock (1968) and Jack Sasson (1969) on this subject, further clarification of the OB terms for settlements and their defensive features is necessary insofar as it is possible.

From the combined data from archaeological and textual sources Mesopotamian settlements can, like those in other regions, be characterized as belonging to at least one of three basic settlement types with respect to their fortifications. These types include fortified towns of various sizes, fortresses, and unfortified villages or hamlets. In the following pages the various OB terms and the defensive features which accompanied them, as they are known primarily from textual sources, are discussed.

According to the *Chicago Assyrian Dictionary* the Old Babylonian term *ālum*, which is most often translated simply as "town", also featured a semantic range which included "fort" or "military strong point" (*CAD* 1/1, p. 387). But one may question the translations of *ālum* as either "fort" or "station" in the Old Babylonian sources,

particularly in the Mari texts.⁹ Despite references to activity related to defense within these settlements, such as lighting fire signals (ARM IV 32), the nature of the defenses of the settlements and/or their exclusive function in a particular capacity related to defense cannot be inferred from their identification with the term *ālum*. There is nothing, for instance, implicit about a settlement referred to as an *ālum* despite its involvement in relaying fire signals which requires that it be characterized as a fortified settlement. As R. Adams has noted, “there is nothing to indicate that the use of the term for city [*ālum*] was tied either to a minimal size of settlement or to the presence of specific urban institutions” (1981:136). Furthermore, because evidence from textual references suggests that a settlement which was identified as an *ālum* was fortified does not mean that the unmodified use of the term (i.e., lacking the adj. *dannūm*, “strong”) implied that the settlement referred to was fortified. This observation is clarified by the fact that towns were explicitly described as *ālānūm dannūtum*, literally “strong towns”, when alluding to their defenses (*CAD* 3, p. 99f.; ARM V 16:15). When they were not “strong” this too was noted (ARM V 16:14f.). However, caution should also be employed in the use of the adjective *dannūm* to avoid overstating its most basic implication. In this case the phrase was meant to convey no more than that a town was probably enclosed by some type of fortified perimeter, though whether this also consisted specifically of a gate, a fosse, and/or fortification walls cannot be inferred from its isolated use.

Although it was probably occasionally necessary to explicitly describe the fortifications of many towns which were smaller than the largest OB settlements,¹⁰ there

⁹For a translation as “station” for *ālum* in, for example, ARM IV 32:12ff., see A. Glock (1968:121; following “lookout station (for the transmission of fire signals)” from A. L. Oppenheim 1954:143a). For a translation as “fort” or “fortresses” in ARM IV 26:26 see Glock (1968:159).

¹⁰The construction of walls at what must have been smaller settlements is also attested in Old Babylonian year names (Sigrist 1988; 1990; Horsnell 1999), but it is difficult to know how large these projects were whether they included some or all of the elements identified as part of the fortifications of the largest cities, though they were certainly of a scale deemed worthy of mention.

was probably rarely a need for detailed descriptions of the fortifications of the largest OB towns in the context of siege operations.¹¹ References to the features of the fortifications of large OB cities were often described in inscriptions commemorating their construction. These textual sources indicate that their fortification programs were quite regular. Numerous Old Babylonian inscriptions, for example, attest to the building and rebuilding of the main fortification wall (*dūrum*, *CAD* 3, pp. 192ff.) of cities such as Isin (*RIME* 4.1.2.3; 4.1.4.5, 4.1.15.1), Larsa (4.2.5.2; 4.2.6.2; 4.2.8.7), Babylon (4.3.9.1), Ur (4.2.13.18–21), Sippar (4.3.6.2; 4.3.6.12; 4.3.7.3), Nippur (4.3.7.2), Kiš (4.3.7.7; 4.8.1–2), Dunnum (4.1.14.1), Me-Turan (4.16.1), Terqa and Mari (4.6.8.1). Although less common than the term *dūrum*, *igartum* could also be used to refer to fortification walls (*CAD* 7, p. 34). However, the difference between the terms *igartum* and *dūrum* are unclear due to the limited use of the former term in the Mari texts (see esp. ARM II 88:17, possibly “the walls of the fortress” (?); cp. use in ARM III 71:16).

While construction projects at each of the cities mentioned above probably involved work primarily on the town wall, fortifications of these sites also included various other features such as the gate, *abullum* (*CAD* 1/1, p. 82ff.; see ARM XV p. 168 for list of refs.) or *bābum* (*CAD* 2, p. 20f.; e.g., ARM II 72:36), and sometimes an outer town wall, *šulḫum* (*CAD* 17, pp. 243f.; ARM VI 29:16f., II 101:11, and XIV 24:5). Other less common and, therefore, more poorly understood terms were also used to describe fortifications, such as *kilīlum* (*CAD* 8, p. 358), usually identified as “battlements”, and *sītum* (*CAD* 15, p. 336) to refer to perhaps a “battlemented parapet”.

Textual evidence also suggests that some type of barrier trench was often excavated around the perimeter of the largest fortified centers. One common term,

¹¹The use of the term city to describe these settlements is appropriate given the immense size of most of these settlements, their central location at the centers of their territories, and the intensive manner in which they were fortified.

ḥirītum (*CAD* 6, pp. 198f.), which is usually identified as a “fosse” or “moat”, was used to describe trenches around Ur (*RIME* 4.2.13.21), Kiš (where its wall was said to have reached the bank of the Euphrates, 4.3.7.7), Terqa and Mari (4.6.8.1). But it is not possible to be certain whether such features should be identified as dry fosses or wet moats, as these terms have been employed in this work. A less common term identified as a “moat” was *amrimmum* (*CAD* 1/2, pp. 78f.), though its identification is equally problematic. These two terms are also employed in the Mari texts (*ḥirītum* in ARM I 90:20, 139:6, III 36:19; *amrimmum* in ARM II 30:5–12).¹² Similarly, it is unclear whether the occurrence of Sum E-EK-SUR-RABI was intended to refer to a fosse or a moat, which had been excavated at Ur in addition to the *ḥirītum* (*RIME* 4.2.13.21). In other cases, however, the evidence suggests that the trench in question was actually filled with water or was connected to a body of water. The term *appārum*/AMBAR, which has often been translated as “swamp” (*CAD* 1/2, pp. 179ff.: also “reed marsh, reed bed, lagoon”, and “canebrake”), has been used to identify defensive features surrounding Sippar (4.3.6.12), Nippur (4.3.7.2), and Kiš (4.3.7.7).

Although the evidence is somewhat less clear, various OB terms may suggest the construction of ramparts like those known in the Levant and northwestern Mesopotamia. Language relating the making of walls and their foundations like “mountains” may have been intended to identify heaped up earthworks or ramparts. Such terminology was used for the walls of Ur (*RIME* 4.2.13.21) and Sippar (4.3.6.2, 4.3.6.12, and 4.3.7.3), however, no single OB word can be confidently identified with earthen ramparts. This, though, may have been because such features, which were characteristically located below the walls, were not distinguished from the wall (*dūrum*) itself by those who built them. From an analysis of the Nuzi texts, though, Zaccagnini has suggested that *kerḥu*, usually

¹²See also n. 6 in J. Sasson (1969) regarding the use of these terms in lexical lists.

translated as “citadel” or “fortified area within a city” (*CAD* 8, p. 404f.), should actually be identified specifically with the “inner (area of the rampart) of a city” (1979:26f.), when it does not clearly refer to a town’s “circumvallation” (*CAD* 8, p. 405).¹³ The former translation of “citadel” does not, however, seem a likely identification of this term, particularly given various other terms translated as “citadel”. It is possible, therefore, that the singular occurrence of the OB term *kirḥum* in the Mari texts meant that the princesses mentioned in ARM VIII 88:15 actually took their oaths *upon* the rampart and not “in the citadel” as suggested by the *CAD*.

As alluded to in the previous section, larger Mesopotamian settlements could be divided into inner/upper and outer/lower towns. Although the upper town was sometimes described in the OB period as the *ālum elūm* (see *CAD* 1/1, p. 380), a separate term for the inner town seems to be lacking. Perhaps this was because the term *birtum*, translated as “citadel” or “castle (as part of a city)” (*CAD* 2, p. 261), was often used to refer generally to the acropolis of a large town. Garrisons would be stationed within the *birtum* of a town (e.g., *birātīm ša ālāni*, ARM I 20:11’). The citadel or upper town was generally closed off from the surrounding settlement, and the *kārum* was appended to the surrounding settlement and enclosed by its own defenses. If the Naram-Sin text from the second half of third millennium provides a reliable witness (see previous section), then the walls were progressively taller as one moved towards the interior of the town.

Secondary sites within the territory of the central *ālum*, were sometimes referred to with the term *dimātum* (*CAD* 3, pp. 144ff.), perhaps denoting their locations with respect to an *ālum*. According to Koliński OB *dimātum* probably functioned in essentially the same manner as those described in the kingdom of Arraphē (see discussion below),

¹³Zaccagnini’s observation that “only houses are located *ina kerḥi*” (1979:27) may suggest that gardening or the use of this area for other activities may have been considered detrimental to the integrity of the inner slope of the rampart.

whether the term referred to entire settlements or agricultural estates (2001:22ff.). This term, however, does not occur in the Mari texts except in reference to siege towers (see discussion of term in chapter two, section C.2.d); most references to settlements of the *dimtum* type are limited to Babylonia, particularly around Larsa, though this might be only a result of the number of OB sources from this region and their concern with agricultural production. Despite this observation, sites of a similar function to the *dimātum* probably existed around Mari, though perhaps a different term was employed. Unfortunately, while we may infer that many of these types of settlements were fortified, whether they always were and how they were cannot be concluded from the use of this term. It is perhaps noteworthy that *dimtum* like *dūrum* (“fortress”) was often used in construct with a divine or personal name (e.g., Dimti-Enlil; see *RIA* 2, p. 226f.).¹⁴ When used in this manner the foundation of the settlement appears to have been of considerable significance, though precisely why is often beyond the scope of the context of the source. The fact that many of the villages that were referred to with this term in the Nuzi texts were probably small unwallled villages suggests that by the Late Bronze Age the term may have been designated to refer to unfortified farmsteads.

In addition to fortified cities and towns, various types of fortresses are also attested in OB texts and the Mari texts. One type of fortress was the *birtum* (pl. *birātum*, *CAD* 2, p. 262). According to the *CAD* these types of fortresses were usually located “in strategic locations outside of cities and villages, at borders, passes, etc.”. Yet given the difficulties of identifying a single specific settlement identified as a *birtum* in OB texts, it seems to be the case that this conclusion has been merely inferred from the context of its use. As a placename, however, the term may be preserved for Late Bronze Age site in

¹⁴ I am aware of at least one occurrence where the name of a *durum* included *dimtum* as a nominal element. *Dūr-Dimat-Enlil* was built in seventeenth year of Samsuiluna (*RIM* E4.3.7.5).

Northwestern Mesopotamia and the Levant. One settlement by the name of *Birtu* is mentioned in a LB text from Ekalte (MB Yakaltum) and was probably to be located near that town (see *RGTC* 12/2, p. 55). *Bi'rūtu* of the Late Bronze Age, which is identified with modern Beirut in Lebanon, may also have derived its name this term (*ibid.*, 56f.).

No ambiguity exists, however, with the use of the term *dūrum* which, rooted in an identification of a settlement with its fortification walls, was used to refer to royal fortresses or military strongholds (*CAD* 3, pp. 192ff.). One example of a site so-named within the kingdom of Mari was Dūr-Yaḥdun-Lim (*RIME* 4.6.8.1; for a list of references in Mari texts see also *ARM* XVI/1, p. 10), but the greatest number of examples of sites of this type, as with the occurrence of *dimtum*, were located in Babylonia (see *RIA* 2, pp. 241ff.). As with *dimātum* the names of many of these sites were also written in construct with a divine or personal name.

As suggested from textual sources the *dūrum* probably featured the most regularized construction of any fortified settlement type, since after all they were intended to serve the defense of particular regions with garrisoned forces. One of the clearest episodes of fortress construction occurred during the reign of Samsuiluna when six such fortresses were built within two months (*RIME* 4.3.7.5). Another inscription from the reign of Samsuiluna attests that during the foundation of Dūr-Samsuiluna, “He dug its (surrounding) moat (*hirītum*), piled up its earth there [built its rampart?], formed its bricks, (and) built its wall. He raised its head like a mountain.” (*RIME* 4.3.7.8). Therefore, from these excavations, however limited, and the textual sources the systematic process required in the construction of a royal fortress can, therefore, be very clearly established.

Various settlements suggest how a *dūrum* was planned and constructed. The only Old Babylonian settlement that has been identified as a *dūrum* which has been excavated is Dūr-Samsuiluna, identified with Mound B at Khafajah in the Diyala due to the

discovery of a cylinder inscription (Delougaz 1990).¹⁵ But only limited exposure was possible in 1937 of its north wall. The dimensions of the fort, whose complete layout remains unknown, though it appears from its contours to have been rectangular, can be estimated based upon the site's contours to have been about 250 by 400 m, or about 10 ha (ibid., fig. 28). The only other settlements which evoke identification with the OB term *dūrum* are Haradum (Khirbet el-Diniye) 90 km southeast of Mari down the Euphrates (Kepinski-Lecomte 1992) and Shaduppum (Tell Harmal), though neither appears to have been identified as a *dūrum* in historical sources. Haradum is approximately 135 m square or about 1.56 ha with a carefully planned internal layout and a 3 m wide fortification wall (ibid., 90). Despite these data, the ancient name of the site does not appear to incorporate the OB term and the qualification of the site as such is speculative. The plan of Tell Harmal is comparable and exhibits very similar planning of the settlement within its walls (see fig. 82 in Invernizzi 1992:55), however, similar limitations apply.

We also learn from textual sources that in addition to the presence of fortification walls—which explains the origin of the name for this type of settlement—the defensive features of the *dūrum*, like those attested for large settlements, such as Mari, Terqa, Kiš, Larsa, and Sippar, could include the use of earthen mounds for the foundation of the wall, probably to be identified as ramparts, and a fosse/moat (*hirītum*). Nevertheless, while the presence of a rampart seems to be implied in the inscription relating to the construction of Dūr-Samsuiluna discussed above, the little excavation that was undertaken revealed no feature that could be identified as a rampart. Yet similar construction processes to those attested for Dūr-Samsuiluna, which also included the excavation of a moat, are described by Yaḥdun-Lim for the foundation of the fortress bearing his name (*RIME* 4.6.8.1). Furthermore, these fortress were also built on the banks of canals (*narûm*, *RIME* 4.3.9.2).

¹⁵ It should be noted, however, that one cannot be certain that only one fortress was so named.

In addition to the major categories of fortified settlements and fortresses, which were presumably located within the heartland of OB polities, other settlements referred to generally as “border towns”, *āl paṭim* (*CAD* 1/1, p. 381), are also attested. Like the term *ālum* discussed earlier this term also does not imply any qualification regarding a settlement’s defenses. But as Glock suggested a term does seem to have existed for this purpose. *Bazaḥātum* (*CAD* vol. 2, p. 184), is used in the Mari texts to refer to border forts or outposts along a frontier (A. E. Glock 1968:98). Unfortunately, it is not clear whether all such sites were necessarily fortified (see ARM II 67 r7’, 88:7, 92:21, 102:18, 103:10, 105:6; III 12:7, 17:21, 30:18; VI 64:3). As Glock observes, however, the role of individuals stationed in these fortresses was clearly one related to policing activities (*ibid.*). Given this function, where forces would be garrisoned at a post, it is impossible to discern why a separate term was used and it may be equally impossible to distinguish such settlements from small fortresses, such as the *birtum* or *dūrum*, except by location within a state’s territory.

The final category of OB settlements consisted of unfortified villages often referred to with the term *kaprum* (*CAD* 8, p. 189f.).

The semantic range of *kaprum* extends from “village” in agricultural surroundings, “farm” for producing of barley, “settlement” of shepherds of a more or less permanent nature, to suburban agglomerations around cities. In the plural (*kaprātu*) the word refers also, in a general way, to out-of-town regions. (*ibid.*, p. 190)

The term *kaprum* was borrowed into Ugaritic as *kaparu* and Hebrew as *kafar*, lit. “village” (Joshua 18:24). In addition to *kaprum* settlements referred to with the term *maškanum* (*CAD* 10/1, pp. 369ff.) may also have been unfortified settlements which were associated with the presence of a “threshing floor” when they were not simply “small agricultural settlements”, the second most common translation of this term. Though references may not clearly describe how, if at all, such settlements were defended, as mentioned above, when necessary a town traditionally referred to as an *ālum*

could also be specifically identified as unfortified (or at least insufficiently fortified) with the phrase *ul dannū*, lit. “not strong” (see ARM V 16:14f.).

Old Babylonian terminology for fortified settlements and their constituent elements are summarized in Table 15. As reviewed above there appear, therefore, to have been basically three categories into which Old Babylonian settlements in Mesopotamia can be classified based upon their defensive roles, which as demonstrated below also correspond well with the archaeological survey data from southern Mesopotamia. These include fortified cities and towns, fortresses of various sizes and types, and unfortified agricultural settlements. The greatest evidence, of course, is available for the first two categories, with limited evidence for the final category (cp. with observations by Adams 1981:138).

Table 15. Terminology for fortified settlements in Old Babylonian and Nuzi texts.

Site Type	Old Babylonian	Nuzi
Town	<i>ālum</i> (pl. <i>ālānūm</i>)	<i>ālu</i> (pl. <i>ālānū</i>) OR <i>dimtu</i>
<i>Fortified town</i>	<i>ālum dannūm</i> (pl. <i>ālānūm dannūtum</i>)	
<i>Within town:</i>		
Upper town	<i>ālum elūm</i>	
Citadel	<i>birat ālim</i>	
Outer town	NA?	
Trade entrepôt	<i>kārum</i>	<i>kāru</i>
Gate	<i>abullum/bābum</i>	<i>abullu/ bābu</i>
Wall	<i>dūrum</i>	<i>dūru</i>
Rampart	<i>kirḥum</i>	<i>kerḥu</i>
Moat	<i>ḥirītum</i>	
Fosse	<i>amrimmum</i>	
Swamp	<i>appārum</i> (AMBAR)	
<i>Royal fortresses</i>	<i>Dūr-PN/DN</i> (BÀD)	<i>Dūr-PN/DN</i> (BÀD)
Settlement within	<i>āl-durīm</i>	
<i>Fortified tower?</i>	<i>birtum?</i>	<i>birtu?</i>
<i>Border towns</i>	<i>āl paṭim</i> (<i>āl sikkatim?</i>)	
Fortified (?)	<i>bazaḥātum</i>	
<i>Unwalled (?) village</i> (usually small)	<i>kaprum</i> <i>dimtum</i> (AN.ZA.GÀR) (pl. <i>dimātum</i>)	<i>dimtu</i> (AN.ZA.GÀR) (pl. <i>dimātu</i>)

The hierarchy of OB fortified settlements reflected in the terminology attested compares well with the settlement pattern and types revealed, in particular, from R. Adams's survey (1981:136ff.). For the OB period his study enables the identification of the following hierarchy.

- 1) Large towns between 40.1 ha and 200 ha which were walled (50.2% of settlement area; e.g., Nippur, Isin, Uruk, Larsa, and Umma).¹⁶
- 2) Medium sized towns between 10.1 and 40 ha which were probably also walled (20.2% of settlement area).
- 3) Smaller towns between 4.1 and 10 ha.
- 4) Smaller settlements of less than 4.0 ha which may have consisted of a number of different types of settlements both fortified and unfortified.

The last two categories together accounted for only 29.6% of the area occupied by OB settlement according to Adams's survey. Similar percentages pertain for the Ur III-Larsa period which Adams also identified (see Table 12 on p. 138 in Adams 1981). Despite similarities in the hierarchical organization of settlements which appear to have been present, it cannot be ignored that the settlement pattern of southern Mesopotamia was inextricably linked to watercourses as Adams's study emphasizes (*ibid.*, 155ff.).

The Mari texts, our best source for reconstructing OB political administration, also facilitate a reconstruction of the kingdom of Mari and its political dependents during this period and suggest to some degree, therefore, how settlements in this region related to one another politically and militarily. In this regard we learn that the kingdom of Mari

¹⁶Umma appears to have been the only settlement to have reached over 200 ha (see fig. 33 in Adams 1981:166).

was administered through a number of districts or provinces (sing. OB *ḫalṣum*).¹⁷ Although we do not know the names of all of these districts, because of the number of texts available the districts of Mari, Terqa, Dūr-Yasmah-Addu, Saggaratum, Qaṭṭunan, Suhum, possibly Ḫarran, Šubat-Šamaš, Tuttul, Ida-Maraš (?), in addition to various other unnamed eastern districts can be identified (Villard 2001:62ff.). It is notable, that like the kingdoms themselves, these districts are identified by the largest cities within and probably, more or less, at the center of their territories. In section B.2.a below the military obligations of these districts in the defense of the kingdom of Mari are reviewed.

4. THE PROVINCE AND KINGDOM OF MUKIŠ DURING THE BRONZE AGE

While there are insufficient data regarding the overall settlement pattern and organization of the kingdom of Yamḫad (Aleppo) during the MB, there is a growing corpus of data for settlement in the ‘Amuq Valley in Turkey around Alalah, the capital of the district/province (*ḫalṣum*) of Mukiš, as recorded in the Alalah Level VII archive. Like the kingdom of Ugarit (see discussion below), Mukiš possessed an area of probably more than 2,000 km² (Serangeli 1978:100), but was enclosed on all sides by mountains except where the Orontes and Kara Su rivers entered the valley. The actual agricultural land within the kingdom, however, was probably on the order of around 1,000 km² minus the area of Lake Antioch (cp. Wilkinson’s figure of 30 x 30 km for the ‘Amuq plain, Yener,

¹⁷ In addition to its definition as “district”, the OB term *ḫalṣum* is yet another term which has been translated as “fortress” or “fortification” (*CAD* 6, p. 51f.), despite the fact that the term only seems to actually designate a “district” or administrative unit in the Mari texts (e.g., ARM I 16:26ff., 73:20; II 120:3; III 10:6; VI 14:6). The confusion with regards to the identification of *ḫalṣum* as referring to a fortress or fortifications is understandable in light of the role each of the districts within a kingdom played in the overall defense of that kingdom. There does not, however, appear to be any reason why the references in OB texts cited in the *CAD* from either the Mari texts or other OB texts should not be translated as “fortress” and, therefore, I suggest that the term should be translated as “province” or “military district/province”. Although one may acknowledge Villard’s observation that such districts were not always references to strictly defined territories (2001:62ff.), the use of the term is very much in the sense of the Roman term *provincia* which usually designated, as F. Millar has noted, “both a sphere of operation and geographically defined area” (Millar 1993:31). It is, though, quite possible that the term *ḫalṣu* took on a meaning which could be more literally identified with fortresses in later periods as, for example, during the Neo-Assyrian period.

et al. 2000).¹⁸ Recently published reports of the settlement pattern in the region have provided an initial outline of the settlement hierarchy which had not been previously possible (see Yener, et al. 2000:185ff.; Casana 2003:225ff.). Three levels have been identified which include:

- 1) A single, large fortified town with an upper and probably lower town (Alalaḥ, ca. 22 ha)¹⁹
- 2) Smaller secondary tell centers evenly spaced across the plain (ca. 4 to 10 ha)²⁰
- 3) Small villages (ca. 1 to 4 ha)

Although it has been suggested that the nucleated settlement pattern present in the ‘Amuq lacked a fourth tier of “small, outlying, dispersed farmsteads” this, just as in the case of the lower town settlements around sites such as Alalaḥ, probably can be accounted for by the fact that such sites were small to begin with and could have been easily buried beneath alluvium when they were not destroyed by other natural and cultural processes (Yener, et al. 2000:187). It can be observed, as Serangeli has demonstrated, that in the Alalaḥ Level IV archives, for example, no less than fourteen villages are known which consisted of 10 or fewer families, twelve with between 10 and 20 families, and eleven

¹⁸ Serangeli has suggested that only 40% of the 2,000 km² was cultivated (1978:103), meaning presumably that the remaining 60% would have been occupied by mountain ranges and pastoral nomads.

¹⁹ Although the site is identified as only 22 ha in area (Yener, et al. 2000:185), this figure does not account for the lower town settlement whose existence is suggested by sherd scatters to the east of the mound as well as Woolley’s observations (see Appendix B). This lower town would have been buried under later alluvium. I would, therefore, suggest doubling this figure to account for the lower town; thus, ca. 45 ha. See also following note.

²⁰ As in the case of Tell Atchana the figures for the size of these settlements account only for settlement on the tell and, therefore, the settlements may actually have been quite larger. These settlements include Salihiye (AS 129), Chatal Höyük (AS 167), Yurt Höyük (AS 99), Boz Höyük (AS 84), Hasanuşagi (AS 99), Kara Tepe (AS 86), Tell al-Judaidah (AS 176), Akpınar Höyük (AS 52), Tell Uzun Arab (AS 84), Acarkoy (AS 12), Esentepe (AS 29), and Daud Paşa (AS 164) (see Yener, et al. 2000:187; and Casana 2003:232). For sizes of these mounds see Gazetteer compiled by Wilkinson and Casana in *Amuq Valley Regional Project*, vol. 1 (Yener forthcoming).

with between 20 and 30 families (1978:114). If we assume that these families consisted of joint family households with an average of 10 persons each (Schloen 2001:147), then we are dealing with 14 villages with approximately 100 inhabitants, 12 with 100 to 200 inhabitants, and 11 with 200 to 300 inhabitants. Thus, if we presume a modest 250 inhabitants per hectare, then during the LBA in the kingdom of Mukiš we can probably account for at least 37 villages of approximately 1 ha or smaller in size.²¹ This, therefore, would seem to demonstrate that there did exist a fourth tier of settlement which has not to date been adequately accounted for in surveys.

Various observations can also be made about the continuity of settlement in the 'Amuq during the Bronze Age. The location of the central site of the MB and LB (Alalah), for example, was basically retained from the EB, when it had been located at Tell Ta'yinat less than a kilometer to the north, and continued even into the Iron Age shifting from Alalah back to Ta'yinat. But as Casana has demonstrated this pattern was basically characteristic of settlement in the 'Amuq from the EB through the Iron Age and, therefore, it only emphasizes the considerable continuity of the settlement pattern of the 'Amuq not only during the Bronze Age but well into the Iron Age (2003:esp. pp. 251f.). The radial arrangement of settlements around central sites was also another aspect of the settlement of the 'Amuq which demonstrates continuity of settlement not only within the region but also with other parts of the northern Levant and northern Mesopotamia. Wilkinson and Casana point to the example of Tell Salihiye (AS 129) which appears to

²¹ Given that it is basically impossible to adequately distinguish MB settlement from that of the LB in archaeological surveys of the 'Amuq (since the distinction is based primarily on the presence of Cypriot and Aegean imports which account for less than 1% of the collected sherds at Bronze Age settlements, personal communication J. Casana 2003), B. Magness-Gardiner's suggestion, which is based on archaeological survey data, that "there probably were not many very small sites" during the period of the Alalah Level VII archive cannot be accepted (1994:40). While it may not be possible to identify "farmsteads" of the type of discussed by Leemans (1982) in Babylonia, we may, nonetheless, assert the existence of a number of small villages during both the Middle and Late Bronze Ages. Furthermore, many of the large and medium tells in the 'Amuq Valley were, no doubt, themselves small villages during the Early Bronze Age.

have been surrounded by smaller dependent settlements (AS 123, 131–33, 139–40, 142–3, and 147; *ibid.*, pp. 243ff. and esp. fig. 4.11). Therefore, the settlement pattern in the ‘Amuq during the MB and LB (Phases L and M) appears to have mimicked that around Ebla and in the Jazira during the third millennium, and as we shall see below, also that of the southern Levant during the MB and LB.

5. MB KINGDOMS IN THE SOUTHERN LEVANT AND ASHKELON

The interpretation of the settlement pattern of the southern Levant which has held sway for nearly two decades is owed to the scholarship of both William G. Dever (1987:152ff.) and his student Wade Kotter (1986). Using Kotter’s study of the *Spatial Aspects of the Urban Development of Palestine during the Middle Bronze Age* the following settlement hierarchy has been advanced by Dever for MB II (IIB–C) settlement. It consisted of:

- 1) Large urban sites (ca. 8 to 70 ha, 5% of all settlement);
- 2) Medium-sized towns (ca. 3 to 8 ha, 10% of all settlement); and
- 3) Villages and hamlets (ca. 0.2 to 3 ha, 85% of all settlement).

Unfortunately, such a division of settlements appears to have been somewhat forced to fit the traditional tri-partite model which Dever has acknowledged “invariably characterize a highly urban culture” (1987:153). Since, however, this rigid system, unlike the settlement patterns in the other regions discussed above, did suggest the identification of four tiers of settlement, the recognition of the similarities of the settlement pattern of this region with those discussed above have been generally lost. Furthermore, the identification of this pattern did not focus upon the data from any single identifiable polity, since it instead relied upon the hypothesized identification of various independent “city-states” in the southern Levant (see comments in chapter four, section C.1), whose territories have been traditionally represented with Thiessen polygons (see, for example, fig. 35 in Kotter 1986).

Nevertheless, as discussed in the previous chapter the combination of various types of data from the coastal plain of the southern Levant, which include surveys (e.g., Gophna and Ayalon 1980; Gophna and Beck 1981; Broshi and Gophna 1986; Gophna and Portugali 1988; Cohen 2002a:esp. pp. 123ff.) and archaeological excavation of a number of settlements and their fortification systems, enable an identification of the Middle Bronze Age kingdom of Ashkelon (see discussion in section C.2).²² Closer analysis of MB settlement in and around the kingdom of Ashkelon suggests a settlement pattern comparable to those in the regions around Ebla and the Jazira during the third millennium, which have been discussed above. Furthermore, studies of LB settlement for the southern coastal plain demonstrate, I suggest, that much of this region was probably divided between polities during the MB, in a manner which was actually comparable with the provincial system employed in the kingdom of Mari, described above, and presumably with other MB kingdoms in the northern Levant such as Yamḥad and Qatna.

The region around Ashkelon once again demonstrates, therefore, the potential that archaeological data possess for the identification not only of major polities but also the subdivisions within their territory. As I have suggested the core of the MB kingdom of Ashkelon encompassed an area around Ashkelon of no less than 1,700 km² which was bounded by a number of large well-fortified settlements and identifiable natural boundaries (see Figure 9 above). A closer examination of the settlement pattern reveals that these and the remaining sites within the proposed kingdom of Ashkelon can be

²²General overviews of the settlement pattern of the southern Levant include that of A. Mazar (1990:pp. 176–79 for the MB I/IIA and pp. 197f. for the MB II/IIB–C), A. Kempinski (1992d:pp. 166f. for the MB I/IIA and pp. 182–184 for the MB II/IIB–C), and H. Weippert (1988:215–217). See also coverage of MBA in regional surveys of Israel in *NEAEHL*. Although similar studies have not yet been attempted for the northern Levant, the results of surveys around various Bronze Age sites in the northern Levant are available for some regions (see G. Lehmann’s recent compilation, 2002). These include the ‘Amuq (Braidwood 1937; Haines 1971; Magness-Gardiner 1994; Yener, et al. 1996; Yener 1998; Yener, et al. 2000), the Akkar Plain (Thalman 2002), the Beqa Valley (Kuschke, et al. 1976; Marfoe 1998), the Syrian Plain (Calvet 2002), the Orontes Valley (Courtois 1973), the region around Damascus (von der Osten 1956), and the Hauran (Braemer 1984; 1993; Betts, et al. 1996).

logically placed within one of three tiers of settlement below the top tier which was, of course, dominated by Ashkelon itself. These tiers include:

- 1) a single, large fortified town with upper and lower towns (Ashkelon, ca. 50 ha),
- 2) smaller, similarly organized and fortified towns (e.g., Yavneh-Yam, Ekron, Poran, Lachish, Haror, and ‘Ajjul, ca. 22 to 3 ha),
- 3) large walled villages lacking an acropolis (e.g., Timnah, Nagila, Jemmeh, and Sera‘, ca. 3 to 1 ha in size), and
- 4) small unwalled villages (see sites in the kingdom of Ashkelon listed in Table 13, ca. 1 to 0.1 ha in size).

Although the similarities that existed between the settlement patterns around Ebla in the third millennium and around Ashkelon during the second millennium are impressive, this is less remarkable when the relative similarities between their environments and, thus, their economies are considered. Both regions relied upon rainfed agriculture for their subsistence, even if Ashkelon benefited from additional horticultural and viticultural production. Both kingdoms dominated almost featureless landscapes which enabled the gradual spread of settlements around these centers in a radial fashion and their growth was only limited to the east and west, not by the presence of neighboring polities but primarily by major geographic features (e.g., the Mediterranean and highlands for Ashkelon, and the arid inland steppe of Syria and the Calcaire Massif for Ebla). However, because both kingdoms were located in the main “transit corridor” and were not separated from neighboring powers to the north or south by geographical features, the defensive strategies of these polities developed along similar trajectories from the start of the second millennium employing specifically massive, freestanding earthen ramparts.

As indicated in the previous chapter the major fortified settlements comprising the first three tiers of settlement within the kingdom of Ashkelon were defended in a nearly

identical fashion featuring rectilinear plans enclosed by earthen ramparts, fosses, and fortification walls. These settlements seem to have been predominantly situated along wadis in order, I believe, to take advantage of the increased defensive capability which the only regular feature of the landscape could provide (on at least one side of the settlement).²³ The main difference, as suggested by Meyer, was the presence of a distinct acropolis within the first and second tier settlements, which may, in fact, serve as a criterion for distinguishing fortified towns from fortresses. In the case of Ashkelon we may, therefore, suggest that smaller sites such as Timnah, Nagila, Jemmeh, and perhaps Lachish, which were not only strategically located in the landscape but also lacked separate acropoleis, served primarily as fortresses in this kingdom. Their strategic locations at the mouths of valleys (e.g., Timnah²⁴ and Lachish) or simply along major routes out of the kingdom but along which no other major settlements were located (e.g., Jemmeh and Nagila) also support their identification as fortresses. Furthermore, the high ratio of labor required in the construction of their fortifications to their estimated population, I believe, also supports this identification (see section C.3 below and references in Table 19 and Table 20).²⁵

²³ Interestingly, both Ebla and Ashkelon are the only examples of major sites not situated located adjacent to wadis in either of their kingdoms.

²⁴ See also discussion of the kingdom of Ugarit below regarding the potential etymology of Timnah from Akk *dimtum* as further evidence for the identification of this site as a fortress.

²⁵ The greatest pre-capita labor requirements for the construction of the ramparts and walls of fortified settlements appears to have been at sites like Timnah. This would seem to further confirm its identification as a fortress, where construction probably required a supplemental labor force from an outside settlement or various other settlements which would come to rely upon the strategic placement of the fortress. With respect to the identification of Timnah as a fortress it is also worth reiterating, as noted earlier, that Timnah was of similar dimensions as the Old Babylonian fortress of Haradum, also with walls of a similar thickness. The regularity of the site's overall dimensions and its defenses taken together with its strategic position at the mouth of the Nahal Sorek suggest that, despite an absence of more detailed information about Timnah's interior plan during the MB II (IIB–C), the site should be identified as a fortress that may have been established by the nearest neighboring polity, as noted above, probably Ekron.

In addition to the archaeological evidence for fortified towns and fortresses there is also limited evidence for another type of fortress that probably emerged during the Middle Bronze Age in the Levant and is also probably attested within the kingdom of Ashkelon. This site type can be identified by the Northwest Semitic term *magdalu*, though such references, thus far, have only been identified in Late Bronze Age and later sources (see the *Kingdom of Ugarit* below for further discussion).²⁶ The Ugaritic and Hebrew definitions of *magdalu/migdol* refer essentially to a built structure, namely a “tower”, often specifically a “watchtower”.²⁷ But the term also occurs as an element in

²⁶The sheer paucity of MBA texts from the southern Levant in which local sites can be identified also leaves open the possibility that *magdalu* settlements were established in the MB and not in the LB. Furthermore, the political milieu of the Levant during the LB, when no substantial fortification projects were undertaken at most sites would also support the foundation of fortified towers or *magdalu* during the MB rather than their being erected during the LB.

²⁷The only biblical reference of help with respect to the character and function of *migdol* settlements is found in Judges 9:46ff. where *Migdol-Shechem* (“the tower of Shechem”) is described. I see no reason why Migdal-Shechem must be identified as a place within the city of Shechem as has been traditionally done. Instead, I would suggest identifying it with a separate settlement located upon Mount Zalmon (see v. 48, location uncertain), particularly since Abimelech’s descent from the mountain with brush in hand was not mentioned in this story. Furthermore, following this act he is described as proceeding Thebez, the location of another *migdol* (v. 51ff.), which he besieged, thus suggesting that he was actually engaged in a “razia” that took him from Shechem, to Migdal-Shechem, and on to Thebez. It should also be noted that there was no temple at Thebez associated with the reference to its *migdol*.

Those familiar with the terrain of the hill country around Shechem are aware that the topographical situation such as that described for the *migdol* of Shechem in relation to the site of Shechem, no matter what mountain we place it atop, suggests that its significance would have been its view of approaching traffic on the roads leading into Shechem. It should also be noted here that, although the name of the settlement may have been assigned to it through its association with the *migdol* that had been built there, there is no need to identify the Temple of El-Berith at Migdal-Shechem as this *migdol* as has often been done. G. E. Wright was instrumental in advancing this identification by resurrecting the notion that the MB temple at Shechem, first excavated by Sellin and Welter, was, in fact, to be identified as the temple of El-Berith which he identified as synonymous with *migdol Shechem* (see G. E. Wright 1964:80ff.). This identification has resulted in a misleading typology of MB temples which includes a type identified as the *migdol* temple. There is, however, no reason why the MB temple at Shechem should be identified as either *migdol Shechem* or the Temple of El-Berith mentioned in this passage.

With regards to the defenses of Migdal-Shechem, according to the text we have no reason to believe that the settlement of Migdal-Shechem featured an enclosure wall. Hence, the Temple of El-Berith was probably the only monumental building within the settlement of Migdal-Shechem and since it probably possessed the thickest walls it was expected to afford the only defense available—a true statement of desperation.

various placenames in Ugaritic, Hebrew, the Amarna texts (see, for example, EA 34, 69, 70, 185, 186, 234, and 256), and some Egyptian sources (often *mktl*).²⁸

My identification of these settlements as originally MB in date borrows from Frank Koucky's suggestion that the name of the Arab settlement at Majdal (MR 1118.1198) located 5 km east-northeast of Ashkelon has probably preserved the original name of a "migdol" settlement located here during the Middle and Late Bronze Ages (Koucky forthcoming). The settlement would have been intended, therefore, to provide advance warning of approaching threats and to relay signals to and from Ashkelon which was situated at sea level 40 to 50 m below this rise in the coastal plain. It is possible, therefore, that the MB II burials discovered at Majdal, perched upon the crest of the coastal plain (around 40 m ASL) to the northeast of Ashkelon support the identification of a *magdalu* settlement here as early as the MB (see Figure 9 above for location). Although the actual settlement associated with this cemetery has not yet been uncovered, there seems to be little reason to doubt that these individuals were once the inhabitants of a small outlier settlement belonging to Ashkelon, which as Koucky has suggested may have served as a watchtower for Ashkelon.

Based upon my own preliminary analysis of the location of numerous settlements throughout the Levant which still bear names derived from the Arabic term *majdal* (e.g., *Majdal*, *Majadel*, *Majdaloun(a)*, *Majdelyoun*, etc.), this suggestion appears to have

²⁸Biblical references include Migdol in Egypt (Exodus 14:2; Numbers 33:7; Jeremiah 44:1, 46:14; Ezekiel 29:10, 30:6), probably in the north Sinai; Migdal-Gad (Joshua 15:37); and Migdal-El (Joshua 19:38).

considerable merit (see also Wardini 2002:405ff., for examples in Lebanon).²⁹ Furthermore, it should be noted that most sites with this name are found in the Levant from west of Aleppo to the north Sinai. Since, therefore, there is a limited overlap between Akkadian and Northwest Semitic terminology for small fortified settlements, as Kolinski has noted, *magdalu/migdol* would seem to offer a satisfying alternative for a settlement type which in Mesopotamian sources may have been identified with the term *dimtum* (Kolinski 2001:127) if not for the terms *birtum* or *dūrum*. But, unfortunately, until such settlements are excavated it remains impossible to suggest if or how these sites were, themselves, actually fortified.

In addition to evidence for the identification of the kingdom of Ashkelon, its settlement types and pattern, and the archaeological evidence for the fortifications of its settlements, further consideration of its settlement pattern enables the reconstruction of the major subdivisions, or what I would identify as provinces, within this kingdom. The strength of this identification is derived from the fact that the territorial units associated with these districts, which have been identified from textual and archaeological sources from the Late Bronze Age (e.g., esp. Bunimovitz 1989; Finkelstein 1996b), have already been accepted by most scholars. However, in light of the political structure and settlement pattern which has been identified for the kingdoms of Mari and Yamḥad, previous analyses of the MB and LB settlement patterns of the southern Levant by scholars such as S. Bunimovitz (1989) and I Finkelstein (1992; 1996a), as well as N. Na'aman (see references in Finkelstein 1996b:221) take on a new significance. Dever

²⁹ I have noted the occurrence of this name for the locations of numerous modern towns and villages throughout Syria and Lebanon during my travels, in addition to those already known in the south. While I have not yet been able to confirm how many of these sites retain ancient names and how many of them have actually been renamed as such, certain Ottoman period documents, such as those for Palestine, confirm that sites with this name do pre-date the modern era (see, for example, Hütteroth and Abdulfattah 1977), probably preserving ancient names in Arabic as biblical placenames have also often been preserved in Arabic names in the south.

(1987:152f.) and Finkelstein, for example, have posited the existence of major MB centers in the southern Levant with definable territorial units by drawing upon data for the settlement patterns during the MB and LB, rank-analysis of MB settlements, and textual evidence for the identification of LB polities (see Figure 10 below).

Since, however, Finkelstein's reconstruction relies heavily upon LB textual sources, the following modifications to his interpretation of the main MB territorial centers can be suggested to accommodate the political realities of the MB. A hierarchical reorganization of Finkelstein's territorial units with some minor alterations permits, therefore, the reconstruction of between four and six MB II (IIB–C) kingdoms in the southern Levant along the lines of MB kingdoms in the northern Levant.³⁰

- 1) The Kingdom of Ashkelon probably composed of the districts of Ashkelon (ca. 50 ha), Sharuhem (Tell el-‘Ajjul, 10 ha), Gerar (Tel Haror, 16 ha),³¹ Lachish (5 ha), Ekron (22 ha),³² Yavneh-Yam (ancient name unknown, 19 ha), and Gezer (7 ha) began during the MB I (IIA) and eventually spread to occupy the surrounding coastal plain during the early MB II (IIB).

³⁰ Although Transjordanian districts are proposed, in Figure 10 these identifications are tentative as greater research and excavation of MB settlements in Jordan remains necessary.

³¹ Given that Haror is no longer to be identified with Gath of the Philistines (Schniedewind 1998), I see no reason why Haror cannot be identified with MB Gerar and LB Yurza of the Amarna texts (EA 314 and 315). The identification of Yurza with much smaller Tell Jemmeh to the west is unnecessary given that Haror was also occupied throughout the LB and was also located along the “brook of Egypt” as described by Thutmose III.

³² Ekron should replace the identification of a territory centered at Tell es-Safi during the MB, since Ekron was probably much larger in both the MB and LB.

- 2) The Kingdom of Akko composed of the districts Akko (20ha) and Kabri (35 ha) probably began during the MB I (IIA), but saw its greatest growth during the early MB II (IIB).³³
- 3) The Kingdom of Dor (or by some other name?) composed of at least the districts of Dor (10 ha) and Aphek (10 ha) was probably in existence since the MB I (IIA).³⁴
- 4) The Kingdom of Hazor composed of the districts of Hazor (67 ha), Dan (10 ha), and possibly Shimron (25 ha), Beth-Shean, and Megiddo (6 ha) appears to have taken shape only at the start of the MB II (IIB).
- 5) At least two highland kingdoms (see discussion below, next section), perhaps Shechem and Jerusalem, may also have existed, although they only appear to have reached maturity by the late MB II (IIC). Although it is impossible to be certain of their districts, Jerusalem may have included districts centered at Jerusalem, and neighboring areas of Hebron, and Beth-El, while Shechem included the territories around Shechem and Shiloh.

In this reconstruction, therefore, each of these kingdoms consisted of various large but separate districts, most of which had been previously identified by Finkelstein among the main MB territorial units of the southern Levant. Their emergence and growth may be interpreted as the result of attempts to maximize the extraction of agricultural and horticultural resources from the hinterland surrounding each of the main polities.

³³ It is difficult to be certain which of these two settlements should be identified as the capital of this northern coastal kingdom. Certainly, though, they were independent of Hazor for some time since their MB I (IIA) occupation appears to predate that of Hazor, which was not significant until the MB II (IIB).

³⁴ As I suggested in chapter four this kingdom may have been the one referred to as *Skmm* in Sesostri III's campaign (see *ANET* p. 230).

Figure 10. Identifications of districts or provincial centers within Middle Bronze Age kingdoms of the southern Levant showing fortified settlements.

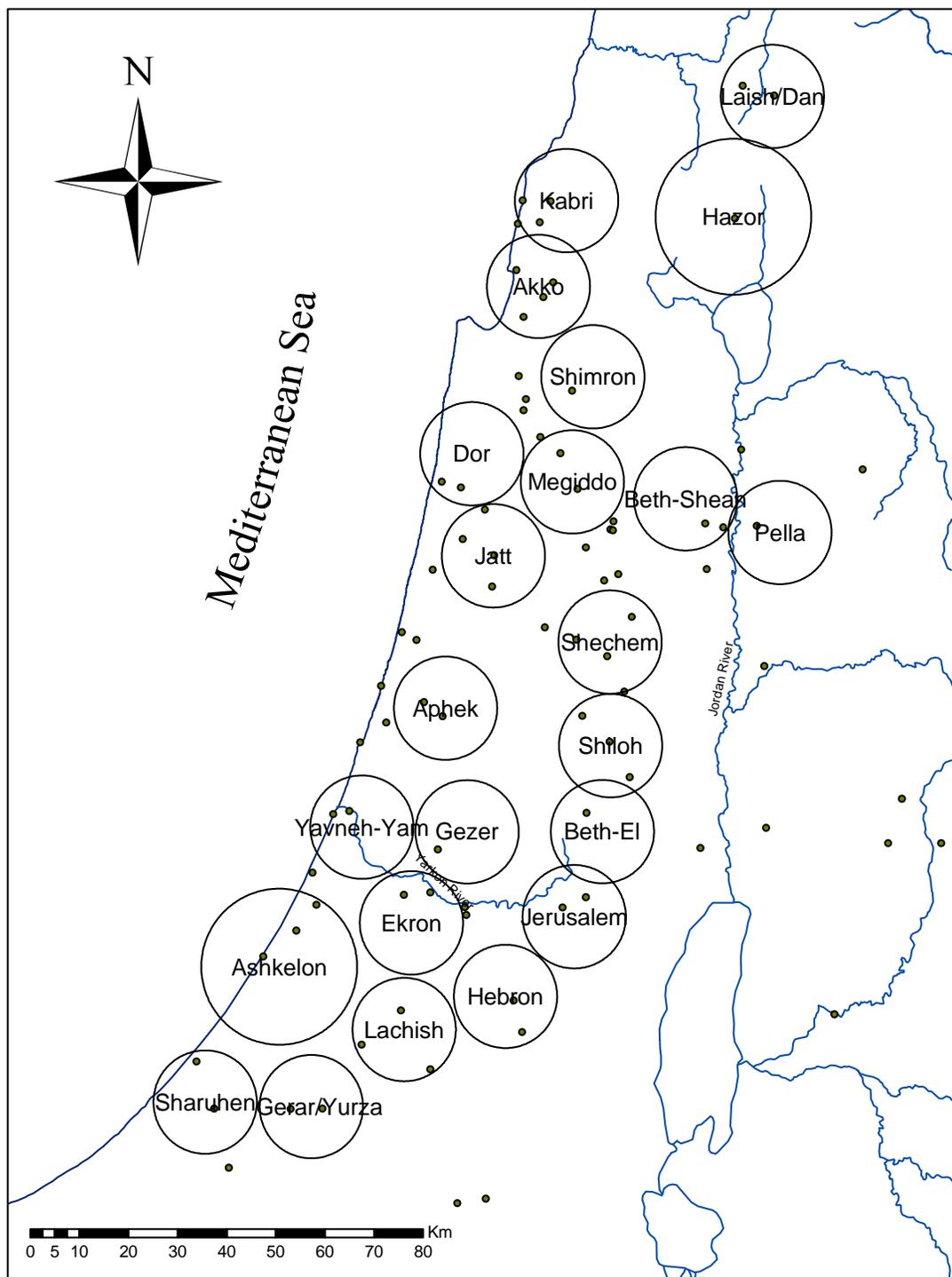


Table 16. Middle Bronze Age territorial units in the southern Levant and their populations according to I. Finkelstein (1992:211ff. and Table 1).

Capital	Area of Unit (km²)	No. of sites	Total built up area (ha)^a	Population^b	People per km²
Dan	*	9	27 (23)	4,600 ^c	*
Hazor	1,100	10	103 (85)	17,000	15
Kabri	*	8	48.5 (37.5)	7,500 ^c	*
Akko	400–450	6	47 (37)	7,400	17
Shimron	850	48	78 (72)	14,400	17
Megiddo	450	28	32	6,400	14
Beth-Shean	*	75	41	8,200 ^c	*
Dor	700–750	29	38 (35)	7,000	10
Aphek	850–900	19	25.5	5,100	6
Gezer	750	19	64 (52)	10,400	14
Tell es-Safi	550–600	10	25	5,000	9
Ashkelon	500	8	80 (62)	12,400	25
Lachish	900	14	31 (28)	5,600	6
Tell el-‘Ajjul ^c	*	9	33 (27)	5,400	*
Shechem	2,300	159	100	20,000	9
Jerusalem	2,850	77	29	5,800	2

*Territory expanding beyond the borders of Western Palestine.

^aTotal built-up area after deduction of rampart area in the main sites, in parentheses.

^bPopulation calculated with density coefficient of 250 per built-up hectare.

^cThe population of ‘Ajjul might have been greater because some of the land in this territory was probably located outside the boundary of Western Palestine as defined in Broshi and Gophna’s studies (e.g., 1986).

Figure 10 above provides, therefore, a basic framework for understanding the nested hierarchical settlement pattern characteristic of these Levantine kingdoms. Distinct lines are not used to delineate the kingdoms in this figure (aside from the boundary which has already been suggested for Ashkelon, see Figure 9 above), since such boundaries were fluid and could have utilized natural features of the terrain such as mountains, rivers, and wadis, as well as considerations regarding the inclusion of areas occupied by tribes and pastoral nomads when determining their boundaries. For this reason the district delineations are not perfectly centered on the main settlements with which they have been

identified. Rather than Thiessen polygons, which provide a false sense of the identification of boundaries, circles emphasize the fluidity of these boundaries, their relationship to surrounding agricultural and horticultural land, as well as the the need to account for what had been referred to in the OB period as *ṣērum* land, or “open country” for the pastoralist component (*CAD* 16, pp. 138ff.). It is also necessary to keep in mind that during any pre-modern period the impression should never be given that all land belonged to one or another polity.

A closer examination of the evolution of Egyptian control of the southern Levant during the Late Bronze Age, as shown by Ellen Morris demonstrates the gradual pattern of incorporation of the territories of these provinces within the Egyptian empire (E. F. Morris 2001). Following the fall of Avaris and Sharuhēn (Tell el-‘Ajjul) during the early Eighteenth Dynasty the first Egyptian administrative centers were established at both of these sites (*ibid.*, 78–81). By the late Eighteenth Dynasty as a result of the Amarna letters we are aware of the placement of Egyptian garrisons at Gaza, Lachish, Tell el-Hesi (site name uncertain), Gezer, Jerusalem, and Megiddo (*ibid.*, 386), followed by an increased Egyptian presence during the Nineteenth Dynasty at sites further inland such as Tell el-Far‘ah South and Tel Sera’ (*ibid.*, 805). As I have suggested in chapter four (see section C.1) the lack of references to the MB centers of Ashkelon and Hazor, which are known to have been occupied, is accounted for by the establishment of major administrative centers at Gaza, south of Ashkelon, and Kumidi (Kamid el-Loz) north of Hazor.

Evidence would appear, therefore, to support a comparison of the settlement pattern of the southern Levant during the Middle Bronze Age with the basic settlement pattern identified for the northern Levant from the third millennium and across much of northern Mesopotamia from the third millennium through the Old Babylonian period, as discussed above. To characterize the settlement system in other ways, as most have usually attempted, is to suggest that smaller settlements and villages enjoyed autonomy

from larger, centrally located settlements despite their proximity.³⁵ The fact that such a reconstruction shares many of the considerations inherent to Central Place Theory (CPT), specifically as they relate to a uniform and flat landscape as described by Walter Christaller (1933), is not surprising, since the conditions in many parts of the Levant and in much of Mesopotamia are closer to those described by this model. As Renfrew and Bahn have also noted “it is still possible to detect the workings of CPT in the distributions of modern or ancient cities or towns” (2000:179). This would seem, therefore, to be the case for the underlying settlement pattern of the Levant during the Bronze Age, particularly from the late third millennium onwards.

6. *HIGHLAND POLITIES IN THE SOUTHERN LEVANT DURING THE MB*

While it is certainly true that on the surface the nature of settlement in the highlands of the southern Levant does not appear to have adhered to the settlement pattern attested in the plains and valleys of the northern or southern Levant, in my opinion, settlement in this region can still be viewed, primarily, as an adaptation of the archetypal pattern discussed above. And like the adaptations which were made for this settlement pattern in Mesopotamia, where the role which rivers played in communication and transport between settlements were accounted for, settlement in the highlands was also forced to account for the location of immovable features in the landscape and the availability of cultivable land (see, for example, Kotter 1986:490ff.). Such considerations were also factors in the settlement of Bronze Age kingdoms in the northern Levant.

³⁵ In this regard I do not find in Susan Cohen’s work evidence that supports a straightforward model of a “dendritic exchange network” or a settlement pattern related to it (2002a:123ff.), particularly since she does not attempt to account for the similarities in the settlement patterns between the southern and northern Levant during this period. The notion that the location of settlements along wadis serves as an indication of the existence of this network is not supported by artifactual evidence, which is necessary to demonstrate that trade relationships between sites located east to west along these wadi systems existed. Furthermore, the fact that the overwhelming majority of Bronze Age sites which were situated within the plains and valleys of the Levant were located along wadis says less about such positions with respect to trade than such locations attest to the use of wadis as ready made fosses for defense and as natural boundaries for territories.

Ugarit, for example, which encompassed a total area of approximately 2,000 km², probably only had one-third of this area, or about 700 km², available for cultivation owing to the topography of its territory (Liverani 1982:251). Similarly, Tunip's actual area of cultivation would have been restricted to about 600 km², and that of Mukiš to about 1,000 km². These areas can be compared those calculated for Ashkelon (ca. 1,700 km²) and the more than 350 km² of suitable agricultural land in the Upper Jordan Valley surrounding Hazor from Tel Dan to the Sea of Galilee, not including the Golan Heights or land along the west side of the Sea of Galilee which probably also belonged to Hazor. There is, therefore, no real basis for assuming that insufficient land was available for the emergence of distinct kingdoms in the highlands, despite the fact that they may have been considerably smaller.

Nevertheless, settlement in the highlands of the southern Levant during the Middle Bronze Age was faced with a unique set of circumstances since the terrain certainly did not permit agriculture on a scale comparable with that of other Levantine kingdoms. In an attempt to account for these factors interpretations of the development of the highlands during the late MB have been quite varied. However, few if any of these interpretations have attempted to account for the role of horticulture and viticulture in the economies of this region. The only consensus that exists, therefore, is that the majority of settlement in this region occurred during the late MB II (IIC) with the development of well-known sites at Shechem, Shiloh, Jerusalem, and Hebron, mentioned above, where some type of elite class must have resided (see Ilan 1995:304f.).

Less certain, however, are interpretations which have posited the emergence of autochthonous, "polymorphous chiefdoms" which undertook the construction of ramparts as part of a process of "conspicuous consumption" (e.g., Bunimovitz 1992:225ff.; Finkelstein 1992:207; Herzog 1997a:268f.). Nor is it clear that Rowton's model of "enclosed nomadism" (1974) provides an improved model for understanding the MB

population and its subsistence in the highlands of the southern Levant (Finkelstein 1993b). Suggestions like these remain unconvincing because they imply a unique process of development of settlement in the highlands which appears to have borne no relationship to that of the lowlands. Neither artifactual nor architectural evidence suggest, however, the presence of a different culture or ethnic population (cp. especially tomb styles and temple architecture). Specifically with regards to fortification architecture, as argued in chapter three, the construction of fortifications in the highlands can only be viewed as direct adaptation of the defensive architecture which had characterized the lowlands during the first half of the MB II (IIB) to the local geographic and environmental conditions. This is also true with respect to the use of stone for construction, which must be understood as only an adaptation to locally available materials. This assertion is supported by the fact that the quantity of stone used in defensive architecture in the highlands appears to have been directly proportional to the quantity available, a relationship qualitatively similar to that of the occurrence of stone glacis in the regions with the greatest precipitation (see chapter three, section A.3). Nevertheless, in every other manner the fortifications were identical, employing earthen ramparts (e.g., Shechem and Shiloh), stone revetment walls (e.g., Shechem), rectangular towers (e.g., Jerusalem), and even the six-pier gate (e.g., Shechem).

The settlement pattern of highland settlements also evince the influence of settlements in the lowlands upon the highlands, thus undermining theories that have suggested the development of an indigenous MB settlement pattern in the highlands. For example, the largest highland settlements were sufficiently distant from each other to sustain their own populations through agriculture and horticulture, while smaller, probably politically dependent settlements filled in the landscapes around them. If, as even Finkelstein has postulated based upon LB textual data and the site hierarchy

analysis of MB settlements (1992), Jerusalem and Shechem are to be identified as independent MB polities, then the following site hierarchy can be reconstructed.

- 1) Modest, but well-fortified “capitals” at Jerusalem (ca. 4 to 5 ha?) and Shechem (ca. 4 ha) which were located approximately 50 km apart and were about 4 or more ha in size.
- 2) Smaller, comparably fortified villages located along major routes through the highlands which included settlements like Abu Zarad (2 ha), Beth-El (2 ha), Beth-Zur (1.5 ha), Dothan (< 4 ha), Far‘ah North (3.1 ha), Hebron (ca. 4.9 ha), Kheibar (2 ha), Marjama (3 ha), en-Najjar (2.5 ha), ‘Urma (1.5 ha), and Shiloh (1.7 ha) which were located within 30 km (a single day’s journey) of the larger centers and were usually less than 4 ha in size.
- 3) Small, rural settlements, most of which were unfortified, of less than 1 ha in size which filled in the landscape between the large and medium sized settlements.

Of further significance is the observation that the characteristics of the fortifications of Shechem, Shiloh, and Tell el-Far‘ah North (cp. Lederman 1985), and those of Jerusalem and Hebron, appear to have been comparable in design and construction techniques. This may, therefore, support the suggestion that the political affiliations of these settlements might be identified through the use of similar styles of fortification.

The organization of highland settlements described above, which consisted not only of similarly fortified settlements but also followed a comparable settlement pattern, is essentially identical to that witnessed in the lowlands, even though it can certainly be said to differ with respect to scale and the terrain it accommodated. However, both of these factors simply reflect adaptations to environmental conditions which, on the one hand, were necessary given the limits of technology to sustain a larger population in this region and, on the other hand, were required in order to account for the topography which

interrupted adherence to the traditional settlement pattern. Therefore, in light of the lack of direct evidence for the emergence of an autochthonous elite and the recognition of the adaptation of settlement strategies comparable to those attested in the lowlands, how then should the settlement pattern of the highlands during the late MB II (IIC) be understood? Given the data, I would suggest that the motivating factors for the settlement pattern were in one form or another exogenous. The evidence for the growth of the populations of highland settlements, which climaxed in size during the late MB II (IIC), suggests that the timing of this phenomenon was significant, particularly as it occurred only *after* most available land in the lowlands had been claimed by various polities. How exactly this process occurred can only be speculated. Nevertheless, it can be imagined that one or, more likely, a number of processes such as colonization, trade and exchange, and the gradual infiltration of settlers may have contributed to this result.

7. *THE LB KINGDOM OF ARRAPHĒ*

There are basically two main types of sites attested in the Nuzi texts in the settlement pattern of the land of Arrapĕ, which has been discussed by Zaccagnini (1979). These types consisted of a central site, which was, as in earlier periods, still referred to as an *ālu* (pl. *ālāni*) and was often situated on a tell, and a network of satellite settlements which were usually identified as *dimātu* (sing. *dimtu*), though they were themselves also occasionally referred to simply as *ālu* (see Zaccagnini 1979:20, n. 23). Although Zaccagnini discussed the various terms for the agricultural land and features surrounding these sites, these are not relevant to this discussion except to say that despite the relative flatness of the territory of Arrapĕ, it was not devoid of features such as rivers and forests (*ibid.*, 11ff.), which interrupted the landscape and required some modification of the ideal network of settlements, as the hills and mountains must have affected settlement in the Bronze Age Levant in the west.

According to the Nuzi texts, a constellation of *ālāni* and their territory, and the *dimātu* and their territories within the territories of each *ālu* were identified as a *ḫalṣu* or “district” (Zaccagnini 1979:15). But as Zaccagnini noted, although some *dimātu* were acknowledged to be “outside the perimeter (*limītu*)” of an *ālu*’s territory, one or another *ālu* were still considered responsible for the safety of *dimātu* in the “open country” (*ṣēru*) (ibid., see fig. 1, p. 21). In its abstract form, therefore, this arrangement of settlement, as a hierarchically nested settlement pattern, was identical to those in earlier periods: a single major *ālu* with its sustaining area of cultivable land was surrounded by other *ālāni* (sometimes referred to as *dimātu*) and their sustaining areas; these *ālāni* were also often surrounded by their own cluster of even smaller settlements referred to as *dimātu* (see fig. 6.16 in Wilkinson 2003).

Unfortunately, limited archaeological exploration of Nuzi and its territory do not permit the clarification of this settlement pattern. However, the understanding of the settlement pattern of the kingdom of Arrapḫe during the Late Bronze Age provided by the Nuzi texts does enable a clearer understanding of the settlement types and pattern evident in the Levant during the Bronze Age. As will be discussed further below (see section B.2), the Nuzi texts also enable us to understand how these sites were intended to function as part of a defensive network.

8. THE LB KINGDOM OF UGARIT

Despite the growing body of literature on the kingdom of Ugarit, due to the lack of excavations outside of the mound of Ras Shamra any attempt to identify types of sites and their defenses, or the settlement pattern of the kingdom of Ugarit must be restricted to an analysis of the texts discovered at this site. Nevertheless, the size of the kingdom of Ugarit has been generally identified as around 2,000 km² bounded on the north by the Jebel al-Aqra‘ (Mt. Sapanou), on the east by Jebel el-Ansariye range, and on the south by Mt. Siyanou. However, as noted above Liverani has suggested that only about one-third

of this area was available for agriculture (Liverani 1982:251). Recent overviews of the settlement pattern of the kingdom of Ugarit by van Soldt permit at least a preliminary analysis of the settlement landscape of Ugarit (1996; 1997; 1998; 1999), while also taking into account earlier works (e.g., Saade 1979–1980; Heltzer 1982; Liverani 1982). Among the most common terms for settlement types in Ugaritic texts are *r*, *dimtu*, *gittu* (*gt*), *hl*, *kaparu*, *magdalu* (*mgdl*), *pdr*, and *qarītu*.

The basic term for town or city in Ugaritic was *qarītu*,³⁶ which was equated with the Akkadian term *URU/ālu* (*DUL* 2, pp. 712f.). But the Ugaritic term *r*,³⁷ which was used primarily in literary texts, also appears to have designated a town (*DUL* 1, p. 178). Other equally poorly understood terms for town were *pdr* (*DUL* 2, p. 662f.) and *kaparu* (*DUL* 1, p. 452).³⁸ However, as in the case of Akkadian *URU/ālu*, it is not possible to infer the characteristics of the defenses of any of these types of settlements from their context.

The term *dimtu*, also of Akkadian origin, appears in several instances in Ugaritic texts, probably retaining some meaning related to “tower” (*DUL* 1, p. 274), perhaps relating to watchtowers for fields and vineyards belonging to agricultural estates. As Heltzer has noted, however, the Akkadian term *dimtu* has usually been replaced by the use of Ugaritic *gittu* (1982:48ff.), both terms having been represented with the logograms É.AN.ZA.GÀR.³⁹ While it is possible that the terms *dimtu* or *gittu* may often have been used to refer to unfortified villages, it is possible that some *dimātu* in the kingdom of

³⁶Vocalization follows J. Huehnergard 1987 *Ugaritic Vocabulary in Syllabic Transcription*. Harvard Semitic Studies 32. Atlanta: Scholars Press.

³⁷Vocalization uncertain.

³⁸Vocalizations uncertain.

³⁹It is interesting to note that, like the term *dimtum*, the semantic range of *gt* was also quite broad meaning “wine or olive press” but also “farmstead” or “estate” (*DUL* 1, p. 310ff.).

Ugarit were fortified. Furthermore, the possible preservation of the term *dimtum* into several placenames in the kingdom of Ugarit has also not been recognized, such as for *Dumatu*, *Dumatu-qidši*, *Dumat(u)-'Agimi* (see van Soldt 1998:741). All of these sites appear to fall more or less around the core of the kingdom of Ugarit (ibid., map on p. 744 for locations). The first of these settlements has usually been identified with Tell ed-Damat located 15 km north-northeast of Ras Shamra (see Yon 1997a:fig. 6, p. 21).⁴⁰

Lending some support to the reconstructed etymology for these names are several examples of other names in the Levant that may have derived from the term *dimtu*. *Dimat*, for example, was also the name of at least one settlement in the province of Mukiš during the MB (see *RGTC* 12/2, p. 64), although its precise location is unknown. In the south the term *dimtum* does not occur in the few Akkadian sources from this region, however, a correlation with sites incorporating the name *Timnah/Dimnah* in the southern Levant may be suggested. Several sites mentioned in the Hebrew Bible (Genesis 38; Joshua 19:50, Joshua 21:35, and Judges 2:9) are known to have had this name (e.g., *Timnah*, *Dimnah*, and *Timnath-heres/Timnath-serah*), and the place name *Tamnita*, which was probably located further north, is attested in Papyrus Anastasi I 22:3 (see Ahituv 1984:187). The first of these sites, **Timnah**, has been identified at Tel Batash, an extremely regularly constructed rampart-fortified settlement measuring 200 by 200 m which was occupied from the MB II (IIB) until the Iron Age (see Appendix B). The second, *Timnah-heres/Timnath-serah*, has been traditionally identified with Khirbet Tibna (Albright 1923:4), a 1.5 ha settlement occupied during the MB which was located on the road leading inland from Aphek to Beth-El (see Dorsey 1991:170). The evidence for the location of these two sites on routes between the coastal plain and the foothills of the

⁴⁰Saade has even suggested identifying the location of one of the other *Dumatu*'s with Tell al-Qifr 12 km to the east (1979–1980:220).

southern Levant, and within a topography similar to that of sites with this name in the kingdom of Ugarit suggests a likely correlation between the term *dimtum* and the occurrences of the placenames *Dimat* and *Dimnah/Timnah* in the corpus of Northwest Semitic texts. Still, evidence of the defenses of these settlements in the kingdom of Ugarit remains lacking.

The Ugaritic term *magdalu*,⁴¹ which like *dimtu* and *gittu* was also written with the logographic writing of É.AN.ZA.GÀR, also featured a basic meaning of “tower” or “watchtower” (*DUL* 2, p. 530). At least one placename in the kingdom of Ugarit utilized this term. The settlement of *Magdalā/Magdalaya* (see van Soldt 1998:742) has been identified with the modern settlement at Bdama located to the northeast of Ugarit in the pass between the Jebel Aqra‘ and the Jebel el-Ansariye (see map in Yon 1997:21). Another term with perhaps a similar semantic range was *hl* (*DUL* 1, p. 359). In addition to its meaning of “strength” and “vigor”, this term has also been translated as “fortress, stronghold” or “tower, farm, or estate”. Unfortunately, however, it is not possible to be certain how this term might have differed from *magdalu*.

With regards to data for settlement in the kingdom of Ugarit during the Late Bronze Age we are limited to recent studies of the textual sources by van Soldt (1996; 1997; 1998; 1999), the last of which is the most pertinent to the reconstruction of the kingdom. His brief conclusions regarding settlement sizes are best summarized in his own words.

...the list suggests that in the mountainous northern and northeastern provinces of the city-state of Ugarit only small villages were situated; that in the center of the state, with its hilly countryside, the towns were generally bigger; and that the really large towns have to be sought in the fertile plains to the south and southeast of Ugarit (van Soldt 1999:760).

⁴¹Vocalization uncertain.

Unfortunately such results do not reveal anything particularly unexpected. However, in the remainder of this article van Soldt also assesses the evidence for the identification of precise administrative districts within the kingdom.⁴² Unfortunately, however, he concludes that while several such districts must have existed, neither the terms traditionally associated with districts, *ʔarr* (southern district south and southeast of Ugarit), *ḡr* (“mountain” district east and north of Ugarit), *Ṣapunu* (for the north) and *Ḫuraru*, nor the lists of sites effectively enable the precise delineation of these districts (ibid., 763ff.). However, he does add to these the identification of a metropolitan district in which Ugarit and several other towns would have been located, and which I would suggest should, therefore, be referred to outright as the district of Ugarit.

Although we are unable to discuss the general settlement pattern of the kingdom of Ugarit during the Bronze Age, owing to a lack of archaeological exploration, some of the terminology used in texts recovered from Ugarit enable the identification of the basic terms which also appear to have been used to identify settlements in the south, certainly from the Late Bronze Age onwards, but probably also during the Middle Bronze Age. Furthermore, these terms conform to the characteristic identification of settlements as basically belonging to one of three types: fortified towns and villages, fortresses, and unfortified villages. As we shall see in the next section the Northwest Semitic terms borrowed from Ugaritic can be used in order to provide a framework for the classification of settlements in the Levant during the Middle Bronze Age.

⁴²It should be noted, however, that we are unaware of the precise Ugaritic term for “district” and that the identification of these political sub-units within the kingdom of Ugarit has been based primarily upon the fact that we possess lists of towns in certain recurring groups and that “names of towns are sometimes followed by another name” (van Soldt 1999:764).

B. THE TYPES AND PATTERNS OF BRONZE AGE FORTIFIED SETTLEMENTS

In this section I will identify many of the MB settlements discussed in the catalogue (Appendix B) with the types of fortified settlements identified with the various terms discussed above. My approach is distinct from those used in existing typologies, which often rely upon a classification of sites utilizing either data pertaining almost exclusively to settlement size or by means of a combination of categories which are not often shown to be related, such as site size and fortification type (see, for example, Z. Herzog's typology for MB sites 1997a:268ff.). However, as demonstrated by the fact that neither an analysis of the landscape signature of MB settlements nor a *compositional* analysis of the construction of MB fortifications (see chapter three), nor a general analysis of Bronze Age settlement strategies (discussed above) adequately address the *functional* defensive role played by various kinds of sites, a separate typology of Middle Bronze Age settlements is warranted. As I have suggested such a typology must, therefore, be created by attempting to relate, to the degree that it is possible, the native terminology discussed above with particular patterns in the archaeological record which can be used to define the functional role that these settlements may have played in the defense of these kingdoms. This can be done, of course, without reference to the size of settlements, or the particular characteristics of a settlement's fortifications, especially since it has been demonstrated that the same defensive purposes (i.e., elevation, strategic position, wall thickness) could be achieved through various means in designing and building MB fortification systems. Such a *functional* analysis requires an interpretation of the archaeological data which, therefore, makes this approach distinct from the descriptive analysis provided in chapter three.

1. THE MAIN TYPES OF FORTIFIED MB SETTLEMENTS IN THE LEVANT

As suggested by the evidence for settlement types and patterns in the kingdoms discussed above three main types of settlements would appear, therefore, to characterize

the settlement pattern of the Levant and most of Mesopotamia during the Bronze Age. These three settlement types are (1) fortified towns and villages, (2) fortresses, and (3) unfortified villages and farmsteads. Since the present study is concerned with the Levant, it is reasonable to invoke Northwest Semitic (NWS) terminology for the identification of these settlements, borrowing these terms from Ugaritic, the earliest discernible NWS language with an adequate representation of these terms. As discussed above these primary Ugaritic terms include *qarītu*, *magdalu*, and *gittu*, respectively.

The frequent preservation of these terms in later NWS languages, particularly in Hebrew, and their incorporation into toponyms suggests that these terms may have been significant for the identification of settlements of a particular type from the Bronze Age through the Iron Age.⁴³ In Hebrew, for example, *qiryat* (cp. Ug. *qarītu*) occurs as the name of several towns: *Qiryath-Ye'arim* (e.g., Joshua 9:17), *Qiryath-Arba* (e.g., Genesis 23:2), *Qiryath-Huzoth* (Numbers 22:39), *Qiryath-Sepher/Sanna* (e.g., Joshua 15:15, 15:49), *Qiryath-Ba'al* (Joshua 15:60), and *Qiryathaim* (Numbers 32:37). Three of these settlements are also known by different names during the Iron Age (e.g., Qiryath-Arba > Hebron (Genesis 23:2); Qiryathaim > Ba'alalah (Joshua 15:9); and Qiryath-Sepher/Sanna > Debir (Joshua 15:15)), suggesting that these names were abandoned, probably at some point during the Late Bronze Age. However, while *qiryat* did occur in Hebrew the most common Hebrew term for town was actually *'ir*, which would, therefore, be the reverse of the uses of the Ugaritic terms *qarītu* and *'r*.⁴⁴ In Phoenician, however, the term for

⁴³ It should, however, be observed that the main types of fortified settlements and the elements of their fortifications, the Old Babylonian terms for which are listed in Table 15, are basically identical with those attested in the archaeological record, as discussed in chapter three.

⁴⁴ In actuality, however, this may not be the reverse of the situation in Ugaritic if one observes how infrequently *'ir* occurs as a toponym in Hebrew (e.g., only in 'Ir-Moab in Numbers 22:36) and the fact that the Hebrew Bible can be considered a *literary* corpus much like the corpus of literary texts in which the Ugaritic term *'r* only occurs (see discussion of settlement in the *Kingdom of Ugarit* above).

town and the element of at least one well-known town name was *qart* (e.g., *Qart-Hadašt* > Carthage). Unfortunately, as in Ugaritic neither the Hebrew nor Phoenician cognates appear to signify any details concerning the fortifications of these settlements and, furthermore, there is no basis for drawing semantic distinctions in Hebrew between the nominal use of *qiryat* and references to towns with the term *‘ir*. Similarly, although the Hebrew cognates *gath* (cp. Ug. *gittu*) and *migdol* (cp. Ug. *magdalu*) occur in the Hebrew Bible as toponym elements (e.g., *Gath*, *Gath-Rimmon*, *Gath-Hepher*, *Migdol*, *Migdal-Eder*, *Migdal-El*, *Migdal-Gad*, and perhaps *Migdal-Shechem*?) probably to describe the functional roles of these settlements, the later use of these terms offers no new observations regarding these types of settlements. Although, as noted above, references to the *Migdal-Shechem* seem to suggest that such settlements were prominently located (see Judges 9:46ff. and discussion in n. 27 above), perhaps frequently atop ridges (see also discussion of *magdalu* in *Kingdom of Ashkelon*, section A.5 above), and were perhaps not enclosed by a fortification wall, nothing else can be deduced.

a. Fortified Towns and Villages (NWS *qarītu*)

Fortified towns in the Levant, which were quite often probably lumped together in the category of *qarītu*, would appear to have broadly consisted of three main fortification strategies. As defined in chapter three these included those which were mostly surrounded by either (1) freestanding ramparts, (2) supplemental ramparts, or (3) merely some type of defensive wall without a rampart.

Freestanding ramparts. In the first category of fortified towns freestanding ramparts were employed as defenses. Although few direct references are made to the fortifications of the largest fortified Amorite centers, substantial archaeological evidence indicates that towns such as **Alalah**, **Aleppo** (?), **Ugarit** (?), **Tunip** (?), **Ebla**, **Qatna**, **Byblos**, **Hazor**, **Kabri**, **Akko**, and **Ashkelon** in the Levant, as well as **Emar**, **Yakaltum**, **Tuttul**, **Mari**, and **Šubat-Enlil** in northern Mesopotamia were fortified in this manner.

Thus, these comprise the first sub-type of fortified settlements with freestanding ramparts. However, it is not the size of these settlements which elicits this characterization, since settlements in this category range from as little as 5 ha in size (Byblos) to as much as 90 ha (Qatna). Rather, the systematic employment of a singular well-planned fortification strategy, which included the use of freestanding earthen ramparts following one of two primary layouts (circular or rectilinear) accompanied by a fosse, thick town walls along with towers and bastions, and multiple fortified gates, at the largest and most centrally located settlements within their territories supports the identification of these MB settlements, specifically, as political centers. They, therefore, fit neatly into the highest tier in the settlement pattern described above (cp. Meyer's first tier settlement 1996:144ff.)

Medium-sized fortified settlements with freestanding ramparts, which were usually satellite settlements of the large centers discussed above, comprised the second tier of the settlement pattern. As mentioned above, these towns also possessed plans similar to those of the largest fortified settlements, namely with distinct upper and lower towns (cp. Meyer's second tier, *ibid.*). Examples of these include **Afis** and **Tuqan** which were 12 and 15 km from Ebla, respectively; **Tell aş-Şour** 27 km east of Qatna; **Deir-Khabiye** 20 km south of Damascus; **Biruta** 28 km south of Byblos; **Tel Dan** 27 km north of Hazor; and **Yavneh-Yam**, **Ekron**, **Haror**, and **'Ajjul**, all between 27 and 32 km from Ashkelon. Like the larger fortified settlements, these settlements were also significant population centers.

Even smaller, though mostly identically fortified settlements which lacked acropoleis can also be identified (cp. Meyer's third tier, 1996:144ff.). As a result of intensive archaeological exploration around Ashkelon, for example, such fortified settlements can be identified at, for instance, **Timnah**, **Nagila**, **Lachish**, **Sera'**, and **Jemmeh**. Other small, similarly fortified settlements are also known at **Tell Masos** and

Malhata at a later date, presumably protecting the route from the kingdom of Ashkelon eastwards through the northern Negev. Sites such as **Tell Khan Sheikhoun** and **Tell Mašīn** may have functioned in a similar capacity on the road between Qatna and Ebla. Unlike the other two sub-types of fortified settlements with freestanding ramparts these smaller settlements, which perhaps should be identified as fortresses, do not appear to have housed large populations, averaging around 2.5 ha, although they do appear to have been very strategically located along main routes. A lack of exploration around other major Amorite centers precludes, however, the type of reconstruction possible for the kingdom of Ashkelon.

Supplemental ramparts. The second major category of fortified towns were those that featured supplemental ramparts, which while possessing many of the above mentioned defensive elements such as fortified gates, walls, and towers, they usually lacked fosses and, therefore, probably only required a fraction of the labor required for the settlements discussed above. As noted in chapter four, the direct link between the existence of earthen ramparts, particularly of the freestanding variety, and the presence of fosses affirms that these two elements belonged to one constructional process. The observation that fosses are not actually attested at sites featuring *supplemental* ramparts only further supports this. Unequivocal examples of these settlements include, in particular, highland sites, such as **Tell el-Far‘ah North**, **Shechem**, **Shiloh**, **Jerusalem**, **Hebron**, and **Beit Mirsim**, but also tell settlements at, for example, **Megiddo**, **Gerisa**, **Beth-Shemesh**, and **Tell Aphek**.

Walled villages. The final category of evidence for fortified towns and villages consists of a class of villages fortified by a simple perimeter wall without any ramparts or fosses. At the least such settlements featured a perimeter wall which was formed only by the rear walls of buildings within the settlement, the simplest means of constructing a defensive perimeter (see chapter three, section 4.d). Sites in this category include, for

example, **Giv'at Sharett** (2 ha) near Beth-Shemesh (Bahat 1993), **Manahat** (3.5 ha) in the Valley of Rephaim (Edelstein 1993), and probably **Tel Michal**. These sites demonstrate that walling these villages even during the MB II (IIB–C), when large kingdoms such as Hazor and Ashkelon dominated the region, was still important. Nevertheless, the fortification strategy characteristic of these settlements appears to have become the typical manner of fortifying settlements during the Late Bronze Age after MB fortifications in the southern Levant had fallen out of use.

b. Fortresses and Fortified Towers (NWS *magdalu*)

Unlike the fortified settlements discussed above the location of *magdalu* settlements throughout the Levant during the Middle and Late Bronze Ages may be reasonably well identified in the landscape by means of the preservation of this term in Arabic toponyms as suggested above. This appears to have been the case for the *magdalu* settlements in the landscapes around Ugarit (**Mejdel/Bdama**) and Ashkelon (**Majdal**). However, the lack of excavation of these settlements makes it difficult to assert the nature of their defenses, namely whether they did or did not feature walls or ramparts, except to suggest that these settlements were probably quite small. It is even likely that the term *magdalu* was actually intended to identify the tower within a settlement and that such settlements, small as they must have been, came to be identified with the role which their watchtowers played.

However, in some instances towers or fortresses were probably not so explicitly identified by such names and it may be impossible to discover the ancient names of settlements which were once recognized as *magdalu*. For this reason it may be possible to suggest that a number of smaller fortresses discovered in the southern Levant should, in fact, be identified as *magdalu* despite the lack of evidence for their toponyms. The archaeological evidence for MB fortresses in the Levant is restricted to only a handful of settlements, which aside from being small and fortified, have been noted for their

strategic positions.⁴⁵ The most probable examples of such sites are **Tel Mevorakh**, **Tel Poleg**, and **Tel Zurekiyeh**, which are between 0.1 and 1.2 ha in size and are located along the coastal plain of the southern Levant. As noted elsewhere, Mevorakh's position on the narrow coastal plain between the Mediterranean and the Carmel range afforded it an excellent view of approaching traffic and a position from which to relay information to the large nearby settlement of Tel Burga. The locations of Poleg and Zurekiyeh have been similarly significant as they were located along the main north-south road through the coastal plain.

c. Unfortified Villages and Farmsteads (NWS *gittu*)

While there is no shortage of archaeological evidence for fortified settlements in the Levant during the Middle Bronze Age, the evidence for unfortified settlements is less well known despite the fact that this corpus of sites has grown considerably in recent years. Although it is possible that the term *gittu* (EA *gintu*), as for example in Ugaritic, was used most often to denote small agricultural villages which were probably unfortified simply because of their size (see *RGTC* 12/2, pp. 82–95), no terms appear to have explicitly referred to unfortified settlements. It is necessary, therefore, to summarize the evidence for these settlements, particularly for the contribution to the portrait of settlement that they provide. Unfortified settlements from this period encourage us to consider the degree to which the period was fraught with warfare, and that it may at least have been peaceful enough for unfortified settlements to exist without a constant fear of brigandry or, worse yet, siege by an organized army. Furthermore, the identification of unfortified sites persuades us to consider political relations between small settlements and larger fortified centers, which may have been responsible for the protection of the

⁴⁵This, as noted earlier, was one of the main criteria for the use of the Akkadian term *birtum* and may, therefore, suggest a correlation with NWS *magdalu*.

inhabitants of smaller villages within the countryside surrounding them (e.g., in the *ugāru(m)* or *ṣēru(m)*). It was probably assumed that the inhabitants of unfortified settlements within a given district could have sought refuge within the walls of fortified settlements nearby in the event of a military crisis (see discussion of *Military Organization* below).

Without a doubt, as demonstrated in Broshi and Gophna's survey (1986), the vast majority of Middle Bronze Age sites in the southern Levant (and probably in the north as well) were unfortified, though most of the sites that have been identified date to the second half of this period (i.e., MB II/IIB–C), and were located in hill country (A. Mazar 1990:198). Among the best known excavated examples of these types of villages are **Kefar Ruppin** (0.4 ha, Gophna 1979), **Tell el-Hayyat** (0.5 ha, Falconer and Magness-Gardiner 1993), **Nahal Rephaim** (5 ha, Eisenberg and Edelstein 1993), **Hamadiya** (Maier 2000), as well as **Bosra** in Syria (Seeden 1986) and **Abu Snesleh** near Irbid in Jordan (Lehmann, et al. 1991). In general, unfortified settlements were quite small, usually between 0.1 and 0.5 ha in size, though some may have been as much as 5 ha;⁴⁶ but no examples of larger towns without fortifications are known.

What one observes from the foregoing attempt to correlate the archaeological record with the philological evidence is that based upon the available evidence the proposed typology is only one possible reconstruction. In this respect these conclusions may seem disappointing. Nevertheless, it has been established that any interpretation of the roles of settlements with respect to defense (i.e., defensive strategies) must remain separate from topographical or morphological, and compositional analyses of the fortification systems employed in these strategies (i.e., the approaches to fortification

⁴⁶Some reservation must be expressed about the suggestion that the Nahal Repha'im settlement represented 5 ha of completely occupied settlement, since the remains would seem to indicate (though preservation was poor) that large areas were not occupied by buildings.

construction). Instead, a useful site typology with respect to defenses must account primarily for a site's position within the settlement pattern, one of the only conservative tendencies in the identification of particular types of fortified settlements, since, for example, the landscapes themselves changed very slowly.⁴⁷ Still, it is worth noting that the role of settlements, particularly with respect to defense could change significantly over time. It is possible, for example, that as the political landscape changed, settlements were required to modify their defensive strategies and thus may have changed names when such changes occurred. Such changes, one can imagine were due to shifting borders and the vicissitudes of regional politics.⁴⁸

2. THE POLITICAL AND MILITARY ORGANIZATION OF MB SETTLEMENTS IN THE LEVANT

In light of the archaeological and textual evidence for the types and patterns associated with fortified settlements in the Levant and northern Mesopotamia during the Bronze Age, it is possible to propose that fortified settlements comprised what might be referred to as the *strategic defenses* of the kingdoms to which they belonged. This term has been used by John Keegan to refer to “deliberately conceived” systems of fortified settlements (1993:142). He has suggested that Middle Kingdom cataract forts, for example, were among the earliest examples of the employment of such a strategy. However, based on the archaeological evidence for the settlement pattern, which I have argued above strategically incorporated various types of fortified settlements, I would suggest that MB fortified settlements should also be understood as part of each

⁴⁷T. Wilkinson has observed, for example, that defensive concerns were one of a number of factors that may have contributed to the stability of the settlement pattern of the Bronze Age landscape of tells (2003:108).

⁴⁸Thus, for instance, Kolinski has observed that the *dimātu* Dimti-Dada and Dimti-Enlil in Mesopotamia were transformed into fortresses (*dūrum*) at a later date according to name changes attested in textual sources (2001:27; similarly, see Leemans 1982:247).

kingdom's strategic defenses. In addition to what has been said above, all that remains, therefore, is to provide evidence concerning how such a system actually functioned. This, of course, at present can only be attempted by relying upon textual sources from Mesopotamia to provide the necessary clues concerning the explicit obligation of settlements in the security of their districts and, furthermore, how such settlements would have communicated with each other when necessary.

a. The Military Obligations of Settlements

Unfortunately, no direct explication of how a network of MB settlements was expected to provide for the common defense of a kingdom, such as Mari, can be derived from OB texts, nor can it be inferred from the references to the various settlement types mentioned in the Nuzi texts. However, a royal edict issued by Muštēya the king of Arrapḫe does provide explicit clues about the obligations of sites to provide for the strategic defense of the kingdom by thwarting military threats and garden variety raiders.

The king (Muštēya) has established the following order (for) the mayor of Taššuḫewe. Any mayor must watch over the territory of his city, in its (total) perimeter. If there is a *dimtu* in the open country of his city, which is left abandoned, the mayor should (likewise) watch over it. In the territory of his city no robberies must be committed, nor must be (encountered) enemies who kill or plunder...If there is a *dimtu* (with-)in the territory of this city, which is left abandoned, the mayor will bear the responsibility for it. The governor of the district shall send tablets to each of the *dimtu*-officials, to give them the following orders: 'In case there are (people) who went out from this *dimtu* in order to commit robberies, or there are enemies who kill and plunder, the official of this *dimtu* has committed a sin, and I shall take the *dimtu* away (from him)...'(HSS 15, 1, Zaccagnini 1979:19)

Here we are provided with a glimpse of the administration of the defenses of a region within the LB kingdom of Arrapḫe and the role that each *dimtu* and the governor (*ḥazannu* or *bēl dimti*) of each district (*ḥalṣu*,) played within this network. Explicit attention was paid to the responsibility that governors bore to guarantee that settlements, which were not only within their district, but which lacked oversight by any other mayor were looked after, particularly if they were abandoned. This may be interpreted to mean

that there existed a general concern that abandoned settlements in peripheral areas could be used as bases of operation by enemies or brigands. Such a concern may have also been expressed in the Egyptian literary masterpiece *The Wisdom of Merikare*. “As a man’s name is not made small by his actions, so a settled town is not harmed” (COS 1.35). The implication is clearly that an unsettled town runs the risk of being occupied by groups either disloyal to the crown or openly hostile to it.

Additionally, Mušteya’s edict underscores that the defense of a kingdom was actually the duty of each of its constituent districts and the various settlements within these districts (for further details see Kendall 1975:52–55). We may infer how such a system operated during the Old Babylonian period by listing some of the specific duties required of district rulers and the inhabitants of the settlements within these districts as recorded in the Mari texts. A settlement, for instance, could be required to take refugees from the surrounding lands and nearby settlements (ARM III 30; V 37, XIII 117). Inhabitants of settlements could be made to fortify or prepare the fortifications of particular settlements against an approaching threat (ARM II 3). And rulers could, of course, be forced to conscript troops to garrison settlements (ARM I 42, 20; II 97) as well as provision troops located outside their district (ARM III 27).⁴⁹

b. Communication between Fortified Settlements

A main advantage of utilizing the settlement pattern characteristic of the open plains in the Levant and Mesopotamia, which is conspicuous for the level of central organization it exhibits, is especially evident with respect to inter-site communication, a vital component of strategic defenses. The communication and intelligence systems of the kingdom of Mari have been discussed in particular by A. Glock (1968:115ff.). In the

⁴⁹These and other specific duties are discussed in greater detail in the works of A. Glock (1968) and J. Sasson (1969).

settlement pattern discussed above outlying settlements and fortresses, which were among the smallest settlements, probably were quite often most significant in their role as observation posts, providing advanced warning of approaching threats as part of a rapid communication network. Fire signals appear to have been the main means of rapid communication during periods of heightened tensions (see ARM IV 31, 32, and discussion by Dossin 1938; Oppenheim 1954:143; and A. E. Glock 1968:119ff.). But much of the time messages were probably carried by couriers between these fortresses on foot or by donkey (A. E. Glock 1968:118f.).

C. THE SOCIO-ECONOMIC IMPACT OF FORTIFICATION CONSTRUCTION PROJECTS DURING THE MIDDLE BRONZE AGE

Having established the evidence for the various types of fortified settlements which were integrated into the hierarchical settlement pattern of the Levant during the Middle Bronze Age it is now possible to turn our attention to the labor requirements of these fortification construction projects (FCP). Of particular interest are, of course, the FCP that employed ramparts, particularly freestanding ramparts, since they required the movement of large quantities of earth and rubble in addition to the construction of fortification walls. In recent years scholars have, for instance, attempted to calculate the number of laborers and the time required to build them, the amount of earth used in their construction, and the labor requirements placed upon nearby populations (see, for example, Herzog, et al. 1989:32f.; Finkelstein 1992:208–210; Bunimovitz 1992:226; Biran 1994:71f.; A. Mazar 1997b:250). The establishment of reliable estimates is particularly important in light of the absence of textual sources from the Levant that might otherwise shed some light on this question, a situation which it will be shown is in contrast to that in Mesopotamia. In what follows I will, therefore, begin with some observations regarding the organization of labor in the Levant during the Middle Bronze Age. Next I will establish rates of construction for earthen ramparts and mudbrick walls

using archaeological, ethnographic, and historical sources. With this data I will evaluate figures for the construction of MB fortifications from previous estimates while offering revised estimates based upon the evidence for construction rates. Finally, these estimates will be compared with evidence for the nature and duration of FCP in Mesopotamia during the Old Babylonian period.

1. THE ORGANIZATION OF LABOR IN THE LEVANT DURING THE MB

Although it is possible to provide a detailed discussion of the organization of labor in Mesopotamia and Egypt during the first half of the second millennium (see essays in Powell 1987), it is almost impossible to do so for the MB Levant. The main reason for this is, of course, a dearth of textual sources, which has resulted in considerable speculation, as noted above, regarding the labor required for FCP during the MB. Nevertheless, Old Babylonian sources do address the organization of labor and, therefore, provide a basis for discussing the organization of labor in the Levant during this period as it relates to the construction of monumental fortifications.

a. Sources of Labor in Mesopotamia during the Old Babylonian Period

A considerable body of literature is available on the topic of labor during the Old Babylonian period (Walters 1970; see also bibliography in Klengel 1987). From these sources we learn that “there was a regular obligation to perform a certain number of days’ labour per month or per year” in what Horst Klengel has referred to as “public labour service” (1987:161), usually referred to as *corvée* labor. This work often consisted of labors such as “digging and cleaning irrigation canals and strengthening and repairing dikes”, as well as working the fields of the palace, or contributing labor during crises. Certainly a number of less frequent tasks, which for this reason may not have been

mentioned, would probably also have been among corvée labor duties, including possibly the construction, modification, and maintenance of a settlement's defenses.⁵⁰

Textual sources attest that the construction and maintenance of fortification systems was also undertaken by the army. This appears to have been the nature of the military service for some of Ḫammurapi's soldiers who labored on the wall of Sippar from his twenty-third to his twenty-fifth year.

...at that time I, Ḫammurapi,...by the supreme might which the God Šamaš gave to me, with the levy of the army of my land, I raised the top of the foundation of the wall of Sippar with earth (until it was) like a great mountain. I built (that) high wall.

RIME 4.3.6.2

Similarly, Samsuiluna reports that the army was employed during his reign in the rebuilding of Kiš and its fortifications (*RIME 4.3.7.7*).

In addition to the possibility of corvée and military labor, laborers could also be hired for FCP. From at least two inscriptions we are even informed of the precise wages paid to the laborers working on a city wall (*RIME 4.2.8.7* and 4.2.13.21—both record the same wage), which indicates that labor could be hired by the crown when necessary. Nur-Adad (1865–1850 B.C.) of Larsa, for example, reports that,

At that time I built the great wall of Larsa like a mountain in a pure place. The wages of each worker were 3 *ban* of barley, 2 *sila* of bread, 2 *sila* of beer, 2 shekels of oil; thus they received this in one day.

RIME 4.2.8.7

Other texts from Mari suggest that laborers could be sent to a settlement when it was urgent to rebuild a collapsed section of wall, as at Sagaratum where 200 laborers from Terqa were requested to complete the labor in ten days (ARM XIV 24). On other

⁵⁰Seth Richardson has observed that building or maintenance of the fortifications of Larsa occurred about every 35 years or once a generation (personal communication 2004). This coincides with much of the archaeological evidence for MB fortification systems in the Levant. Thus we may imagine that many individuals may never have contributed service for such projects in their lifetime.

occasions, however, there appears to have been no immediate hurry to complete similar repairs (ARM II 101).

Obligatory service, referred to as *ilku*, in which a kingdom could obtain public service from its citizens, may have provided yet a fourth source of labor. During the Old Babylonian period *ilku* was “service performed for a higher authority in return for land held” (CAD 7, p. 74). It can be imagined, therefore, that during certain short periods in the life of each settlement members may have fulfilled part of their *ilku* by participating in FCP. Because of the nature of this labor, which on the one hand was integrally related to military activity but on the other was in the public’s interest, it is possible that those fulfilling *ilku* in such a manner may have been laboring beside corvée laborers, soldiers serving in the army, and hired laborers. In actual crises, of course, women and other members of society may have labored alongside these groups, as was the case in the rebuilding of the wall of Jerusalem (see below). These different sources concerning the labor force employed in FCP support, therefore, that various sources of labor could be sought for the completion of FCP when necessary.

b. The Organization of Labor during the Rebuilding of the Wall of Jerusalem in the Persian Period

One of the best examples of the functional dynamics of FCP in the Levant dates to the Persian Period and has been preserved in the book of Nehemiah. The account records that the inhabitants of the town of Jerusalem ca. 445 B.C. rebuilt the town’s fortifications within a remarkable fifty-two days (Nehemiah 6:15)! Of course, their feat was greatly aided by the involvement of additional workgroups from the nearby villages of Jericho, Tekoa, Gibeon, Mizpah, and Zanoah (see Nehemiah 3). Nevertheless, this project provides evidence of several socio-economic factors involved in FCP. First, it demonstrates that a workforce could be drawn from surrounding towns and villages when it was necessary to build the fortifications of a settlement, particularly a political center,

rapidly. Second, it illustrates how a large FCP could be undertaken through the delegation of responsibility for particular sections of the fortifications to residents, households, and local district rulers. Finally, it demonstrates that fortification construction or reconstruction did not require a specialized labor force, but was probably often accomplished by a labor force, which with only a limited supply of specialized craftsmen, was drawn entirely from the common populace and could even include women when necessary (Nehemiah 3:12).

c. Specialized and Unspecialized Labor

The use of predominantly unspecialized labor in situations comparable to those described above for the construction of fortifications in the Levant during the Middle Bronze Age appears to be corroborated by the archaeological evidence. As noted above in the discussion of a typology of fortifications, the largest political centers featured fortifications with the most regular, and, thus, the most discernible plans, which were also built in the most systematic fashion. This is demonstrated, in particular, by the MB fortifications of the Amorite centers of Šubat-Enlil, Tuttul, Qatna, Hazor, and Ashkelon. But a closer examination of the means employed in the construction of the fortifications of sites such as Tel Dan, where multiple sections have been excavated through its ramparts, suggest that separate labor teams, perhaps derived from each quarter of the town or levied through extended tribal groups, worked to build the fortifications, specifically the earthen ramparts and core wall, to a very limited set of specifications (see chapter three, section A.1). These probably included only basic figures for each of the rampart's sections such as the necessary elevation of the top or "head" of the rampart, the width of the base of the rampart, and some guidelines concerning the materials to be used in the construction of the core wall and the fill within the rampart. Work teams were then probably allowed to monitor their own progress in order to meet a particular deadline for

the construction of each phase of the project (i.e., rampart completion, wall construction, etc.).

Specialized laborers, perhaps identified by the OB term *itinnum* (*CAD* 7, p. 296f.), which was used to refer to “house builders”, were probably called upon to oversee the integration of structures such as gates, towers, and bastions into the ramparts. These individuals would probably have been familiar with the mudbrick construction required in complicated features such as barrel-vaults for gate construction, which were though only a small part of FCP. In other cases a talented mason may have been dispatched to oversee work on the town wall. This appears to have occurred at Sagaratum where a particular mason (*itinnum*) was called upon to assist with the repair of a breach in the wall possibly caused by the Ḫabur River (see ARM II 101, and Coleson 1982:108ff.). In the absence of greater textual evidence it does not, therefore, seem necessary to assume that very much specialized labor was actually required in FCP.

2. COMPARATIVE DATA FOR ESTIMATING THE LABOR AND RESOURCES REQUIRED

With sufficient evidence estimates of the labor and resources could, theoretically, be broken down into separate estimates for each of at least four distinct phases common in most FCP during the MB. These would include the (1) excavation of fosses and building of earthen ramparts, (2) the laying of stone walls (e.g., core, retaining, or revetment walls), (3) the raising of mudbrick walls (e.g., core or fortification walls), and (4) the construction of gates, bastions, and towers. This process, in basically this order, is even attested in various inscriptions including two inscriptions of Samsuiluna (see also *RIME* 4.3.7.8 cited above in discussion of Dūr-Samsuiluna in section A.3).

At that time, Samsuiluna, the mighty, by the means of the force of his army built the city of Kiš. He dug its canal, surrounded it with a moat, (and) a great deal of earth made its foundations firm as a mountain. He formed its bricks and built its wall. In the course of one year he made its head rise up more than it had before.

RIME 4.3.7.7

Of these four phases, however, it is only actually possible to provide reliable estimates for the first and third phases of construction, since the types of walls constructed in the second phase were often buried within the rampart and, therefore, their dimensions and construction requirements cannot be reliably estimated.⁵¹ The duration and resources required in the fourth phase are, also, essentially accounted for by assuming that the gate area was occupied by a section of solid wall and rampart (i.e., the amount of brick and labor required for the section of wall passing through the gate area would be reasonably close to the amount required for building the gate itself). Lack of information regarding the number and location of gates, towers, and bastions, for most sites also complicates estimating the labor required for the construction of these features. Furthermore, no sources provide reliable estimates for the labor requirements for gate construction in this period. Nevertheless, by estimating the labor required for the largest elements in FCP, ramparts and mudbrick fortification walls, we can establish very reliable estimates for the labor and construction time required in various FCP.

As suggested above, various sources—most of which have never been consulted for this purpose—exist from which it is possible to establish reliable estimates for the labor required in FCP in the Levant during the MB. These include Mesopotamian textual sources attesting to the labor accomplished by a single individual excavating earth, the results of experimental archaeology, and ethnographic evidence for the rates of mudbrick production and mudbrick wall construction from the modern Middle East.

⁵¹ It is also not certain that it is worth specifically estimating the requirements of constructing these walls, since it is quite possible that the nature of the procurement of the stones, whether from old structures or from the countryside, required *less* labor than assuming that the same volume was occupied by excavated earth. See also comments regarding estimate of FCP of Jerusalem during the MB, below.

a. Rampart Construction and Fosse Excavation

Mesopotamian textual sources provide verifiable data concerning the quantity of earth that a single laborer was expected to excavate within one day of work. This figure, which was 3 m³ (10 GÍN), was discovered by Albrecht Goetze in texts related to the labor of individuals involved in digging canals during the OB period (1962; see also Powell 1990:490). Although this figure has been often cited in scholarly literature related to canal excavation in Mesopotamia, it has remained unknown to scholars working in the Levant. Because the process of fosse excavation and rampart construction bore at least some resemblance to the excavation of fosses and the building up of ramparts, if not at one time a direct relationship (see discussion of fosse in chapter three, section A.7), this figure provides, therefore, a reliable means of estimating the rate of rampart construction and fosse excavation that had been associated with them using during this period.

Although various assertions have been made that less earth would have been moved by laborers per day in the construction of MB ramparts in the Levant because of different soil compositions and the presence of bedrock, we have, however, no reliable basis for suggesting that the labor expectation was necessarily lower. Furthermore, the rates of excavation that have been used in previous studies appear all the more inadequate when compared with the figure provided above. The various rates of excavation employed in previous estimates by various scholars (see Table 18 below) have resulted, therefore, in the assertion that FCP took substantially longer to build than would actually have been the case. The rate for excavation which these scholars have relied upon is approximately 1.42 m³ per worker per day as noted by Finkelstein (1992), having been drawn from archaeological experimentation conducted in England (e.g., Atkinson 1961; Ashbee and Cornwall 1961; Cotterell and Kamminga 1990). Ashbee and Cornwall, for example, sought to determine the excavation rate for a ditch of a type known in Neolithic England. In doing so they established that by using “antler picks, shoulder-blade shovels

and wicker carrying-baskets” (1961:129) about 1.42 m³ of “solid chalk” could be excavated, transported, and deposited in a ten hour day (ibid., 131f.). However, they also observed that “with modern tools” the rate of excavation—of chipped stone—was basically doubled, i.e., 2.84 m³ (ibid., 131). Therefore, with metal tools, which were much closer in quality and function to those probably used in Mesopotamia, the rate of excavation was almost identical to the figure from OB sources mentioned above. Unfortunately, Finkelstein and others have only relied upon the lower of these two figures, which as noted above was based upon the use of *Neolithic tools* for excavating *solid chalk*! Various other decisions by these scholars to further reduce the excavation rate in order to account for different soil types has, therefore, only further exaggerated their estimates to the point that in many instances the actual excavation rates implied by their calculations were at or below 1 m³ per person per day (see Table 18 below).

Given the landscape of Upper Mesopotamia and that of much of the northern Levant we may conclude, therefore, that 3 m³ (10 GÍN) is a reasonable average for estimating the quantity of earth that could be excavated by a single worker in one ten hour day at most sites where earthen ramparts were constructed.⁵² It must also be remembered that usually whenever such quantities of earth were excavated, the procurement of these materials served to produce not only a rampart (or bank), but also a fosse (or canal). While it is certainly true that in the highlands earthen debris would probably have been more difficult to procure, it is no doubt precisely for this very reason

⁵²McGuire Gibson has noted that this rate of excavation remains basically the same to this day in Syria and Iraq (personal communication 2004). Workers in these countries are hired on a daily basis on the premise that the excavation of 3 m³ of earth constitutes a full day’s labor. Often workers would work rapidly to accomplish this goal in order to have the rest of the day off to do other jobs.

that the scale of rampart construction projects in the valleys and plains of the Levant dwarfed those at the few highland settlements which featured rampart fortifications.⁵³

b. Mudbrick Wall Construction

In addition to the rate of rampart construction it is also possible to establish a reliable rate for the construction of the mudbrick fortification walls of these settlements which will further improve our estimates of the actual labor requirements and duration of FCP during the MB as a whole.⁵⁴ The following discussion provides a summary of the results of various ethnographic and architectural studies from the Near East which furnish useful data for establishing rates for mudbrick wall construction. The cumulative results of this review are presented in Table 17 below as an average quantity of bricks both in number and volume which were produced by a single person in one day. The results presented in Table 17 have been sorted by ascending volume of bricks produced per day. The rate of brick construction is actually best expressed in volume—a tradition which began in the Akkadian period in Mesopotamia (see Powell 1990:490f.)—since the

⁵³The difficulties procuring materials and the late emergence of the fortified MB settlements in the highlands also accounts for the small size of these sites and a concomitant reduction in the materials and labor required in their construction. Having been settled after the established centers of the coastal plain it is also possible that some of the workforce for the construction of fortifications of highland sites may, as suggested by Finkelstein, have been drawn from other sites, perhaps even from the coastal plain.

Here it is perhaps worth noting an interesting parallel with regards to the highlands between the construction of these fortification systems during the late MB II (IIC) and the introduction of terracing in the Iron I. Both of these technological phenomena appear to have marked the beginning of a period of increased settlement in the highlands. It may be suggested that like the now commonly accepted view that the introduction of iron tools enabled terracing which led to settlement in the highlands during the Iron I (Stager 1985:5ff.), that the widespread use of *bronze* tools, first commonly available in the MB, enabled the construction of fortifications at these settlements and an overall increase in settlement in the highlands.

It is also worth noting that some of the labor that was required was invested in the procurement of stone for the construction of core and revetment walls, the added value of which, as attested at Shechem, was the increased life-expectancy of the defenses, which in the end would have required far less maintenance (thus less labor) than typical earthen ramparts for which glacia had to be routinely replaced. In this regard, however, it is imperative to note that distance was not a factor in obtaining stone for the construction of these features, as bedrock was at the surface around almost every site in the highlands.

⁵⁴This was not done, for the most part, in previous studies since it has been assumed by these many of these scholars that most if not all ramparted settlements lacked defensive walls (see discussion of walls in chapter three, section A.4.c).

dimensions of bricks always varied throughout the Levant and Mesopotamia during the Middle Bronze Age (see Table 9 in chapter three).

I begin this review by observing that the figure calculated from G. Reisner's statistics for brick production in Egypt in the early twentieth century, of about 7.68 m³ of bricks per laborer per day, are considerably outside the normal range for the quantity of bricks produced per day derived from other studies. Excluding Reisner's data, therefore, yields a reasonable spread between 1.28 and 2.67 m³ of mudbrick per day. An average of the six remaining totals for volume of mudbricks establishes that about 1.8 m³ of bricks could be easily produced by a single laborer per day. If we then follow the results of Mallowan's study, since his brick sizes are closest to those attested in the MB, and suggest that two and a half days were required to produce and install a quantity of bricks—a very conservative figure (i.e., low figure)—then we can determine that the average construction rate was about 0.7 m³ of mudbrick used in wall construction per laborer per day.

This average for the volume of bricks produced per individual does not, however, account for the use of mortar in the course of laying this quantity of bricks in the wall. If we account for mortar, assuming for instance that it was only two centimeters thick and covered half of every mudbrick (the other half of the mudbrick being covered by the mortar of adjacent mudbricks), then about 20% of the composition of any length of mudbrick superstructure (composed of mudbricks with average dimensions of 40 x 40 x 15 cm) consisted of mortar.⁵⁵ Using this figure we can then determine how much more volume was added to walls when mortar 2 cm thick was used to bond 0.7 m³ of mudbricks. The actual volume of wall constructed per person per day would, therefore,

⁵⁵The volume of a mudbrick this size is 24,000 cm³; bonded with mortar 2 cm thick the quantity of mortar per mudbrick added to the wall was 6,216 cm³. The ratio of mortar to mudbrick is, therefore, approximately 1 to 4 for mudbricks this size.

be about 25% greater, or a total of about 0.9 m³ of wall per laborer per day. Since the figures in Table 17 have been used to establish an average rate for a laborer who was functioning as part of a mudbrick wall construction team, we may reasonably assume that the procurement of material for brick production and mortar have both been accounted for. Therefore, we have established that *each* laborer working as part of a team of workers to procure materials, mix mud for bricks and mortar, mold mudbricks,⁵⁶ and lay them within a wall contributed approximately 0.9 m³ of mudbrick and mortar to a wall per day under normal conditions.

⁵⁶We may also assume that it is not necessary to account for drying times for mudbrick since this did not interfere with the continued production of bricks or the construction of walls with the bricks that were already dry.

Table 17. Brick construction rates per worker per day according to various sources.
Sorted by volume (m³) produced per day.

Source	Brick Dimensions	No. made	Vol. made (m ³ /day)	No. laid (1 day)	Wall Construction Rate (m ³ /day)
Iran ^a	20 x 20 x 4	800	1.28	?	?
Egypt ^b	23 x 11 x 7	750	1.33	?	?
Turkey ^c	38 x 25 x 12	120	1.37	?	?
Turkey ^d	30 x 15/30 x 10	265	1.8	?	?
Iraq ^e	35 x 35 x 13	150	2.39	100	0.96
Yemen ^f	46 x 31 x 5	375	2.67	125	0.67
Egypt ^g	40 x 20 x 12	800	7.68	?	?

^aH. E. Wulff (1966:109f.). The figure for the number of bricks made is a reduction by about one-third of the number of bricks that could be, theoretically, produced in ten hours by one individual molding bricks at a rate of 250 per hour. It is impossible to assume that bricks were produced at this rate by a single individual if he were also required to obtain and mix his own materials. Based on the evidence from other estimates, therefore, I have assumed that the workgroup consisted of at least three individuals who were able to produce 2,500 bricks in a ten hour day.

^bH. Fathy (1969:255). He has noted that 660 bricks measuring 23 x 11 x 7 cm³ required 1 m³ of earth, 1/3 m³ of sand, and about forty-five lbs. of straw (1969:252), or in other words this quantity of materials were consumed in the production of 1.17 m³ of bricks.

^cY. Dalokay (1969:119).

^dG. Hall et al. (1973). The figure for the number of bricks made is the total for 66.25 sets of bricks each of which consisted of four bricks: two measuring 30 x 30 x 10 cm and two measuring 30 x 15 x 10 cm.

^eM. Mallowan (1966:53, n. 1). The dimensions for these bricks are an average figure cited by Mallowan for Assyrian bricks at Nimrud—which are said to be the same as those used in the construction of his dig house—where they appear to have ranged in size from 35 to 48 cm² (ibid., pp. 407, 416, 463f., esp. 464). The figure for bricks made is the median between 139 and 167 bricks per day depending on whether Mallowan's reference was to five or six days within a single week for a crew of six workers responsible for making 5,000 bricks in this time period.

^fS. Damluji (1992:130ff.).

^gG. Reisner (1931:73). Reisner noted that in modern Egypt a “pair of brickmakers and a mud mixer”, three laborers, could produce a maximum of between “4,000 to 6,000 bricks a day, but the usual production is less owing to the conditions under which they work” (1931:73). Therefore, his figure of 2,000 to 3,000 produced by a gang of three laborers would have been more normative. Thus, one may estimate that around 800 bricks were being produced per person (i.e. ca. 2500 ÷ 3). It is difficult to imagine that a single worker ever produced over 15 m³ of bricks per day at a maximum, as Reisner reported. One is led to wonder, therefore, whether Reisner was being given an ear full.

3. CALCULATING THE LABOR AND RESOURCES REQUIRED FOR MB FORTIFICATIONS

a. Rampart Construction and Fosse Excavation

The figures from previous estimates of the labor involved in the construction of ramparts at various sites in the Levant during the Middle Bronze Age are summarized in Table 18 below. Each of these estimates consists of the total volume of earth used in the ramparts, a rate for the excavation of materials, an estimate of the number of workers involved, and a calculation of the duration of the project. Generally for these estimates the ramparts' total volume, which had been obtained by simply multiplying the dimensions of the ramparts, represents the most consistently derived figure, however, volumes have almost always been determined by assuming that the largest dimensions attested for the ramparts are representative of the dimensions throughout the entire rampart. Rates of excavation, on the other hand, have been adopted from comparative or ethnographic sources, as mentioned above. Estimates of the number of workers involved in these projects also vary considerably, which is in part a result of the excavation rates assumed and the estimated volume of construction materials. As demonstrated below, this is also a result of differing assumptions among scholars concerning the organization of labor in this period. Each of these three figures contributes, therefore, to the final figure for the duration of each project which has been converted in Table 18 into a figure for the total number of person days required in each of these FCP for the purpose of comparing them to my own estimates (see Table 19 below).

Table 18. Previous estimates of the labor required for the construction of MB earthen ramparts.

Site	Rampart vol. (m ³)	Rate ^a (m ³ /per/day)	Est. no. workers	Duration (days)	Person days required
Timnah ^b	140,000	1	300	467	140,000
Dan (#1) ^c	1,000,000	1	1,000	1,000	1,000,000
Dan (#2) ^d	1,000,000	0.56	2,000	900	1,800,000
Haror ^e	150,000	2.08	400	180	72,000
Hazor ^d	1,000,000	0.56	2,000	900	1,800,000
Mevorakh ^d	40–45,000	0.47	200	480	96,000
Michal (#1) ^f	31,500	1.31	200	120	24,000
Michal (#2) ^d	31,500	0.69	200	240	48,000
Shiloh ^d	40–45,000 ^h	?	600	469	281,400
Sweyhat ^g	170,000	3	?	?	?

^aRate of deposition derived when possible from available figures.

^bA. Mazar (1997b:250). Mazar's figures must be adjusted from the 180,000–199,800 total person days (or 600–666 days of labor for 300 workers) which results from his estimate of the labor required for the building of the ramparts, mudbrick fortification walls, and the citadel. Therefore, after subtracting these quantities the remaining figure is for the construction of the earthen ramparts alone.

^cA. Biran (1990:65; 1994:71).

^dI. Finkelstein (1992:208ff.). Rate of deposition indeterminate due to various assumptions regarding the irregularity of construction around the site.

^eE. Oren (1997b:257).

^fZ. Herzog (1989:32).

^gR. Zettler (1997a:170f., n. 42).

^hAccording to Finkelstein 20,000 tons of stone, which has been accounted for in the estimate of duration presented here, should be added to the figure for rampart volume.

Since the estimates provided in Table 18 for the ramparts of Timnah (Tel Batash), Tel Dan, Shiloh, Tel Haror, Tel Michal, and Tell es-Sweyhat have been collected from various types of archaeological reports and were not part of a comprehensive study of fortification construction, their varied results must be regarded as provisional. Nevertheless, in light of the observations made above concerning the variability present

in these estimates we must consider each of these estimates separately in order to specifically demonstrate how such figures were derived and how they can be improved. The final evaluation of these estimates is made possible by comparing them with revised estimates, which have been calculated from the data collected in the present study (see Appendices A and B). These are presented in Table 19. In what follows the estimates for these sites are addressed in the order in which they have been published.

Table 19. Revised estimates of the labor required for the construction of MB earthen ramparts. Rate of deposition is assumed to be 3 m³ per person per day.

Site	Rampart vol. (m ³)	Person days
Shiloh ^a	28,955	9,650
Timnah	90,000	30,000
Dan ^b	236,250	78,750
Haror	91,275	30,425
Sweyhat	170,000	56,670
Hazor	961,670	320,560

^aIncluded in the volume of Shiloh's eastern rampart is the volume of the stone core which consisted of about 4,455 m³ of stone.

^bIt has been assumed that the fieldstone core of much of Dan's ramparts, the volume of which was 65,536 m³, could have been easily constructed at the same rate since fieldstones could be collected from around the settlement without considerable difficulty. Thus, this volume has been added to that of the earthen fills of the ramparts which alone is estimated to have been 170,714 m³.

Tel Michal. Despite the fact that I have argued for a reappraisal of the evidence from Tel Michal suggesting, in fact, that no MB ramparts existed (see entry in Appendix B), since Ze'ev Herzog's appears to have been the first to have attempted such an estimate (see est. #1 for Michal in Table 18) and since aspects of his approach have been adopted in subsequent estimates, it is necessary to carefully review his methods. However, for the reasons cited below the site has been omitted from further comparisons and, therefore, excluded from Table 19 above. The first observation regarding Herzog's conclusions is that he has assumed that two different rates of excavation were required for the different materials used in the rampart, 1 m³ per person per day for *hamra* soil and 2 m³ for sand (Herzog 1989:32), although he does not provide a source for either of these

rates. The average rate of excavation, therefore, would have been about 1.31 m³ per person per day, less than half the figure suggested in OB texts. With a total estimated volume of 31,500 m³ the project according to Herzog would have required about 120 days of labor from about 200 men or 24,000 person days. As surprising as Herzog's figures are for such a small site, more surprising still is Finkelstein's suggestion that Herzog's estimate should be doubled to 48,000 workdays (see est. #2 for Michal in Table 18), particularly since the materials excavated, primarily sand and *hamra*, which was not as difficult to excavate as "solid chalk" which, as discussed above, he assumed was excavated at a rate of 1.42 m³ per day (1992:210).

The starting point for a critique of Herzog's (and Finkelstein's) methods must begin with the realization that it is impossible to reliably establish any ratio for the quantity of *hamra* to that of sand for features identified by Herzog as the MB rampart based on the very small section published (see Appendix B). Therefore, the rate of 1.31 m³ is essentially arbitrary. There is also insufficient evidence, in my opinion, to suggest that the interior of the site (i.e. the "crater" formed by the Stratum XVII ramparts) was filled in to create a platform and, therefore, the fill for this platform must be subtracted from Herzog's figure. Thus, the dimensions of the remaining ramparts (if they existed!) could have been at most 20 m wide and 8 m tall over at most a length of about 120 m, though quite possibly they would only have surrounded the site on the north, east, and south, thus being only 90 m long. In any event, these figures would reduce Herzog's estimate for the volume of Tel Michal's earthen fills under reasonable circumstances to only 9,600 m³ or about 70% less than his original estimate! This is also prior to the recognition that topographical and geological conditions similar to those attested at Tel Mevorakh (see discussion below), which was of roughly the same size and was likewise "situated on a *kurkar* cliff" above the coast (Herzog 1993b:1036), also prevailed at Tel

Michal. To whatever degree this was the case, this would have even further reduced the quantity of material required for the construction of ramparts at this site.

Truthfully, there is, as observed for Tel Mevorakh (discussed below), insufficient evidence from which to accurately estimate the volume, let alone the labor that was required to build Tel Michal's "ramparts". This fact should have been first apparent when it was calculated that the 24,000 person days would have been required to build the "ramparts" of a settlement approximately 0.1 ha in size! Since the site does not appear to have been of military significance when it was founded (it does not sit on the coastal road, which was further inland) and no evidence for a military presence was found at the site, it is unrealistic to posit that a workforce would have been brought to build sand ramparts for a site that was not strategically significant or in any perceivable danger.

Tel Dan. Similar rates of construction have been employed by Avraham Biran to estimate the time required for the construction of the earthen ramparts of Tel Dan (see est. #1 for Dan in Table 18). However, as demonstrated below, in addition to Biran's exaggerated estimate for the size of its ramparts, he has chosen an excessively slow rate of 1 m³ per person per day for its building and was, therefore, forced to assume an unnecessarily large workforce conscripted for three months of each year for at least ten years (Biran 1990:65, n. 17; 1994:71)! Using similar means and Biran's figures for the volume of Tel Dan's ramparts Finkelstein concluded that the ramparts of Tel Dan also took about ten years to build but required 2,000 laborers (see est. #2 for Dan in Table 18; *ibid.*, 209f.).

My revised estimates for Tel Dan demonstrate that prior estimates for the construction of its earthen ramparts have been grossly inflated (cp. volume for ramparts at Tel Dan in Table 19 with those of both estimates in Table 18). Specific calculations of the volume of each of the distinct lengths of Tel Dan's ramparts are possible thanks to various soundings of the defenses around the site (see Table 26 in Appendix B). The net

result of these calculations is an estimate of only 236,250 m³ of earth used in the construction of its ramparts which could have required as few as 78,750 person days to excavate and to collect fieldstones for the core walls in the ramparts. Presumably the earth came, in large measure, from a fosse excavated around the site, though this feature has not yet been identified.

Shiloh. The next group of estimates were provided by Israel Finkelstein in his article on *Middle Bronze Age 'Fortifications': A Reflection of Social Organization and Political Formations* (1992; reprinted in Finkelstein, et al. 1993:378ff.).⁵⁷ As a result of his study Finkelstein concluded that the construction of Shiloh's ramparts took about 470 work days for a work force of 600 over the course of five years (i.e., no more than 3 months of labor per year for these individuals). Unfortunately, despite the usefulness of attempting such calculations his conclusions still prove difficult to accept because he has also obtained his figures by using maximal dimensions for the defenses and the lowest figures for his rate of excavation in his calculations. First and foremost, he has presupposed that the fortifications of each settlement were predominantly homogenous throughout, which I have demonstrated was not often the case (see chapter three) and, therefore, he has in each case cited the largest possible dimensions of these fortifications in order to derive these estimates. At Shiloh, for example, he has used the dimensions of

⁵⁷There is an apparent inflation in each successive estimate provided for the labor required in building ramparts at the sites discussed by Finkelstein in this article. This suggests, in general, that most of his figures are unreliable. If Finkelstein's calculations were not already difficult to accept, his assertion that it is "more reasonable to assume that much of the work at each site was accomplished in a relatively short time" is certainly nowhere demonstrated through his estimates. Though, I agree with this statement—if for different reasons, as I shall demonstrate below—Finkelstein's further assertion that "there are only a few sites where chronological phasing [of the fortifications] can be proven" and "in most cases the 'stages' are no more than constructional elements" (Finkelstein 1992:210) is simply unfounded, since it is largely influenced by the archaeological evidence from the late MB settlement at Shiloh. While this may be true for the calculations of ramparts at sites such as Tel Dan and Hazor, which were erected within a short period of time, the fortifications of many settlements feature a heterogeneous composition which makes reliable estimates almost impossible in the absence of multiple archaeological soundings of the ramparts. Furthermore, it is necessary to acknowledge that the fortifications of many sites attained their present dimensions only following the latest phase of their construction.

the fortifications on the northeast side of the site (1993:208)—the only place where a rampart can be identified—despite the fact that everywhere else the site was only defended by a modest casemate-type wall! Furthermore, taking a cue from Herzog’s work at Tel Michal he has ventured to estimate, without verifiable evidence, the size and volume of the earthen fills used inside the fortifications during the construction process at, for example, Shiloh, and has suggested that similar requirements were known at Shechem (*ibid.*).

Other factors also affect the reliability of Finkelstein’s results. As discussed above Finkelstein also used the lowest known rate for excavation, ca. 1.42 m³ per person per day, and does not account for the excavation of materials such as sand, earth, or gravel, which were more easily excavated and, in fact, did provide the bulk of the composition of the ramparts Finkelstein discusses. Finally, Finkelstein’s method has resulted in further inflated figures by presupposing that materials were transported from some distance, at least as much as one kilometer to Shiloh (Finkelstein 1992:208), for example, an assertion which finds no support in the present study (see also Kotter 1986:490).⁵⁸ As a result of this approach Finkelstein cites, therefore, five years for the construction of the fortifications of Shiloh, presupposing—probably correctly in this regard—that only 20% of the population was involved in the construction project during at most three months each year (*ibid.*, 208f.), following the conclusions of K. Mendelshohn (1977:esp. pp. 143, 192) and C. Renfrew (1984:esp. p. 238). This, however, is a total of 469 days of 600 individuals moving 20,000 tons of stone (in 416 days) and 45,000 m³ of rampart fill (in 53 days) according to Finkelstein (1992:208f.).

⁵⁸Finkelstein does not account for the possibility that Shiloh could have been built on a hill which might originally have been shaped differently than it is today being quite possibly taller. Some leveling may have been required before construction and such activity could, therefore, account for much of the material used in the infilling of the settlement’s “platform” and rampart without undue effort.

According to my calculations, however, based on the dimensions of Shiloh's rampart (see Appendix B), Finkelstein's estimate of the eastern rampart must be reduced to about 12,250 m³. It is also difficult to accept that another 45,000 m³ of fill, a figure which cannot be verified by the limited extent of excavations, were used inside the stone wall on much of the east side of the site. It is, therefore, only reasonable to suggest that at least an amount equivalent to the rampart itself was required against the inside of the core wall of the rampart, or another 12,250 m³. In order to account for the estimated 4,455 m³ of stone used in the core wall of the rampart, this figure has been added to the rampart's volume. It has been assumed that materials for this feature could have been obtained at the same rate as the earth excavated, since much of this material may have been taken from exposed outcrops of stone, perhaps from the process of leveling the hill.

Nevertheless, if the rampart on the east had consumed most of the labor during the construction of the fortifications, the project would still have been within the reasonable limits of the work required to build most MB fortification systems (see Table 19). However, it is not unreasonable, as Finkelstein suggests, that the construction of MB fortifications in the hill country such as those at Shechem, Shiloh, Hebron, and possibly Jerusalem, required a disproportional amount of work when compared with fortifications constructed in the plains. They were smaller settlements to begin with and required considerable modification of their topography prior to the start of construction on their fortifications. While the source of the extra labor will remain a topic of debate, it is clear that the labor like that required for most rampart projects has been considerably overestimated.

Hazor. Although my calculations suggest that Hazor's ramparts were nearly as voluminous as Finkelstein has suggested (see Table 32 in Appendix B), thus making his estimate the most reasonable of any of those discussed in his article (cp. figure in Table 19), he does not describe how he arrived at this figure (1992:210). He only notes that the

same quantity of materials were used in its ramparts as had been used for Tel Dan's ramparts, though Hazor was, of course, a much larger site (see Table 18 above).⁵⁹ Furthermore, despite the precise information available from which to estimate Hazor's population and thus its available workforce, he did not note that the labor requirements for the construction of Hazor's ramparts would have been considerably lower per capita than for all of the other sites he included in his study. However, with the detailed information available for the dimensions of Hazor's earthen ramparts (see Table 32 on p. 571 in Appendix B) and the rates of excavation I have employed, I would suggest that as few as 320,560 person days were, in fact, required to build Hazor's ramparts, compared with Finkelstein's estimate of 1,800,000 person days.

Tel Mevorakh. Finkelstein's suggestion that the ramparts of Tel Mevorakh required even twice the amount of labor of those at Tel Michal, at around 96,000 workdays, a conclusion based on the supposition that the earth was "more difficult to dig...than at Tel Michal" (1992:210), appears to be completely unfounded. Since insufficient sections are available from which to establish the dimensions of the ramparts of Tel Mevorakh in Stratum XIII, despite the fact that Finkelstein has attempted to estimate their volume and the labor required in their construction (see Table 18), it does not seem possible to accurately estimate the quantity of materials present in the site's ramparts. E. Stern has also noted that this rampart "was erected above a natural hill in the form of a rectangle of which the north, west, and south sides were almost completely aligned with the slopes of the natural hill" (Stern 1984:50). Furthermore, Stern's other remarks concerning the rampart and the source of the building materials for it in this period clarify that the project was probably never very large.

⁵⁹With respect to the labor required to build Hazor's rampart Finkelstein seems to have ignored Hazor's size, perhaps because its population was sufficiently large to have completed the project in a far shorter period of time than at Tel Dan.

During the course of the construction of the rampart, the buildings in the centre of the site and those projecting above it, were almost totally razed, though all the walls of both stratum XIV and of the fortress of XV were left standing and were buried under the rampart. These walls served to add strength to the rampart itself and as an economical supply of building material (1984:68).

In light of these observations it is unnecessary to attempt a revised estimate of the labor consumed in the construction of Mevorakh's ramparts.

Timnah (Tel Batash). One of the more recent estimates of labor has been produced by Amihai Mazar for the MB ramparts of Timnah (1997b:250). But unfortunately because Mazar has attempted to account for "the transportation of construction materials", like Finkelstein, and the "effort invested in constructing mudbrick edifices" his calculations must first be adjusted in order to be directly compared with those provided by Finkelstein and others (see Table 18). Nevertheless, Mazar has surmised that a workforce of 300 individuals living in "temporary camps" could have built the fortifications (ramparts, wall, and citadel) of Timnah in two years (*ibid.*). This would be about 180,000–199,800 person days of labor for the entire project or about 140,000 person days of labor for the earthen ramparts alone and about 40–50,000 person days of labor for the mudbrick walls (*cp.* figure for mudbrick wall construction with 20,000 person days, see Table 20 below).

Although Amihai Mazar has observed that previous estimates did not account for the distance from which materials were brought (1997b:250), it has been demonstrated in this work that such a factor was basically insignificant in the calculation of the labor required, since most of the necessary building materials were readily available within meters of the construction site. Mazar's observation has, therefore, basically been accounted for by the fact that most of the building materials of each rampart were taken from the fosse at each site, as has long been proposed by many excavators. Therefore, including these factors for their estimates as both Finkelstein (1992:208ff.) and Mazar have done unnecessarily inflates their calculations.

Mazar's estimate is also misleading for a number of other reasons. Firstly, Mazar has assumed that the complete length of the fortifications were 800 m when actually the ramparts' lengths must be measured along their crest, which in this case is about 600 m long! This provides an initial reduction of Mazar's estimate by about 25%. Secondly, Mazar like Herzog and others has relied upon a low figure for the excavation of earth, around 1 m³ per person per day. Finally, since no rate for the construction of mudbricks and mudbrick walls is provided, simply increasing the existing estimate by 30 to 50 % as Mazar has done negates the value of attempting to provide accurate estimates in the first place by using accepted rates of construction. The net result of each of these assumptions is a grossly exaggerated figure for the length of time required to build the ramparts of Timnah. It is possible, therefore, to suggest that only 30,000 person days were required to build the ramparts of Timnah. (The construction requirements of its walls are discussed in the following section.)

Tel Haror. For Tel Haror Eliezer Oren has concluded that a workforce of 400 men, were involved in the construction of its ramparts (Oren 1997b:257), providing 72,000 person days worth of labor (see Table 18). His figures, therefore, suggest the acceptance of a much faster rate for the excavation of earth for the ramparts, of around 2 m³ per person per day, than rates suggested in other estimates despite the fact that no source was provided for this rate. However, this figure still remains below those provided from comparative data discussed above. My calculations reveal that the earthen ramparts of Tel Haror would have taken only about 30,425 person days to build (see Table 19).

Tell Sweyhat. Sweyhat provides the first reasonable basis for estimating the rate of construction for earthen ramparts, although no figures for the labor force or the total number of days required were provided by the Richard Zettler (1997a:170f., n. 42). Nevertheless, the rate of excavation which he assumes to have been most appropriate, approximately 3 m³ per day, was noted to have come from the same Mesopotamian

sources discussed above. Hence, Zettler's estimate, though not fully fleshed out in his own work, would result in 56,670 person days worth of labor for the construction of Sweyhat's ramparts (see Table 19).

Jerusalem. Another set of estimates has been provided for the construction of the MB defensive system of Jerusalem (Boas-Vedder 2001). However, since these fortifications did not feature a rampart these figures have not been included in Table 18 above. This author concludes that the building of the MB wall of Jerusalem could have been "executed within 2.5 years, without inflicting considerable stress on the local community" (ibid., 151). While the article's content is at times thought provoking for the specific issues it raises with respect to fortification construction, the study and resulting estimates are exceedingly speculative and to a degree imaginary. This is due to the fact that there is very limited evidence for the size of Jerusalem in this period and the specific dimensions of the fortifications being considered.⁶⁰ As in the case of Tel Michal and Mevorakh, there is truly insufficient evidence from which to accurately establish the dimensions of Jerusalem's fortifications and their course. Therefore, along with these two other sites Jerusalem cannot be included in further estimates of labor and resources required in wall construction which are provided in the next section.

In general it can be observed that most previous studies which have sought to consider the labor requirements for building MB ramparts have not, unfortunately, facilitated our ability to provide straightforward estimates of the amount of labor required

⁶⁰ Although the author has marked each estimated figure in this study with **, the reliability of the estimated figures varies considerably. With respect to estimating the size of Jerusalem's fortifications particularly important assumptions in this work include the following: 1) that the wall was originally only 5 m high and built entirely of stone (Boas-Vedder 2001:137); 2) that the wall was 1,000 m long, 3) that the wall featured indentures along its entire length, 4) that the work also required the construction of support ramps to build the wall (p. 138), 5) that the foundation stones should be accounted for separately (p. 138), 6) that only two gates existed, and 7) that materials were even consumed in the creation of a path for access (p. 139).

in their construction. This appears to be largely due to the fact that, at least according to Finkelstein, it is important to treat the fortifications of each site individually, establishing unique rates for their construction whenever possible. However, once Finkelstein has accounted in an entirely qualitative fashion and without verifiable evidence for the various specific circumstances present during the construction of each of these ramparts the rate of excavation for the ramparts drops to an unrealistically low figure of between 0.47 and 0.69 m³ per person per day, which is less than one-quarter the figure suggested in Mesopotamian sources! For this reason it would seem that our excavation rates must, first of all, be adjusted upwards and, second, some attempt must be made to account for the labor required in the construction of the mudbrick fortification walls built atop the ramparts, as Mazar has already observed!

b. Mudbrick Wall Construction

Estimates of the quantity of mudbricks used in wall construction are only relevant for solid mudbrick walls. There is no value in estimating the required labor for building casemate-like walls like those known at Shiloh, Kumidi, and Shechem, for example. Since these structures were multi-purpose and were often used as storehouses (as attested by the frequent finds of storage jars inside them), we may safely assume that buildings of similar dimensions would have been built even if they had not been incorporated into the site's defenses. By applying the average rate we have established above for the construction of solid mudbrick walls (0.9 m³ per person per day) to the walls for the sites listed in Table 19, at which some evidence for solid mudbrick walls could be postulated (see Appendices A and B), we may further refine our labor estimates (Table 20 below). These figures are based upon the evidence presented in chapter three (see section A.4.a), which suggests that these mudbrick walls were probably no less than 10 m high (a median between the low suggestion of 5 m and a maximum of 15 m).

Of particular interest with regards to these figures is the ratio of labor required in rampart versus wall construction (see Table 21 below). In a number of instances it appears to have basically taken about the same amount of time to build these two features (e.g., Tel Dan). However, in other cases where the ramparts were particularly pronounced, as at Timnah and Hazor the ramparts took considerably longer to build. In yet other cases, particularly when walls were much thicker and ramparts less elevated, wall construction appears to have actually consumed more labor (e.g., Haror and Sweyhat). Such evidence would seem to clearly contradict the suggestion that rampart construction necessarily consumed more resources and labor than wall construction and, thus, serves as particularly clear evidence against the interpretation of conspicuous consumption. Clearly, the observation can only be that the labor required depended upon the dimensions of the features constructed whether building walls or ramparts. Furthermore, the consumption of resources also appears to have had nothing to do with site size.

Table 20. Estimates of the labor required for mudbrick wall construction at various MB sites. See Appendix B for the precise evidence for the dimensions of the walls of these sites. Average wall height assumed as 10 m.

Site	Avg. wall width (m)	Est. wall length (m)	Wall vol. (m ³)	Person days
Shiloh ^a	3	565	16,950	18,835
Timnah	3	600	18,000	20,000
Dan ^b	4	1,200	48,000	53,335
Haror	4	1,300	52,000	57,780
Sweyhat ^c	9	1,675	150,750	167,500
Hazor	5	2,980	149,000	165,560

^aMuch of this wall actually consists of the rear walls of domestic structures and, therefore, this estimate might be as much as 50% too high for the actual construction of the fortification wall.

^bThe thickness of the wall of Tel Dan is an estimate based on its average dimensions ranging from 3 to 7 m in different excavation areas.

^cThe excavators estimate that the wall was 9 m wide and 6 m high.

c. Scenarios for Determining the Labor Requirements and Durations of MB Fortification Construction Projects

By combining the number of person days for the construction of both the ramparts and the mudbrick fortification walls of the six sites discussed above the total number of person days required for the construction of their ramparts and walls can be provided (see Table 21 below). However, presented in this manner it is still difficult to compare the scale of the labor requirements with the labor contributions mentioned in textual sources, which often refer to labor projects in terms of the months required to complete them. Furthermore, *corvée* and *ilku* service are often thought of as labor contributions in terms of months per year.⁶¹ For various reasons, therefore, converting this figure to the number of months of labor which would have been required to complete the construction of the fortifications of these sites, both their ramparts and walls, is consistent with how labor has often been quantified in Near Eastern records and assessments of labor requirements.

Table 21. Average duration of MB fortification construction at various sites.

Site	Person days for rampart construction	% Labor ramparts	Person days for wall construction	% Labor wall	Total person days	Total person months
Shiloh	9,650	34	18,835	66	28,485	950
Timnah	30,000	60	20,000	40	50,000	1,667
Dan	78,750	60	53,335	40	132,085	4,403
Haror	30,425	35	57,780	65	88,205	2,940
Sweyhat	56,670	25	167,500	75	224,170	7,472
Hazor	320,560	66	165,560	34	486,120	16,204

The next step is to consider the labor pool from which the workforce was drawn. According to Finkelstein's calculations, for example, laborers would have been required from the surrounding countryside due to the overwhelming number of laborers thought to

⁶¹ Similarly, if one can accept that up to three months could have been contributed as *corvée* labor by the adult males of each settlement, constituting on average 20% of any population, then converting to person months would be equally helpful (cp. Renfrew 1984:esp. p. 238).

have been necessary for FCP. However, is it necessary or even reasonable to postulate the use of a work force conscripted from across a broad region for the construction of MB fortifications of what would have been numerous fortified towns throughout each region? Under such a regime one can imagine decades of ceaseless participation in FCP for the inhabitants of the southern Levant as they rotated from site to site laboring only a few months at the most at a time on the fortifications of each settlement. As this study has demonstrated, however, settlements in particular regions appear to have been fortified within relatively short periods of time with very similar fortification styles (see chapter three, section D). Therefore, based upon the fact that the revised estimates provided above, which include both rampart and wall construction, are between 20% and 40% of the original labor estimates for the construction of ramparts alone (cp. Table 21 and Table 18), it seems unnecessary to suggest that additional laborers were required in most cases from outside of the settlements where FCP were undertaken. Furthermore, it is a very significant observation that the greatest per capita labor requirements were not actually at the main urban centers, but rather at some of the smallest settlements, a point which will be discussed further below. Finally, if the conscription of laborers from the surrounding countryside was ever necessary, their recruitment and organization would probably have been the responsibility of the military, as suggested by Old Babylonian royal inscriptions (see section C.1.a above), since the army, no doubt, already possessed the necessary apparatuses for the organization of large labor pools. Therefore, despite the low probability that such means were necessary, the possibility of the employment of the army as a work force must also be considered. However, for the reasons cited above I see no reason to account for the conscription of labor from among smaller settlements in the countryside by developing other scenarios.

Table 22. Pertinent data for estimating the available workforce for sites in Table 21.

Site	Settlement size (ha)	Estimated population	Estimated no. of adult males
Shiloh	1.7	425	85
Timnah	2.25	560	112
Dan	11.1	2,775	555
Haror	16.2	4,050	810
Sweyhat	30	7,500	1,500
Hazor	63.1	15,775	3,155

Given these observations the data pertinent to estimating the labor force involved in the construction of the fortifications for the sites discussed above are presented in Table 22. The estimated population of each of these settlements can be reasonably determined using the figure of 250 persons per settled hectare within these sites having, of course, subtracted the area occupied by the fortifications themselves (cp. with figures in Broshi and Gophna 1986). The number of adult males, who most likely would have represented the bulk of any construction force, however it may have been organized (see scenarios below), can be estimated by assuming that they comprised approximately 20% of the typical population (after Mendelsohn 1977; Renfrew 1984).

Next, it is necessary to identify various likely scenarios by which the labor required in the construction of these fortifications could have been obtained. The evidence reviewed earlier for MB labor sources suggests that various methods could be used to estimate the size of the labor force involved in these FCP. Since, however, only a few methods are mentioned in textual sources, these schemes must be identified as the most likely means by which to assess the number of laborers involved and, consequently, how long such projects lasted. The suggested scenarios can be generally identified, therefore, with the major sources of labor which would have been available and the traditional periods of time which they were employed. Thus we may suggest that the labor scenarios derived from the population of adult males from each settlement would have consisted of either (1) *corvée* or *ilku* laborers, (2) hired laborers, and/or (3) the

army. For each of these scenarios the main factor in the time required for the completion of the construction projects would, of course, have been the duration of their service. Therefore, the parameters applied for their service can be qualified as follows.

Table 23. Average duration of MB fortification construction using corvée or ilku laborers for one month at a time. Convert years to months for duration using hired laborers.

Site	Total person months	Labor force	Years to complete
Shiloh	950	85	11.2
Timnah	1,667	112	14.9
Dan	4,403	555	7.9
Haror	2,940	810	3.6
Sweyhat	7,472	1,500	5
Hazor	16,204	3,155	5

Corvée or ilku labor. The service available from corvée or ilku laborers can for our purposes be estimated to have been no more than one month for each year per person. Since in this scenario projects would have lasted multiple years, the significant figure is not the number of months contributed, since these would have been consistent no matter the type of project, but the duration of the project in years (Table 23). Under such conditions the male inhabitants of a settlement, therefore, would have been expected to labor one month each year between a minimum of 3.6 years to a maximum of about 16 years depending upon the size of the settlement. The lengthy durations of such scenarios, which are comparable to those suggested in the estimates of other scholars reviewed above, seem to suggest, therefore, that any employment of labor in this manner would have been extremely inefficient for the reasonably rapid construction of the defenses of these settlements. Furthermore, such durations are not supported by the archaeological evidence for the fortifications themselves.

Hired labor. In a second scenario we may postulate that laborers were hired to complete the task at a faster rate, the significance of which would have been both the need and the desire to complete these projects within a set time period. However,

assuming the limitations of the local labor force we can only determine the total number of months which would have been required for the adult male labor force to complete this task. The number of months required in this scenario, in any case, would be equal to the number of years listed in Table 23 above. It is equally unlikely, therefore, that hired laborers, who already had their own labors could have offered their services for the required number of months, ranging from 3.6 to 16 months, full-time until these projects were completed. Therefore, if hired labor was to be employed a larger workforce, perhaps brought from outside the settlement would have been necessary—a scenario discounted above—or the duration of the project would need to have been extended.

Table 24. Numbers of soldiers required to build MB fortifications within two to seven months. Figures in bold represent times at which the numbers of soldiers participating would have been approximately equal to the estimate for the adult male population of the settlement.

Site	Total person months						
	2 mos.	3 mos.	4 mos.	5 mos.	6 mos.	7 mos.	
Shiloh	950	475	320	240	190	160	140
Timnah	1,667	834	556	417	334	278	238
Dan	4,403	2200	1470	1100	880	735	630
Haror	2,940	1,470	980	735	590	490	420
Sweyhat	7,472	3,740	2,490	1,870	1,500	1,250	1,070
Hazor	16,204	8,100	5,400	4,050	3,240	2,700	2,315

Army labor. In a third scenario, which seems on both archaeological and textual grounds to be the most likely, the army would have been employed with the goal of completing the fortifications within a set number of months, most likely within as little as one year. The various figures are summarized in Table 24 above. It is worth noting that for most sites the number of laborers required for a set number of months coincide with the number of available adult males from within the settlement within seven months (cp. Table 22). Therefore, at Haror, for example, between three and four months of participation would have been required; at Hazor and Sweyhat five months; at Shiloh between 6 and 7 months, and at Dan more than 7 months. Timnah appears to have

required a particularly inordinate number of months, approximately 16 if only males from the settlement were conscripted for army service; this fact suggests that Timnah's situation was anomalous. Therefore, for most large ramparted settlements the conscription of the adult male population, under what might be considered conditions of military service, would have required between 4 and 7 months of dedicated labor in order to complete the construction of the fortifications. Or, alternatively, these fortifications could have been completed within two years if service were limited to between two and three and one-half months during two consecutive summers, for instance, when military service would have been most likely. For obvious reasons as evident from the example of Timnah, smaller fortresses would have required additional laborers to complete their fortifications within a similar timeframe, otherwise such fortresses would have remained unprepared for many years which must be considered unlikely.⁶²

The overall results of the scenarios provided above are illuminating. They demonstrate that freestanding rampart fortifications of the largest sites, such as Hazor, would have required the least work per capita in their construction, regardless of the labor force employed. Therefore, the larger sites were, the less work that would have been required of their inhabitants. Such a fact would, not doubt, have allowed for greater social stratification at these sites, as there was certainly room for choices to be made about who would participate (or be conscripted) in the menial labor of wall and rampart construction with plenty of openings for those who would not.

⁶²The evidence from Timnah provides the only data from a small fortified site with freestanding earthen ramparts from which a reliable estimate of the labor required in the construction of these defenses can be determined. A workforce of three-hundred, Mazar had suggested (1997b:250), would have erected the rampart in only 70 days, about one-fifth the time originally suggested by Mazar for the entire project. However, according to my calculations such a workforce would still have required 6 months to complete the entire task of fortification construction.

Under normal conditions according to these calculations, these projects seem to have required about five to six months of labor if one-fifth of the population of each settlement participated. While we might estimate that longer workdays, the contribution of labor from the women of the community, the use of child labor (i.e., girls and boys below adult age), or any combination of these factors might have expedited the completion of these projects there is little basis for supposing that the total absence of a fortification wall prior to large-scale settlement was common, if it ever occurred. This, therefore, poses a considerable problem for the scenarios posited above, which cannot be resolved. The problem is: if we cannot reliably estimate the population of the initial settlement from which the workforce was drawn, then by what basis are we to determine how long such projects took? My suggestion would be that based upon the available textual sources we must retain the notion of the employment of the army for building fortifications in advance of large-scale or increased settlement by civilians, a process which in many respects could be characterized as a type of colonization, and yet little evidence exists whereby such a hypothesis can at present be further supported.

Despite any effort to account for the duration of FCP in this period, it is impossible to account for possibility that various sources of labor could have been tapped for the construction of these features. There is no means by which we can be certain that these fortifications were not largely built by conscripted troops in a short period of time as suggested by textual sources. Nevertheless, the estimates that have been provided illustrate that these public work projects were not beyond the capability of the inhabitants of each of these settlements. Furthermore, any effort to increase the workforce whether from within each settlement by increasing the percentage of the population involved or by conscripting labor from other settlements would, of course, only have increased the speed with which these fortifications could have been erected.

4. *HISTORICAL SOURCES REGARDING FORTIFICATION CONSTRUCTION PROJECTS*

Historical sources for the construction of fortification systems at major cities and the building of fortresses throughout Mesopotamia, as alluded to earlier, provide some of the most important evidence regarding the duration, cost, and scale of FCP. Because of the details recorded in these sources, they make it possible to assess the accuracy of the estimates provided in the previous section.

The textual evidence for the durations of these fortification projects is particularly useful for comparative purposes. In an inscription attributed to year twenty-one of Gungunum of Larsa (1868–1842 B.C.), it is reported that,

in the course of one year [Gungunum] made the bricks and built the great wall of Larsa named Utu-kibale-sadi ('the god Utu overtakes the rebellious land').

RIME 4.2.5.3

Likewise, Samsuiluna records completing the fortifications of Kiš, which included a canal, a moat, and heaped up earth in addition to the raising of a wall, all within one year (ca. 1793 B.C., *RIME* 4.3.7.7). The construction (or reconstruction) of the wall of Sippar during the reign of Ḫammurapi appears, however, to have required at least two but possibly as many as three years (i.e., between years 23 and 25, 1706 to 1704 B.C.). The raising of “the top of the foundation of the wall of Sippar with earth (until it was) like a great mountain” and Ḫammurapi’s note that “I built (that) high wall” appears to suggest that this construction project may have resembled those of rampart-fortified settlements in the Levant (*RIME* 4.3.6.2). Ḫammurapi’s project, as noted earlier, was also accomplished by employing the army.

The evidence for fortification construction also indicates that a smaller fortress (*dūrum*) could be built in as little as two months. Samsuiluna reports for his 17th year (1669 B.C.) that he produced the bricks for and constructed six fortresses within two months (*RIME* 4.3.7.5). Elsewhere Samsuiluna also records the construction of Dūr-Samsuiluna and again confirms that two months were required for its construction (*RIME*

4.3.7.8). The dimensions of the fort, which does not appear to have featured a rampart, can be estimated based upon the contours of the site with which it is identified, Mound B at Khafajah. It was probably about 250 by 400 m or about 10 ha (Delougaz 1990:fig. 28). Since the majority of the work of building this settlement probably consisted of building its wall we can estimate the quantity of labor required in its construction. The above dimensions of the fortress (which are maximal) yield a perimeter of about 1,300 m. The wall is known to have been about 4.7 m thick. If it was 10 m high then about 61,100 m³ of mudbrick wall were required for its construction. If it was completed within two months (60 days) then an average of approximately 1,020 m³ of mudbrick were deposited per day. The workforce required for this task would, therefore, have been about 1,130 laborers if we assume that they built the wall at a rate of roughly 0.9 m³ per laborer per day. The completion of this project with a labor force of this size would be comparable to the construction of the ramparts of Tel Dan within two months (see Table 24).

In sum, the evidence from these historical sources suggests that smaller fortresses without ramparts (*Dūr-PN/DN*) on the order of 10 ha in size could be constructed in as little as two months. This figure is in keeping with the five to six months calculated above for Levantine settlements also on the order of 10 ha, but would also have included the construction of ramparts. Furthermore, the construction (or at least reconstruction) of the fortifications of much larger cities in Babylonia also appears to have often required one year but could also require as many as two or three years.

D. CONCLUSIONS: SOCIAL COMPLEXITY AND MB FORTIFICATIONS

From the evidence for the integration of fortified settlements within the characteristic settlement pattern of the Levant during the Bronze Age and the foregoing attempts to calculate the labor requirements of FCP during the MB, we may now review the conclusions concerning the society and economy of the Levant which are suggested by these data. To do so is essentially to attempt to address the issue of social complexity

during the MB. Despite a floruit of articles on MB fortifications as they related to the settlement patterns of the southern Levant and its political centers, only one of which has addressed fortifications as a “social phenomenon” (Bunimovitz 1992), very little has been done to directly address social complexity in this period (e.g., Dever 1993b; Falconer 1994). Therefore, it is worthwhile to relate the conclusions reached in this study regarding the socio-economic context of MB fortifications to the issue of social complexity in the Levant during the Middle Bronze Age.

With respect to the question of social complexity it has long been recognized that settlement patterns, particularly when viewed in relation to defensive concerns, provide a barometer of political stratification. The patterns characteristic of both settlement and fortification construction throughout the MB Levant clearly demonstrate a substantial degree of political and social complexity. As suggested by the evidence for a nucleated and nested model for the settlement pattern of the southern Levant during the Bronze Age, it is simply incorrect to suggest that the evidence for settlement patterns “invalidate any hypothesis of urban nucleation, or urbanization of any kind” in the southern Levant, as suggested by Falconer (1987:see esp. pp. 190f.). This perspective has been based, first, on the observation that there existed far fewer “cities” in the southern Levant, which ranged in size from 10 to 60 ha, than in Babylonia where they ranged from 10 up to 200 ha. Second, it relies upon the suggestion that the economy of the Levant, which has usually been qualified as “rural”, was fundamentally different from that of Mesopotamia, which has often been identified as “urban”. Whether or not there was economic integration in the MB Levant of the sort that can be characterized as “urban” rather than “rural”, it is clear that there was political integration of the type characteristic of Mesopotamia which resulted in the integrated settlement pattern that has been described above, albeit admittedly on a smaller scale. This pattern exploited not only the agricultural potential of each settlement’s territory as noted by Kotter (1986) but it also

invested in the selective and strategic fortification of key sites in the defense of the territorial districts within each kingdom. Although such a settlement pattern appears to have emerged quite early during the Bronze Age, perhaps out of contemporaneous developments in various regions prior to the start of the Early Bronze Age, this is not to suggest that separate, endogenous developments did not also occur outside of the structure of this settlement pattern. Needless to say, evidence for such developments remains difficult to identify.

For this reason the basic models for the political organization of MB kingdoms in the southern Levant offered by both Dever (1987) and Finkelstein (1992), while differing in their details, find considerable agreement with regards to the identification of particular sites and their territories as the main MB political units. In light of the historical and socio-economic context afforded by the present study such former analyses gain even greater significance. Therefore, the traditional view which identified a number of independent MB polities defined by discrete territorial units, as achieved by Finkelstein, must now be modified to recognize that many of these units were probably, in fact, administrative sub-units or districts within five or six larger kingdoms that dominated most of the southern Levant. Numerous small settlements, for example, which were once considered to be independent polities by Finkelstein including 'Ajjul, es-Safi, and Gezer, can now be reasonably well identified as political centers subordinate to larger kingdoms like Ashkelon.

Given the evidence which has enabled the identification of this political organization it is difficult to understand why Finkelstein has sought to identify a separate structure consisting of "polymorphous chiefdoms" for the political development of the highlands of the southern Levant. While it is true that highland settlements were smaller than those along the coast, as we have seen with respect to Falconer's comparison of Mesopotamia and the Levant, differences in scale do not necessarily imply differences in

political or administrative organization. The Amarna texts, for instance, support that the LB kingdoms of Shechem and Jerusalem ruled over large but sparsely populated independent kingdoms. However, Finkelstein's interpretation has, unfortunately, also been fueled by exaggerated calculations for the labor requirements of ramparts which, in his opinion, revealed that "earthen ramparts are more sophisticated and complicated to build than simple walls" (Finkelstein 1992:213). But as demonstrated in this work this conclusion is not supported by either a technical assessment of their construction (chapter 3, section A.1) or a reassessment of the labor requirements of these projects (see previous section).

It would seem, in fact, that central polities, the likes of Ashkelon and Hazor, actually invested the greatest per capita labor in the construction of the defenses of small fortresses, which were probably part of a strategic effort to protect their borders. Such a realization also potentially supports the identification of late MB II (IIC) settlements at Shechem and Jerusalem, which have been formerly identified as politically independent centers by Finkelstein, as centers which may have been initially settled as outposts. And it is not difficult in this respect to imagine how such centers came to exist if the workings of models such as the "port power" model proposed by Lawrence Stager (2001; 2002) or that of the "dendritic exchange networks" posited by Susan Cohen (2002a) reflect to some degree the actual exchange relationships which were already present at the start of the MB.

Nevertheless, based upon the available evidence there appears to be no basis at present to posit a unique social structure or political organization in the highlands during the Middle Bronze Age, despite the fact that based upon ecological differences the subsistence economy may have been slightly different than in the coastal plain or river valleys. Similarly, even though we are still unable to account for the chronological development of the interactions between the indigenous population of the highlands,

some of whom were probably present since the EB IV, and the gradually arriving population of settlers from the coast who no doubt should be identified as Amorites, the data available for the MB II (IIB–C) do not suggest that the inhabitants of the highlands viewed MB fortifications of sites like Shechem and Shiloh as reservoirs of ideology and propaganda any more than they might have been viewed as such elsewhere (e.g., Bunimovitz 1992; Ilan 1995:esp. pp. 316f.). However, as demonstrated in this chapter, unequivocal evidence that these structures, in fact, functioned first and foremost as fortifications suggests that they should not be viewed any differently than fortified settlements in the northern Levant and Mesopotamia, where their functional value as defenses can be readily observed through historical records such as the Mari texts.

While it seems relatively clear that the actual construction of fortifications required only a limited amount of specialized labor, the regularity of the layouts and constructional styles of gates, towers, and bastions suggests the existence of a group of specialists capable of planning for and integrating these structures into each site's fortifications. In this respect, such "craft" specialists may have been comparable to those frequently noted to have produced the frescoes attested at sites such as Avaris, Kabri, and Alalakh during the MB. If the OB term *itinnum* was used to refer to such individuals, they were probably hired when necessary to provide the planning required in fortification construction. In such a context it is, therefore, possible to make better sense of the notion of "competitive emulation" among Levantine polities which has been postulated by S. Bunimovitz (1992:228), though because of the evidence for the social and political context of the MB it is unnecessary to suggest that it occurred between "neighbouring tribal groups". Instead, it would appear that these FCP were a reflection of the stratification of MB society in the southern Levant, specifically in the coastal plain, rather than the driving force behind "social development in Palestine towards the re-emergence of a stratified, urban society" as suggested by Bunimovitz (*ibid*).

Whether artisans were brought from afar to build these defenses or competition between distant polities drove the innovations witnessed in developments related to fortification construction, the political relations between the states of the Levant and their neighbors also cannot be overlooked. In spite of the recognizable limits of the direct evidence for these connections, the gradual re-introduction from north to south of a settlement pattern integrated with fortified settlements of the ramparted type, in particular, suggests that the southern Levant in the MB cannot be viewed as a political or cultural “island”, as it often has. However, because such perspectives often underlie the assumptions of many scholars regarding the origins of particular aspects of the MB cultural assemblage of the southern Levant, their assertions have lacked sufficient strength when compared with other regions. For this reason, therefore, I have attempted to place the question of MB fortifications within the broader context of social, political, and economic developments of the Levant as a whole.

Despite these criticisms of former attempts to assess the social impact of FCP during the MB, we may still accept that the construction of fortifications with and without ramparts involved important social and economic implications, some of which can be measured, as discussed above, and others which cannot. To some extent there is no debating that they involved a degree of conspicuous consumption of labor and resources. Nevertheless, one could equally speak of the conspicuous consumption of resources for the building of fortifications in any period, as these features were the most common monumental construction projects built in ancient times. Given, however, the political context in which these sites were settled the consumption of labor and materials, however conspicuous, appears to have been primarily the result of the requirements of defending the inhabitants of these settlements from the military threat posed by the types of weapons available at the time wielded by ambitious, though often distant powers.

CHAPTER SIX:

CONCLUSIONS

I am aware, after all, that I have told you many things you must have known before and, perhaps, may have considered as well as myself; but this I did, as I told you I should, so that you might perfectly comprehend the nature of true military discipline and the art of war, and for the instruction of others who may not have had the same opportunity of learning them that you have.

Niccolò Machiavelli, *The Art of War*, Book VII

This work represents the first comprehensive treatment of Middle Bronze Age fortifications in the Levant. In the preceding chapters I have reviewed the evidence for various aspects of these fortifications including their unique functions and the conclusions that can be drawn from the nature of their construction, their distribution, and their evolution. Of first importance this study has presented unequivocal evidence for the identification of earthen ramparts, fosses, gates, and their walls as discrete elements belonging to a unique type of defensive architecture which was characteristic of the Levant and northwestern Mesopotamia from the late third millennium through the first half of the second millennium B.C. The origin of this defensive system, it has been suggested, can be traced back to the region of the Middle Euphrates, particularly to sites similar to and contemporaneous with Mari and Terqa, where some of these elements are first attested as part of a multi-faceted approach to defensive architecture in the early to mid-third millennium.

Although unique environmental and topographical conditions may have been responsible for the initial development of these fortifications, the proliferation of this

defensive architecture, as might be expected, was probably in large part due to improvements in offensive capabilities which were introduced into siege warfare, most notably the battering ram around 2400 B.C. However, through the use and adaptation of particular architectural elements as obstacles efforts were also made to thwart the success of other offensive weapons and techniques, such as the siege tower, the composite bow, and tunneling, thus pushing the enemy further away from the town wall and helping to maintain the strategic advantage of the defenders. A four phase sequence of rampart fortification evolution has, therefore, been suggested in an attempt to account for architectural innovations as developments in warfare and weaponry progressed. During a fifth and final phase the construction of rampart fortifications appears to have ceased.

For the period between ca. 2400 and 1800 B.C. when the main developments in fortification strategies in the Levant occurred there is substantial evidence for the widening of hostilities between major powers in the northern Levant and Mesopotamia which suggests that the historical context for this phenomenon also fostered these developments. The gradual proliferation of independent Amorite kingdoms throughout the Levant after ca. 1950 B.C. only appears to have further facilitated the proliferation of this type of defensive architecture, particularly of the freestanding rampart variety. The documentation of rivalries between kingdoms such as Yamḥad and Qatna provide the clearest evidence that the threat once posed by exogenous political powers during the late third millennium had been mostly replaced by rivalries between Amorite kingdoms in the Levant after ca. 1950 B.C. The threat, therefore, was posed primarily by the well-organized and well-equipped militaries of large kingdoms (e.g., Yamḥad, Qatna, Mari, etc.) and not most likely by smaller kingdoms and other groups such as armed nomadic groups, despite records of raiding activity by such groups against small settlements.

It has been argued that the rivalries between these kingdoms should be understood within the political framework provided by textual sources. In the northern Levant this

framework clearly consisted of kingdoms and was most likely represented by polities of similar scale and organization in the southern Levant by at least ca. 1700 B.C. Such polities can be identified through a close examination of the evidence for the strategic location of settlements and the types of fortification systems they featured. Together these archaeological data enable the reconstruction of the political organization of a considerable part of the southern Levant for which no textual documentation has survived. It has been advanced in this work that the abundant archaeological data for settlements in the coastal plain of the southern Levant enable the identification of the Middle Bronze Age kingdom of Ashkelon, its settlements, as well as the approximate extent of its territory. Although comparable reconstructions of the Middle Bronze Age kingdoms of the northern Levant are not yet possible, preliminary studies of the settlement patterns within these kingdoms do suggest that the political organization of the northern Levant might reveal a similar organization of fortified settlements.

The arrangement of fortified settlements in the MB landscape of the Levant would seem to suggest, therefore, that the territorial extent of each kingdom can actually be identified by the territories within its constituent districts, each of which was identified by a central settlement, its satellite settlements, and their surrounding agricultural lands. I have suggested that the smaller MB and LB politico-territorial units of the southern Levant, about which there has been considerable consensus, represent, in fact, districts within a limited number of large Middle Bronze Age kingdoms, rather than a larger number of very small MB and LB “city-states” as they have often been identified. In this light we may view, therefore, both the Egyptian and Hittite empires as attempting to take advantage of earlier MB political organization of the Levant in order to govern their vassals during the Late Bronze Age. The disruption of the highest tier of the political hierarchy of the Levant, which had been structured around large Amorite kingdoms that were responsible for initiating the construction of these fortifications during the Middle

Bronze Age, may explain why the construction of fortification systems ceased during the Late Bronze Age when they had lost their independence.

While the evidence does suggest that rampart fortification construction projects of the Middle Bronze Age were among the largest and most conspicuous engineering projects undertaken in the Levant during the pre-modern era, given their clear military function, the labor which was invested in their construction should hardly be interpreted as primarily a means of conspicuous consumption. To begin with the estimates that have been provided for the labor and materials required in the construction of rampart fortifications have advanced grossly inflated figures to support this interpretation. This has been due, on the one hand, to exaggerations of the size of ramparts due to inadequate accounting for the actual dimensions of rampart sections. But, on the other hand, the use of extremely slow rates for construction, particularly for the excavation of materials for the ramparts, has also exaggerated the required construction time. However, using Old Babylonian sources for an average rate of excavation results were often only 20 to 40% of earlier figures. Only by adding the estimated labor required for the construction of fortification walls, which were usually omitted from previous estimates, do the present results even begin to compare with earlier estimates.

Further proof against the argument for conspicuous consumption is provided by the fact that the largest per capita resources required in the construction of these defenses were not, in fact, at large political centers, as the model of conspicuous consumption would imply; rather, the greatest resources were consumed in the construction of rampart fortifications at very small settlements on the peripheries of political territories and along important routes. This evidence betrays the fact that the ruling elite did not actually have the luxury of directing the main expenditure of their kingdoms' resources for the construction of numerous massive temples or enormous palaces in their capitals, as was the case in Mesopotamia. Instead, rulers in the Levant appear to have been forced to

expend greater resources on the construction of fortifications at sites throughout their territory by adopting the particular type of fortifications they did, which required more labor than building only mudbrick fortification walls.

Despite the relative confidence with which the identification of the political organization of the Levant during the Middle Bronze Age can be asserted, the identification of the workforce employed in the construction of MB fortifications remains less certain. This is in large part due to the fact that since little specialized labor seems to have been required for their construction most citizens would have been capable of contributing labor for their construction if required to do so. However, based on evidence from Mesopotamia we may suggest that this labor was probably drawn from either the army, *ilku* and *corvée* laborers, or hired laborers. The order in which these have been listed may, in fact, reflect the preferred system, namely employing the army first but drawing upon more and more of the citizenry as situations may have warranted. Nevertheless, despite the fact that, as demonstrated in this work, these fortifications could be built rapidly, the evidence also does not suggest that they were ever built in response to impending crises. Their layouts, the composition of their construction, and the spacious nature of the enclosures suggest, in fact, the opposite, namely that considerable planning had preceded their construction, though once construction was begun they were probably completed within a single year.

In conclusion, although the present work has attempted to answer many questions that have been posed regarding Middle Bronze Age fortifications, some questions remain unanswered. Further excavation, particularly in the northern Levant for which historical sources are more prolific, may make it possible to address these questions in the future. Until such data are presented it is hoped that the catalogue of fortified settlements provided with this study will encourage further consideration of how MB fortification systems related to the society and economy of the Levant and neighboring regions.

APPENDICES OF EARLY AND MIDDLE BRONZE AGE FORTIFIED SETTLEMENTS

General Notes For Appendices

Site Selection

Appendix A consists of all sites in northwestern Mesopotamia known to have been fortified in the Middle Bronze Age as well as a majority of those known to have been fortified during the Early Bronze Age. Appendix B consists of all sites known to have been fortified in the Levant during Early Bronze IV and the Middle Bronze Age. However, in certain instances sites or specific details of the development of a settlement's fortifications during earlier (i.e., pre-EB IV) and/or later periods (i.e., LB) have also been included, particularly when they are considered relevant to the development of a site's fortification strategy. The extent to which such sites merit inclusion in this catalogue is defended in chapter three, but it has also usually been addressed in the relevant entries.

Site Names

The following naming conventions have been adhered to when possible for the sites in Appendices A and B. Priority has been given to known Bronze Age place names for sites (e.g., Ebla instead of Tell Mardikh). But when a historical name is unknown or uncertain, the most common names for sites have been employed (e.g., Jericho). Where any uncertainty existed concerning their most common name, sites are referred to by their most commonly used name.

If the name of a site is followed by * (e.g. Michal, Tel*), it is so-labeled to indicate that the presence of any fortifications which can be dated to the MB are considered uncertain or cannot at present be verified.

Site and Fortification Data

Each entry features the following information. (1) The location of the site is provided by Latitude and Longitude, and UTM coordinates, or Palestine map reference (MR) numbers, in addition to a textual description of their proximity to other sites discussed in the catalogue (see also Figure 25 and Figure 51). (2) A complete listing of relevant references, plans, sections, and photos or illustrations are also included. For plans and sections preference was given to those presented in final reports, but when such items are cited from preliminary reports or articles, the listed items include the most recent version (i.e., an earlier plan is not listed if a revised plan was published later). In the event that a discrepancy exists more than one set of plans may be cited. (3) Descriptions of the key elements of each site's fortifications are also included. The most complete textual descriptions possible have also been provided for the defensive features described in chapter three. When an identification of a defensive feature was definite or reasonably certain, the terms used for these features are highlighted in **bold**. If the identification of a feature appears in doubt or appeared uncertain to the excavators the term remained in normal font. As part of this description, when possible, a general overview of the major areas known to have been settled at the site during the period in question, an assessment of topographical features as they pertain to defense, and an estimate of site size in hectares (minus the area occupied by ramparts) have been provided.

The reader will also find tables in chapter three which provide inter-site comparisons of information found in this catalogue. Measurements used in this study are all metric and in certain cases it has been necessary to convert measurements from the British imperial system provided in original reports from early excavations. For this reason a reader consulting the catalogue might find discrepancies between the figures provided here and those suggested in other *secondary* sources for the same features.

Compass directions are abbreviated and occur in small caps (e.g., N, NNW, NW, etc.) except when used to refer to a specific feature (e.g., N Gate).

With regard to chronology the conventions outlined in chapter one have been followed in this catalogue (see Table 1 on p. 8).

Dates and Archaeological Phases

In most instances where archaeological phases, as they have been provided by the excavators, are cited in the catalogue and they have not been modified. However, when it is clear that dates used by an excavator are dependent upon the middle chronology, these dates have been adjusted to coincide with the low chronology dates used in this work (see chapter one, section C). No dates before the mid-third millennium B.C. have been lowered.

For the northern Levant the archaeological phases are usually simply referred to as MB I (e.g., IIA in the south) and II (e.g., IIB in the south). However, for the southern Levant dates have been provided in both formats (see chapter one, section B).

Sources

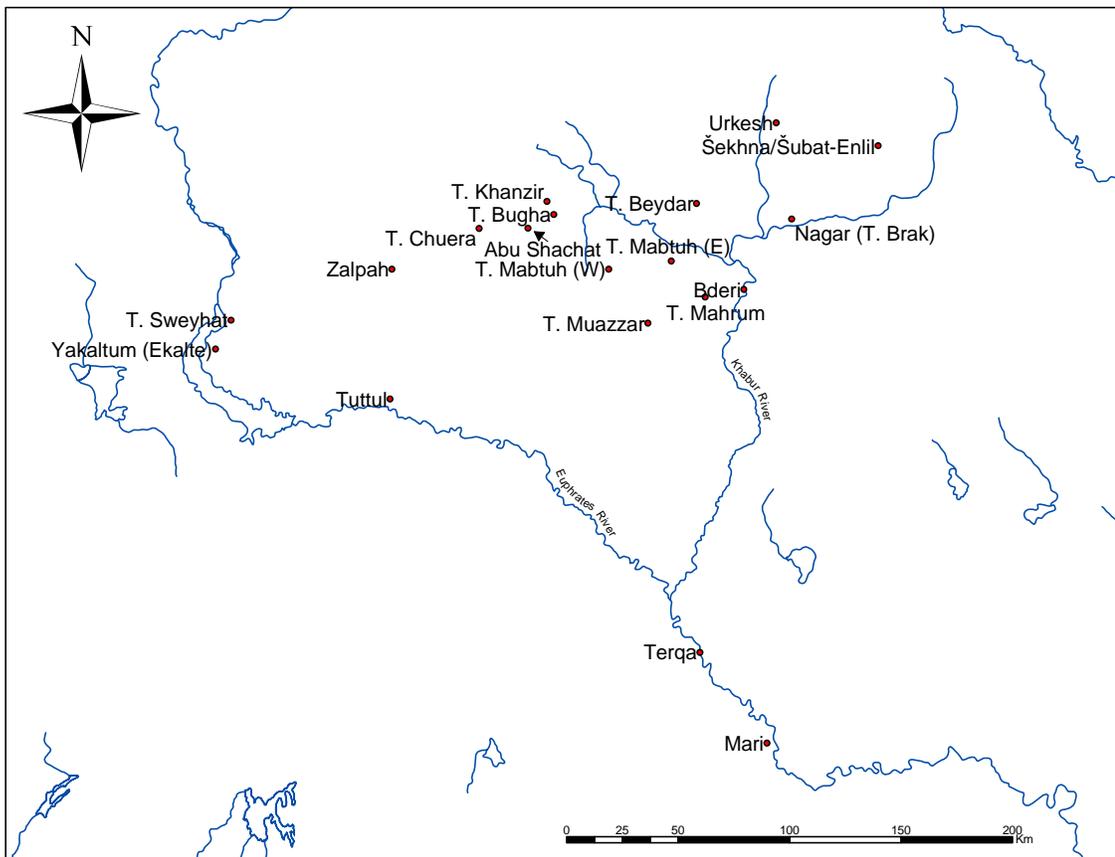
While final publications were available for only a small percentage of the sites included in this catalogue, for many other sites preliminary reports proved as useful as the brief sections on fortifications in other final reports. Still other sites included only an encyclopedia entry or other terse references which often provided only a few details about the major elements of their fortification systems. Despite every effort made to provide the basis for dating these defensive systems, it is almost certain that more complete publication of these sites and future work on ceramic chronology will cause at least slight shifts in the chronological picture as it is understood here. Nevertheless, it is hoped that the manner in which the evidence has been presented and the level of detail that has been sought in the process of assembling this catalogue will serve future research on MB fortification systems.

APPENDIX A:

FORTIFIED SETTLEMENTS IN NORTHWESTERN MESOPOTAMIA (CA. 3000 TO 1500 B.C.)

The sites mentioned in this appendix are located in eastern Syria between the bend in the Euphrates River on the west, the borders of modern Syria on the north and east, and the northern limits of the Arabian desert on the south (see Figure 11 below).

Figure 11. Sites included in Appendix A and mentioned in text.



BDERI, TELL**Lat. Lon.:** NA.**UTM:** 37 N 662959.4028410**References:** (Pfälzner 1987a; 1987b; 1989–1990; 1990).**Plans:** Site (Pfälzner 1989–1990; 1990:fig. 1); Gate (1989–1990:fig. 19).**Sections:** NA.**Photos:** S slope (Südhang, Pfälzner 1989–1990:fig. 20); Gate (Pfälzner 1987b:figs. 3f.; 1987a:fig. 5; 1989–1990:fig. 21).

The site of Tell Bderi is located on the E bank of the lower Ḥabur River in northern Mesopotamia. Although the site was abandoned during the MB the third millennium settlement has yielded information concerning the site's ED defenses (Pfälzner 1990:66f.). The site during this period was approximately 5 to 6 ha in size (ibid., 67). The fortifications of this period were exposed in a N-S step trench through the site's S side or *Südhang* (ibid., see fig. 1). Here remains of the town wall, a glacis, a tower, and gate, all of which belong to Level 25 (ca. 2800 to 2200 B.C.) were exposed.

The roughly 2.8 m wide **town wall** was built of mudbricks, which measured 20 x 20 cm (1989–1990:216ff.). The accompanying 1.7 to 2 m wide **glacis** was constructed of *pisée* and was renewed and possibly widened once or twice (1987b:294). In addition to the town wall a **tower** measuring 1.8 m square was later added to the wall and was constructed of “brick debris and mud with a framing of upright standing mudbricks” (ibid., 294). The remains of a **gate** were exposed within the line of the town's defenses also on its S side.¹ The gate was dated by Pfälzner to the ED I (ca. 2800 B.C.) and suggested to be the predecessor to MB orthostat-type gates (1990:67f.). Its passage was 3 m wide and was lined with stone orthostats, one of which measured 125 cm tall by 95 cm wide (1989–1990:218, see also fig. 21).

¹A life size reconstruction of this gate can be seen at the regional archaeology museum in Deir ez-Zor, Syria.

Although the site was abandoned around 2200 B.C. and throughout the MB, it was reoccupied during the LB (Pfälzner 1990:67).

BEYDAR, TELL (ANC. NABADA?)

Lat. Lon.: 36°44'16.6" N, 40°35'13.3" E **UTM:** 37 N 0641697.4066975

References: (Quenet 1997; Bluard 1997; Bretschneider 1997; Suleiman 2003).

Plans: Site (Lebeau and Suleiman 1997:fig. 5); Gate (Bluard 1997:fig. 1); Area G (Quenet 1997:fig. 2; Suleiman 2003:plans 29f.); Area H (Bretschneider 1997:fig. 3).

Sections: Area G (Quenet 1997: fig. 1; Suleiman 2003:fig. 307).

Photos: Site aerial (after Poidebard 1934, Lebeau 1997b:fig. 3); Tell profile (Lebeau 1997b:figs. 8f.); Area G (Quenet 1997:fig. 3) (Suleiman 2003:photos 1–3); Area H (Bluard 1997:figs. 2f.; Bretschneider 1997:figs. 2, 4).

Tell Beydar is located in the Ḥabur triangle in northern Mesopotamia. It is among a group of third millennium sites identified as *Kranzhügels* because of their unique topographic appearance.² The site was occupied during the Early Dynastic I–III (Early Bronze II–III). During this period the site consisted of a 7 ha central mound, probably the upper town, situated 27.5 m above the plain, with a citadel perched 7.5 m above the upper town (Lebeau 1997b:9f.). The entire upper town was surrounded by a 20.9 ha lower town which was itself enclosed by a fortification wall (ibid.).³

The embankments that now surround the site have only been explored in Area H on the N side of the site (Bluard 1997; Bretschneider 1997).⁴ The embankments are in fact

²Its relevance in the debate concerning MB fortifications stems from the possible influence that *Kranzhügeln* may have had upon MB defensive architecture, as suggested by Larry Stager (Stager 1999:237f.).

³The extent to which the lower town was settled has not yet been established.

⁴Although Lebeau has identified this embankment, or at least its lowest portion, as a “rampart” (Lebeau 1997a:111), no evidence for a rampart below the wall has yet been provided. As noted above, in fact, the wall itself is only slightly above the surface of the plain.

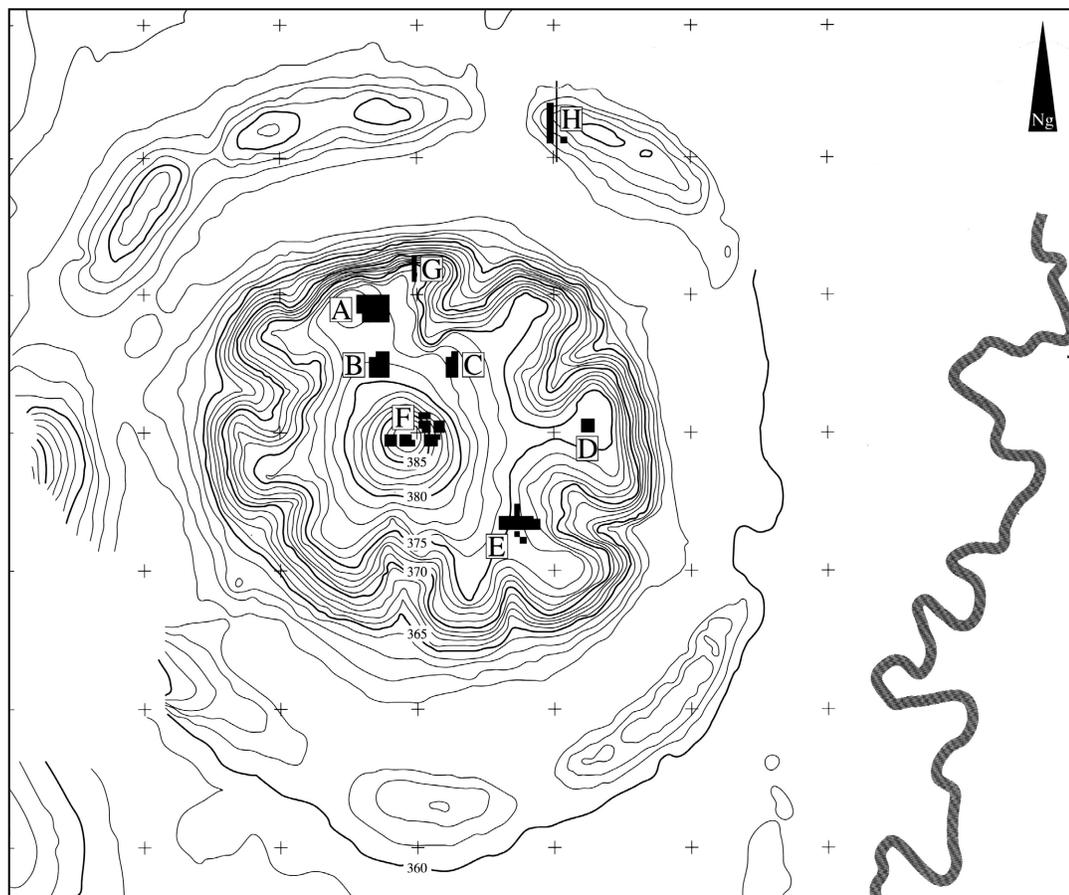
the remains of a mudbrick **fortification wall** built during the ED I (ca. 2950–2750 [EB II], Lebeau 1997b:9). The earth used in the construction of this wall was probably taken from an area roughly 80 m wide around the foot of the upper town (i.e., the material was taken from within the settlement). This can be inferred from the half-meter difference in elevation between the area inside the wall (359.5 m ASL), which is not thought to have been built upon during the EB, and the area outside the wall (360 m ASL). The remains of the embankment today are approximately 1,885 m long, 90 m wide, and 7 m high (ibid.), allowing us to determine at least the original length of the wall. This wall was interrupted by at least seven distinct depressions probably corresponding to the site's original **gates**, identified by Bluard as leading to the major ED destinations such as Mardin to the N, Urkeš to the ENE, Ninua to the SE, Nagar to the SSE, the Ḫabur River to the SSW, the Abd el-Aziz to the SW, and Chuera to the WNW (1997:fig. 1). Seven depressions on the upper town also align with these breaches. These gates have not yet been excavated, though the divine names given to them are attested in ED tablets found at Beydar (see texts 1, 5, 28f., 52 in Ismail, et al. 1996). The fortifications appear to have fallen out of use rapidly in the next period, ED II (early EB III).

The dating of the embankment containing the ED I wall was possible as a result of materials obtained from the tombs and houses built upon its dilapidated remains which were excavated in Area H (Bluard 1997). Here the embankments consisted of debris and settlement built over the eroded remains of a defensive wall, outside (i.e., N) of which tombs were located (ibid., 180). It appears that a 4.5 m wide mudbrick defensive wall was probably built during the earliest occupation of the site in ED I, or by at least early ED II, on the level of the plain (ibid., 181).⁵ During ED II (ca. 2700–2600) houses were

⁵Judging from fig. 3 in Bretschneider's summary of Area H (1997) the S elevation of the wall could be virtually traced down to 361 m ASL which is only 1 m above the level of the plain (ca. 360 m ASL).

built against and over the wall, and a necropolis was opened outside of it. Burials at the necropolis continued through the ED III (ca. 2600–2350), by which time the wall had already fallen out of use (*ibid.*).⁶

Figure 12. Topographic plan of Tell Beydar with excavation areas. Reprinted, by permission, from M. Lebeau (Lebeau and Suleiman 1997:fig. 5).



The defenses of the upper town dating to between 2900 and 2500 B.C. were also exposed in Area G (Quenet 1997; Suleiman 2003). Based on the evidence from this area the fortifications of the upper town appear to have featured three phases of separate

⁶Some confusion could exist as to the time at which the wall fell out of use. In one place Bluard observes that the “premiere niveau d’habitat” is to be dated to the ED III (1997:181), while in her conclusion she observes that the wall was “désaffecté pour servir, dès le DA II” (*ibid.*, 183). This confusion is solved by Lebeau’s observation (1997b:9) that the wall fell out of use in “Dynastie archaïque II”.

construction each consisting of a mudbrick **fortification wall** and gray mudbrick **glacis** (Suleiman 2003:303). The earliest mudbrick wall (7917) was only 1.85 m wide and was accompanied by a gray mudbrick glacis; the second mudbrick wall (7904), which was less than 1.5 m wide, also featured a similar glacis, as did the latest fortifications which consisted of 4.5 m thick mudbrick wall (7662) at about 377.66 m ASL. Although the base of the latest wall was never exposed, it was probably located around the 371 m contour line, which if traced around the acropolis would have been no less than 785 m long. While Suleiman has asserted the identification of a moat at the base of the fortification system based upon soundings there in 1998 (*ibid.*, 305), this identification cannot be supported by the published sections since they only reached 360.28 and as noted above the depression around the citadel is now as low as 359.5 m ASL (see pls. III and IV in Suleiman 2003).

CHUERA, TELL

Lat. Lon.: 36°40' N, 39°30' E

UTM: 37 N 0544295.4055805

References: (Novák 1995; Orthmann, et al. 1995; 1997).

Plans: Site (Orthmann, et al. 1995:supps. 1f.); Area P (Novák 1995:fig. 87).

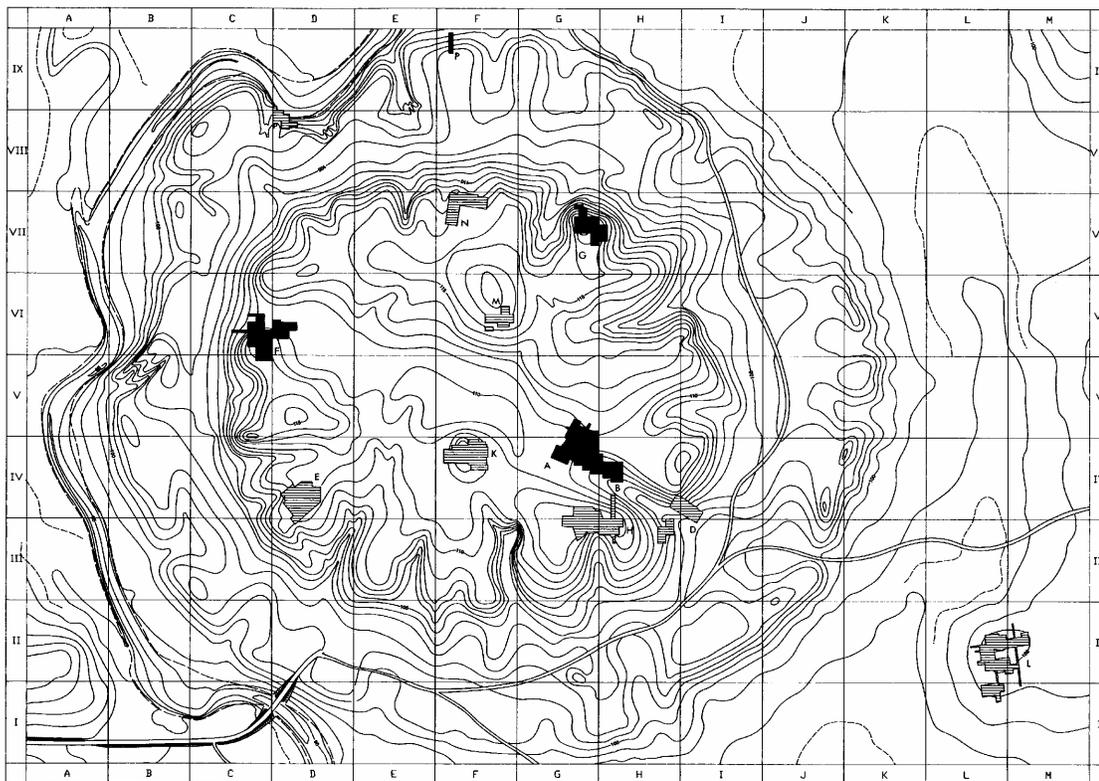
Sections: Area P (Orthmann, et al. 1995:supp. 17); Area P schematic (Orthmann, et al. 1995:fig. 109).

Photos: Area P (Orthmann, et al. 1995:pls. 21f.).

Tell Chuera, located between the Baliḡ and Ḥabur Rivers, covers an area of 65 ha and is therefore the largest of the early third millennium sites called *Kranzhügels* (Orthmann 1997:491). Although Chuera does not appear to have been occupied from ca. 2350/2300 to 1600 B.C., its development as a settlement during the EB III (Period I, ca. 2800–2300 B.C.), sheds light on the type of fortifications known in the region during this period and may also relate to the subsequent development of fortifications at sites further

w. The site consists of an upper town of roughly 43 ha surrounded by a lower town of 22 ha. It was flanked on the w by Wadi Chuera which added to its defensibility.

Figure 13. Plan of Tell Chuera. Reprinted, by permission, from W. Orthmann (1995:supp. 2).



Period IC (ED/EB III)

During Period IC when the site reached its peak size it was surrounded by a mudbrick **fortification wall** and 15 m wide **fosse** (Oredsson 2000:45).⁷ The wall around the lower town has been investigated on the N side of the site in Area P (Orthmann, et al. 1995:supp. 2). Period IC is the earliest period to which the wall may be attributed with any certainty, though it may have functioned during Period IB (Novák 1995:175). The wall itself was constructed of mudbrick more than 5.5 m wide, probably before any

⁷For phases of settlement at Chuera see Table 2, p. 15 in Orthmann (1995).

settlement in this part of the site. It was preserved to a height of no less than 4.4 m (ibid., supp. 17) and its circuit was probably about 2,810 m long. At this time a 1.2 m wide mudbrick ‘vormauer’ or **revetment wall** was also built about 6 m in front of the town wall. A ‘glacis,’ or more properly speaking a **rampart**, of alternating layers of complete and fragmentary bricks and grayish-black ash with an approximate slope of 19° was constructed between the early town wall and the revetment wall (ibid.). No surface treatment (i.e., glacis) was noted. Excavations in 2002 appear to have revealed the same series of walls on the w side of the site in a long and wide trench cutting across the site’s defenses.

Period ID

During Period ID the **revetment wall** (‘vormauer’) was renovated and a stone foundation for a new mudbrick superstructure was built upon it (Novák 1995:175). Between this new ‘vormauer’ and the town wall a new **glacis** was built up with a preserved slope of 35°. But prior to the completion of this glacis (visible in the excavated section) a supportive buttress or **tower** was added to the outside of the town wall (ibid.). This second phase of the town’s fortifications appears to have remained in use until Period IE (Late ED/Akkadian).

The upper town appears to have also been at least partially enclosed by a separate fortification wall (Orthmann 1997:491).

MARI (TELL HARIRI)**Lat. Long.:** 34°33'04.8" N, 40°53'20.3" E **UTM:** 37 N 0673319.3824909**References:** (Parrot 1958; Margueron 1983; 1984; 1987; 2000).**Plans:** Site (Margueron 2000:fig. 1); OB Palace enceinte (Parrot 1958:foldout); SW quarter (Margueron 2000:fig. 1).**Sections:** Schematics (Margueron 2000:fig. 2).**Photos:** Trench C₂ (Margueron 1984:fig. 34); early 3rd millennium rampart (Margueron 2000:fig. 8); OB palace enceinte (Parrot 1958:pls. 60f., figs. 405, 412f.).

Mari is located on the S bank of the middle Euphrates just W of the modern border between Syria and Iraq and about 60 km SE of Terqa. An examination of the topographical plan of Tell Hariri and recent studies of the Euphrates Valley in the vicinity of the site (Margueron 1987) have led to the conclusion that the site during the third and second millennia consisted of a centrally located upper town accompanied by a lower town, both of which were enclosed by a ring of rampart-style fortifications. Today the SW quadrant of the site is all that remains of this overall plan (Margueron 2000:fig. 1), while the remainder of the site is presumed to have been washed away by the meandering of the Euphrates River along the valley floor. In this regard it is good fortune that any of the site has survived to the present day. Aside from the obvious suggestion that the exterior rampart served as the site's primary defensive line, a similar defensive structure would probably have been built around the upper town (the "rampart interieur" in fig. 1, Margueron 2000) comparable in character to the wall found around the palace (Parrot 1958:329ff.).

The so-called exterior **rampart** of Mari in the third and second millennia has been explored in a series of trenches (C₁–C₄) in Area C through the remains of the embankment located to the SW of the tell. The first of these trenches was opened in 1979 on a small projection S of the rampart in squares F–J/12–13 in Grid XIV, but no built

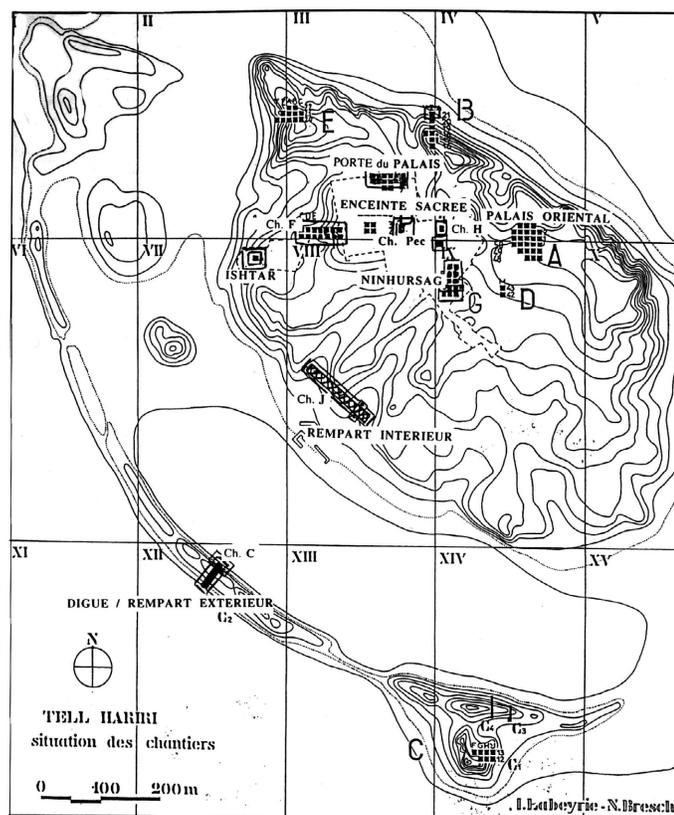
structures were exposed (Margueron 1982:29f.). Exploration of the ramparts resumed in 1980 with the opening of Trench C₂ in Grid XII more than 500 m to the WNW from the previous trench (Margueron 1983). Its excavation was completed in 1982 and Trenches C₃ and C₄ were then opened, both of which were directly N of Trench C₁ (Margueron 1984:26–30). The results obtained in C₃ and C₄ served only to confirm the conclusions drawn from the excavation of Trench C₂ (*ibid.*, 29). In these trenches several courses of a mudbrick **fortification wall**, measuring 2.5 m wide in Trench C₂, were exposed along with evidence of the building up of the rampart's interior slope with gravelly earth (Margueron 1984:27–29; see also ill. of last phase of “Ville III”, fig. 2 in Margueron 2000). This wall presumably belongs to the “Ville III” phase of Margueron's historical reconstruction of the defenses. Unfortunately, the evidence presented in these preliminary reports is insufficient to date the rampart or determine its phases. Nevertheless, based on recent conclusions concerning the construction and phasing of the exterior rampart presented by Margueron (2000), it appears that the excavations in Area C yielded sufficiently detailed information to enable the following reconstruction of the town's fortifications. Margueron's reconstruction of Mari's fortifications consists, therefore, of three main phases, “Ville I” to “Ville III”, which lasted from ca. 2900 B.C. to 1696 B.C.

“Ville I” (ED II, ca. 2900–2600 B.C.)

Mari's earliest settlement appears to have been surrounded by what Margueron has identified as an earthen dike (*Fr digue*). This dike consisted of the remains of an early wall built of fieldstones (?) that was subsequently buried by the heaping up of earth against both of its sides, thus creating the foundations for the ramparts of later periods (*ibid.*, fig. 2). Margueron has suggested that the original purpose of the dike, which featured a diameter of 1,900 m and would have been as much as 5,970 m long, was probably not defensive but was rather intended to protect the settlement from inundation (*ibid.*, 910). But this notion appears to be entirely speculative since Margueron has also

identified a town wall belonging to the “Ville I” phase which in fact rested upon the top of this dike. This seems to confirm that the dike should more likely be identified as the foundation for this wall. Unless it can be demonstrated that the construction of the dike and the wall which rested upon it are separated by a discernible period of time, there is no basis for identifying it as anything other than the foundation of the town wall. Therefore, I believe that Margueron’s “Ville I” phases must be collapsed into a single phase when a stone foundation, mudbrick **fortification wall**, and accompanying **rampart** were constructed (Figure 14).

Figure 14. Plan of Mari. Reprinted, by permission, from J.-C. Margueron (2000:fig. 1).

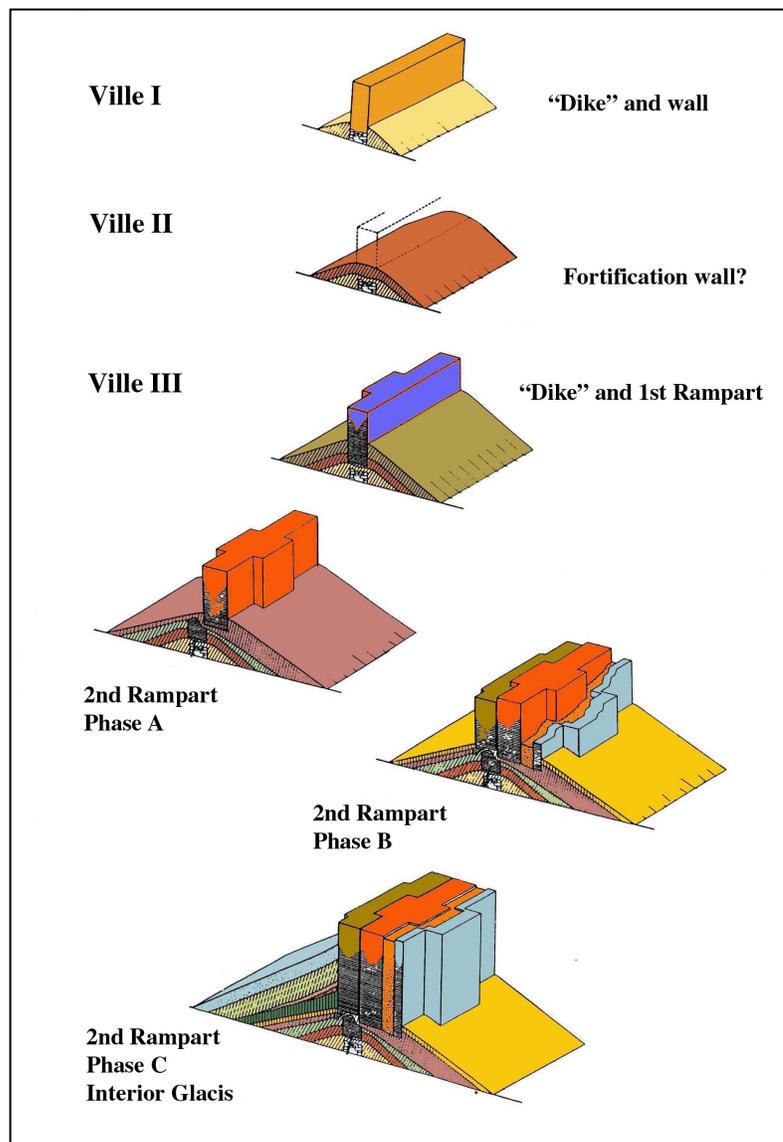


“Ville II” (ED III, ca. 2600–2350 B.C.)

During the next major period of settlement, evidence concerning the town’s defenses is less clear (Margueron 2000:911). Margueron has noted that this may be the

result of the fact that the fortifications of “Ville I” were sufficient or that subsequent construction by the inhabitants of the later “Ville III” left no evidence of the fortifications of “Ville II” (ibid., 911, fig. 2).

Figure 15. Fortifications of Mari “Ville I” to “Ville III”. Reprinted, by permission, from J.-C. Margueron (2000:fig. 2).



“Ville III” (EB IVB–MB, ca. 2150–1696 B.C.)

The settlement of “Ville III” provides the greatest evidence for the development of the settlement’s fortifications (Figure 15). Each of the four successive phases in this

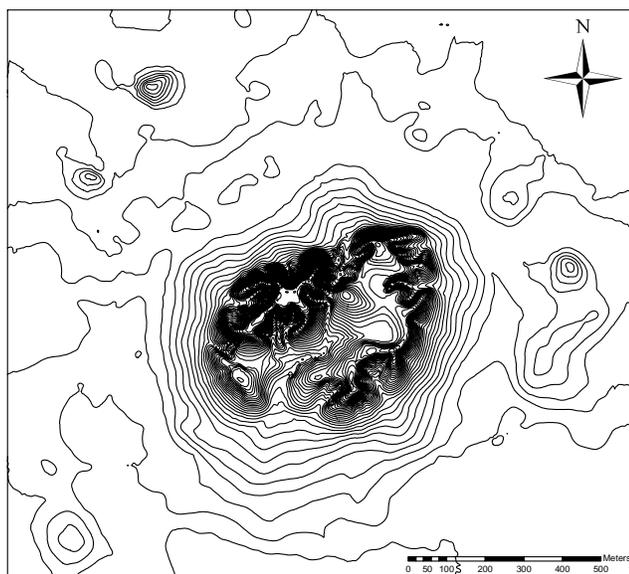
period evinces a town's fortifications under constant renovation and improvement. In the first phase, identified as the **first rampart**, a 3 m wide mudbrick **fortification wall** was added to the preexisting "dike" with the addition of new earth to both sides of the rampart (ibid., 921). After this structure had fallen into disrepair and was abandoned it was replaced by a new 4 m wide mudbrick **fortification wall** with expansion of the rampart's surface on both sides of the new wall. This is identified as Phase A of the **second rampart**. This was followed by Phase B when the wall's width was doubled by the addition of mudbrick walls along its interior and exterior sides, resulting in a total width of 9 m. The final phase of the second rampart, Phase C, was characterized by massive expansion of the slope on the interior side of the rampart which Margueron has referred to as the "glacis interieur" which was composed of gravel and supposedly intended to counter efforts to undermine the wall. This wall was destroyed by Hammurapi.

In addition to the recent evidence for the history of Mari's outer fortifications, A. Parrot had excavated a portion of the **palace fortification wall** (Parrot 1958:329–339). Its average width was 3.5 m (ibid., 328). The entire extent of Mari's fortifications is difficult to determine since, as mentioned above, much of the settlement has probably been removed by the meander of the Euphrates River. Nevertheless, it is worth attempting to determine the total extent of Mari's fortifications. Margueron has suggested that if the settlement was approximately circular in layout then its diameter would have been nearly about 1,900 m (Margueron 2000:910). Such dimensions would yield a site of approximately 283.5 ha with a circumference of around 5,970 m. If the acropolis was not much bigger than it is today then it would have been around 45 ha leaving 238.5 ha for the lower town. Are such figures reliable? It is impossible to know, and yet such sizes would be comparable to sizes of settlements in Lower Mesopotamia: ED I Uruk at ca. 400 ha (Postgate 1992:75), OB Isin at 225 ha (Hrouda 1997), and OB Larsa at 360 ha (Margueron 1997a).

NAGAR (TELL BRAK)**Lat. Long.:** 37°40' N, 41°03' E**UTM:** 37 N 683931.4060098**References:** (Oates, et al. 1997).**Plans:** Site (Oates, et al. 2001:fig. 2); Area TW (Oates, et al. 1997:fig. 166).**Sections:** NA.**Photos:** Area TW (Oates, et al. 1997:figs. 165f.).

The site of Tell Brak, located in the Ḫabur triangle 45 km SE of Beydar, has been identified as the capital of the third and second millennium kingdom of Nagar (Oates and Oates 2001:379ff.). The “violent destruction and fire” revealed at Tell Brak at the end of Phase L in Area CH (Level 6), Area ER (Level 5), and in Areas ST and DH is considered to be the work of either the Akkadians or local wars (Oates, et al. 2001:382, 391). While no remains of the fortifications of the third millennium site, which was between 40 and 65 ha (ibid., 380), have yet been exposed, the fortifications of the early second millennium have been encountered in Area TW and may be evident near Trench D and Area FS (Oates, et al. 1997:142f., figs. 165f.). However, little else can be added regarding its OB fortifications.

Figure 16. Plan of Tell Brak. Courtesy of D. and J. Oates. Drawn by Tim Skuldeboel.



ŠEKHNA/ŠUBAT-ENLIL (TELL LEILAN)**Lat. Long.:** 36°57'20.1" N, 41°30'23.5" E **UTM:** 37 N 0723171.4092880**References:** (Weiss 1985; Schwartz 1988; Weiss 1990; G. J. Stein 1991; Weiss, et al. 1991; Weiss 1997).**Plans:** Site (Ristvet and Weiss forthcoming).**Sections:** Operation 1 (Schwartz 1988:figs. 3–5); Operation 4 (Weiss, et al. 1991:fig. 22).**Photos:** NA.

Tell Leilan, which is probably to be identified with the third millennium town of Šekhna and second millennium Šubat-Enlil, is located in the Ḥabur triangle in northern Mesopotamia. In the first phase of settlement at Leilan under consideration here (Leilan IIa, ca. 2350–2250 B.C.) the site was roughly 90 ha in size, a size it had first attained during the previous period of occupation (Leilan IIIId, 2600–2350 B.C.) (Weiss 1997:342). During both of these phases the site consisted of an upper town of less than 15 ha and a lower town of around 75 ha (ibid.), and recent evidence has demonstrated that by Leilan IIIId the settlement was already enclosed by a fortification wall (personal communication, H. Weiss 2002). Based on the size of the settlement and its topography it is possible to infer that fortifications around the acropolis would have been 1,415 m long while those around the lower town would have been about 2,250 m long.

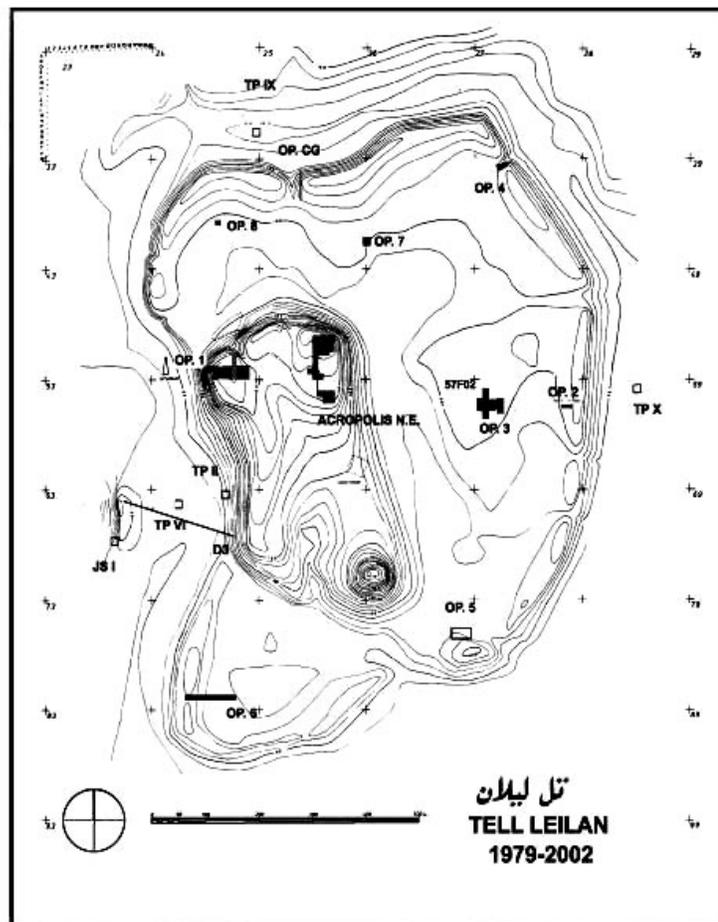
Leilan IIb-a (ca. 2350–2150 B.C.)

During the early part of the EB IV Leilan was also fortified. These fortifications have been encountered on the NW corner (Operation 1) of the upper town where the remains of a 2.5 m wide mudbrick **fortification wall** were found in a phase of occupation that preceded Akkadian control (Weiss 1997:343). Presumably these fortifications are to be identified with walls 2 and 3 in Operation 1 published by G. Schwartz (1988:26f.).⁸

⁸The conclusions presented in Schwartz's work (1988) have been considerably revised in the twenty years since the work was first completed as a dissertation (1982).

Weiss has also suggested that the lower town was not fortified during the Leilan Iia phase, since the period Iia town wall around the lower town was not identified in Operation 4 on the NE side of the site (1997:343). But this may only be due to the fact that the excavation trench did not reach the highest point of the earlier embankment there (G. J. Stein 1991:555). No town wall has yet been identified for the Akkadian ruled Leilan IIb (ca. 2250–2150 B.C.) occupation.

Figure 17. Plan of Tell Leilan. Reprinted, by permission, from H. Weiss (Ristvet and Weiss forthcoming).



Leilan I (ca. 1850–1664 B.C.)

After Akkadian hegemony and following a hiatus in occupation (ca. 2150–1850 B.C.), the site was resettled and became the capital of the Old Assyrian kingdom under

Šamši-Adad and was called Šubat-Enlil. The OA settlement appears to have been approximately the same size as that of Leilan II and during this period also included settlement in a lobe to the S of the tell that has been speculated to be the location of a *kārum* (ca. 10 ha) appended to the original settlement (Weiss, et al. 1991:534f.). This additional settlement probably necessitated the construction of another 750 m of town wall and rampart. During this time it appears that the entire site was fortified and that in the lower town houses were built “against the early second-millennium BCE city wall” (Weiss 1997:345). Weiss has suggested that the wall of the OA town was approximately 3,700 m long, tracing the 100 m contour line around the lower town and rising 5 to 15 m above the surrounding plain (Weiss, et al. 1991:534). This mudbrick **fortification wall** was explored in Operations 2 and 4 situated on the E and NE ramparts, respectively. In Operation 4 the Leilan I town wall appears to have been built towards the end of Period I occupation in this area (G. J. Stein 1991:554). The bricks used in this 5 m wide wall were “identical in appearance to the bricks used in the Period I temple construction on the Acropolis” (ibid.). The wall appears not to have been maintained throughout the period and it already began to collapse before the end of Period I (ibid., 555).

Beyond the identification of the town’s wall, it is also possible to derive conclusions from the topographical plan of the site. By these means the gates have been identified with four gaps in its surrounding embankments which are located on the N, S, and E sides (Weiss 1985:plan on p. 7). To these we could also probably add two more such gates at gaps flanking the upper town on the N and S and leading across the Wadi Jarrah to the W (ibid.). The Wadi Jarrah also appears to have served as an additional defense on the site’s W side, though no remains of a fosse have yet been identified around the settlement.

Leilan continued in existence until ca. 1664 B.C. when the town was destroyed by the king of Babylon, Samsuiluna (Weiss 1997:347).

SWEYHAT, TELL**Lat. Long:** 36°16'28.3" N, 38°15'14.4" E **UTM:** 37 N 0432998.4014657**References:** (Holland 1976; 1977; Zettler 1997b; 1997d;a; Peregrine, et al. 1997).**Plans:** Site (Holland 1976:figs. 1, 17; Zettler 1997b:fig. 1.4); Area IV (Holland 1976:fig. 3; 1977:fig. 1); Operation 25 (Zettler 1997c:fig. 3.13).**Sections:** NA.**Photos:** Site aerial (Zettler 1997b:fig. 1.5); Geomagnetic maps (Peregrine, et al. 1997:fig. 4.1, 4.3); Area IV (Holland 1976:pl. 5a); Operation 25 (Zettler 1997c:fig. 3.14).

The site of Tell Sweyhat includes both a tell, which sat 15 m above Euphrates Valley measuring approximately 300 m N-S by 250 m E-W, and a roughly rectangular enclosure of the lower town with gross dimensions of 700 m N-S by 600 m E-W (Holland 1976:36).⁹ Recent exploration has led to the conclusion that only the upper town was settled during the early third millennium, though by the third quarter of the third millennium settlement had expanded to the N and E into what can be identified as the lower town (Zettler 1997b:169). Although the site's gross size has been noted to be 42 ha, its net size within the wall was actually only about 30 ha.

The fortifications of the upper town were only excavated on its W side in Areas IV and X (Holland 1976:49, fig. 3). Here a 2.5 m wide mudbrick **fortification wall**¹⁰ preserved to a height of 1.17 m was built on stone foundations. The mudbricks used in this wall measured 50 x 40 x 10 cm in size. Mudbrick detritus found in Trench IIIJ on the NE side of the site located along the same contour line may also be related to this wall. Although it is not certain whether the wall enclosed the entire upper town, it is doubtful that this structure should be otherwise interpreted since clay sling bullets discovered in a

⁹M. Astour has identified the site with EB Burman (2002:167).

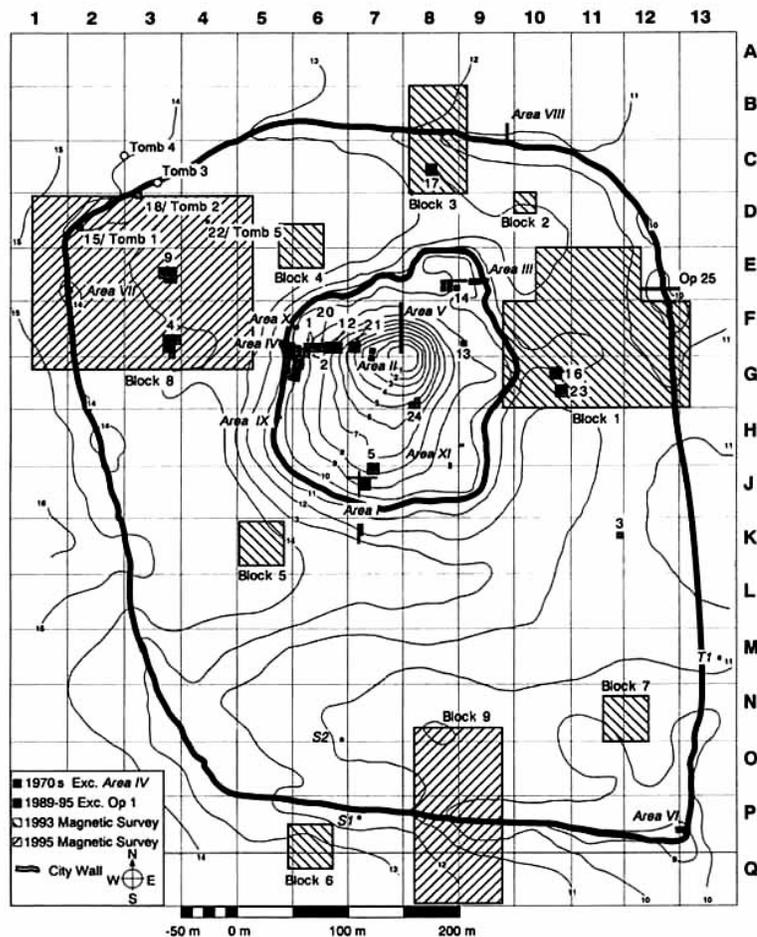
¹⁰This wall's width was corrected in the second preliminary report, as a result of excavation in Area IV Trench D (Holland 1977:37), from the previously reported width of 7 m (1976:49).

room on the interior of the wall probably suggest a defensive purpose for this wall (Holland 1976:49; Stout 1977). Where the wall had originally been identified as 7 m thick in Area IV (see n. 10), has now been reinterpreted as a **tower** 7 m wide though only 5 m long (Holland 1977:37), which seems appropriate in light of the finds in adjacent structures. To the S of these excavations, a gap in the W fortifications of the upper town in Trench IVS accompanied by a stone pavement has been interpreted as possible evidence of a gate to the upper town (Holland 1977:41f.). Evidence from the rooms in Area IV inside the wall suggests that this wall was in use at the end of the third millennium (Holland 1976:49; 1977:37). If the suggested line of the acropolis defenses are traced then its wall perimeter would have been about 720 m long (Zettler 1997b:fig. 1.4).

Soundings were made of the ramparts surrounding the lower town in three main locations by the first expedition (Areas VI–VIII, see Holland 1976:fig. 17). In a slit trench across the N fortifications in Area VIII the fortifications appear to have consisted of “alternating layers of wadi gravels and *libn* packing” (Holland 1976:62). Subsequent exploration of the lower town’s defenses were completed by the second expedition to Sweyhat (Zettler 1997c). Excavation in Operation 25 exposed an outer fortification line assigned to a second phase of occupation in this area (*ibid.*, 49ff.). This was part of an **earthen rampart** 18.5 m wide whose outer face featured a stone **revetment** with a 38° slope and whose inner face was supported by a “1.15 m wide **retaining wall** that consisted of mud bricks set on substantial stone footings three to four courses high”. The later expedition’s excavators have compared the construction of the site’s fortifications with those of well known MB sites in the Levant such as Shechem, although they have preliminarily dated the structure to the third quarter of the third millennium. The structures identified in Operation 25 would, according to the excavators, have supported a separate wall on a leveled surface which was 8 to 10 m wide and about 6 m high. The ramparts are estimated to have been 17 m wide on average (Zettler 1997b:170). If the

projected line of the ramparts is correct (see Zettler 1997b:fig. 1.4), then the fortifications would have been approximately 1,675 m long. Zettler has calculated the volume of the rampart to have been approximately 170,000 m³ (ibid., 170, see also n. 42).

Figure 18. Plan of Tell Sweyhat showing course of late EB fortifications. Reprinted, by permission, from R. Zettler (1997a:fig. 1.4).



A **gate** has been located on the eastern side of the site with magnetometry but has not yet been excavated (Zettler 1997b:170). Unfortunately, this gate has been plowed under by local farmers since 2001, according to Richard Zettler (personal communication, 2004).

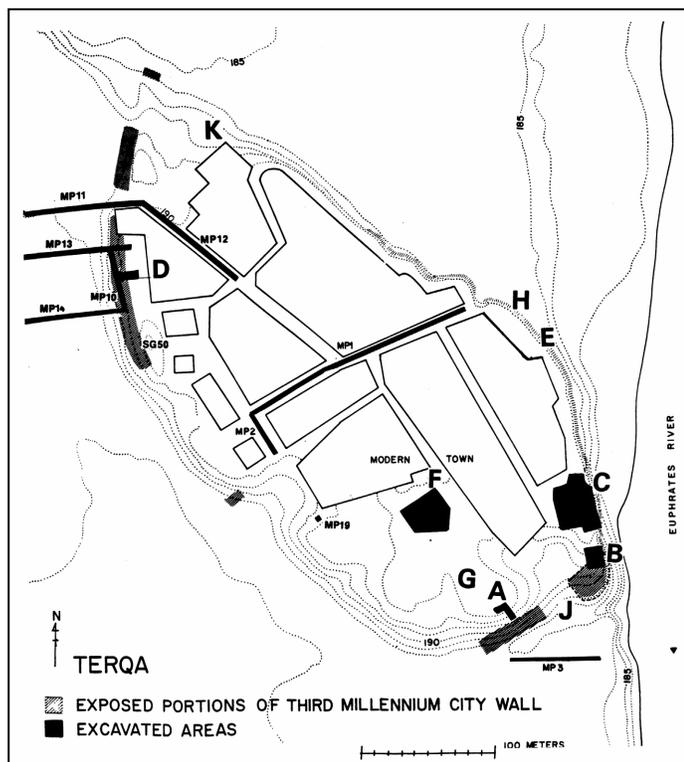
The late third millennium fortifications of the upper town were destroyed some time during the Ur III period in a conflagration (Holland 1977:58).

TERQA (TELL ASHARA)**Lat. Long:** 34°55'24.4" N, 40°34'08.9" E**UTM:** 37 N 0643326.3865678**References:** (Buccellati and Kelly-Buccellati 1978; Buccellati 1979; Buccellati and Kelly-Buccellati 1983; 1997b).**Plans:** Site (Buccellati 1979:fig. 2; 1983:fig. 1); Area D (1979:fig. 18); MP 13+ (ibid., fig. 13); SG 17 (ibid., fig. 19).**Sections:** Schematics (Buccellati 1979:44, figs. 16, 19); Isometric reconstruction (1983:fig. 2); Area B (1979:fig. 9); MP11 (ibid., fig. 11); MP 13+ (ibid., fig. 12); Defensive Rings (ibid., fig. 16).**Photos:** Site aerial (Buccellati and Kelly-Buccellati 1983:photo 1); Area B (Buccellati 1979:photo 63); Area D (ibid., photos 46–62, 66–75).

Terqa, a small 10 ha site 60 km upstream from Mari on the Euphrates River, has yielded considerable evidence of its fortifications (Buccellati and Kelly-Buccellati 1997b:189). It is thought that Terqa, like Mari, was originally founded with a circular plan and that it too experienced massive erosion to its N as a result of the meander of the Euphrates River after the second millennium (Buccellati and Kelly-Buccellati 1983:47). If indeed half of the site has been lost, then the site may have been as much as 20 ha in size. The evidence for the fortifications of Terqa is derived from excavations in Areas MP 11 and 13+, D, and SG 17 on the w side of the site and from Area B on the s side (Figure 19). Evidence from Terqa consists of three distinct phases of construction of the town wall during the third millennium, each dated by C14 samples and diagnostic pottery (Buccellati 1979:70ff.). Each of the three walls (Defensive Rings 1–3) was built upon an **earthen rampart** that today only survives to the w of the main mound, though presumably similar embankments once surrounded the entire settlement (ibid., 47f.). The **fosse** which was excavated outside these walls is also thought to have functioned with

each of these three third millennium walls. It is believed to have been less than 15 m wide (ibid., 53).

Figure 19. Plan of Terqa and excavation areas. Reprinted, by permission, from G. Buccellati and M. Kelly-Buccellati (1983:fig. 1).



Defensive Ring 1 (ca. 3000–2900 B.C.)

The earliest defenses of Terqa, referred to as Defensive Ring 1, have been identified with the original construction of the **inner wall** (City Wall 1) upon an earthen embankment c.a. 3000 B.C. (Buccellati 1979:78f.). Only about a century later, ca. 2900 B.C.,¹¹ this wall was rebuilt 5 to 6 m wide (City Wall 1A) and projecting **towers** were added (ibid., 79). The bricks used in this wall's construction measured 45–46 x 20–22 x 10 cm (1978:21). Evidence of a **sally port** was also found in SG 50 (1983:47). Localized

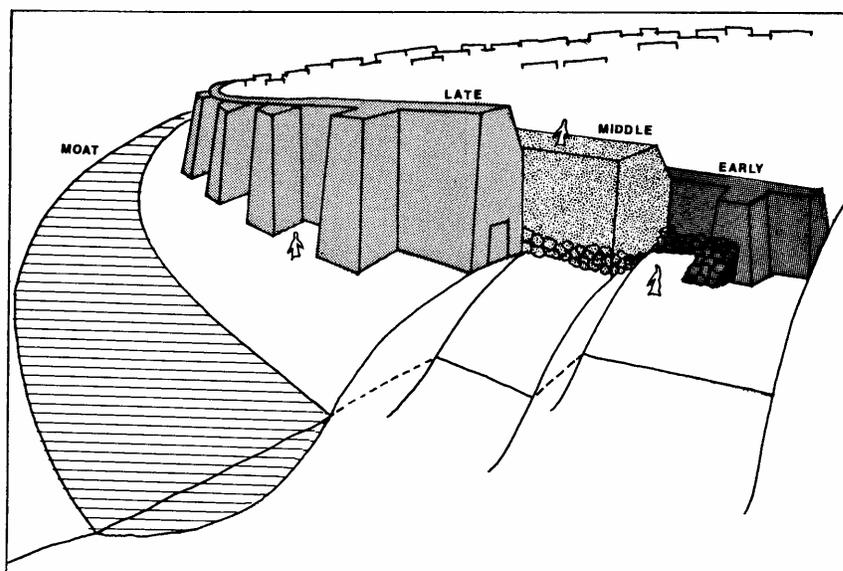
¹¹I have followed the most recent absolute dates which have been suggested by the excavators (Buccellati and Kelly-Buccellati 1983) and not those from the original reports (see, for example, Buccellati 1979:77).

rebuilding of this wall appears to have occurred in some places around the site (Buccellati 1979:78).

Defensive Ring 2B (ca. 2800 B.C.)

During the second phase identified as Defensive Ring 2B, which is dated to ca. 2800 B.C., a 9 to 10 m wide mudbrick wall, known as the **middle wall**, was added to the exterior face of the original wall (Buccellati and Kelly-Buccellati 1983:47). It is thought that the boulder foundation which was revealed against the foot of the inner wall belonged to the middle wall in which a similar construction was incorporated (1978:20). Although G. Buccellati has referred to it as a glacis (Buccellati 1979:79), it does not appear to have been a glacis according to the definition used in this work. Rather, it appears to have served as a footing which protected the base of the second wall.

Figure 20. Reconstruction of Terqa's third millennium defensive system. Reprinted, by permission, from G. Buccellati and M. Kelly-Buccellati (1983:fig. 2).



Defensive Ring 2C (ca. 2700 B.C.)

In the third and final phase identified as Defensive Ring 2C, dated to ca. 2700 B.C., an **outer wall**, which was 4 to 6.5 m wide, was added to the second wall leaving a 2 m wide passage or casemate between the outer and middle walls (Buccellati and Kelly-

Buccellati 1983:47). However, it is possible that the space between these walls was the result of erosion or cutting away by the builders of the third phase (1978:21). The outer wall, like the inner wall, also featured projecting **towers** (1983:47).

The cumulative width of these defensive rings during its final phase of use must have been roughly 20 m! If the site was indeed circular in plan and only 50% has been lost, then the projected length of the ramparts, wall, and fosse would be approximately 1,800 m.¹²

Defensive Ring 3 (from ca. 2500 B.C.)

Based on the evidence from the excavations G. Buccellati has concluded that following the final phase of construction during the mid-third millennium (Defensive Ring 3) the wall continued to serve as the town's primary defensive line at least until the end of the third millennium, and quite possibly into the second (Buccellati 1979:p. 42, Chart 11, pp. 82f.). Unfortunately, it has been difficult to date most of these modifications because of a lack of pottery within the structure and the impossibility of associating any floors with these renovations (personal communication, G. Buccellati 2002). Some localized rebuilding of the wall took place during both the late third millennium and the early part of the second millennium, the latter of which is evident based on brick sizes known to have been associated with MB construction at Terqa (Buccellati 1979:82f.). MB bricks are usually square in contrast with the earlier rectangular bricks. It is also clear that the reconstruction of the third millennium defenses during the MB led to the defenses being increasingly elevated above the plain.

¹²Only 640 m of the defenses are thought to remain along the w and s sides of the tell, half of which is visible on the surface as mudbricks and mudbrick detritus (see fig. 2 in Buccellati 1979).

A final **fortification wall** during the late MB appears to have been built after the previous fortifications had been out of use for some time (*ibid.*, 83). Although evidence is scant it has been suggested that a **fosse** also accompanied this structure.

TUTTUL (TELL BI'A)

Lat. Long: 35°57'26.6" N, 39°02'49.8"E **UTM:** 37 N 05504252.3979224

References: (Strommenger 1981–1982; Herbordt, et al. 1982; Arns, et al. 1984; Czichon and Werner 1998; Miglus and Strommenger 2002).

Plans: Site (Miglus and Strommenger 2002:pl. 5:1); Hügel A-C (Miglus and Strommenger 2002:pls. 16–18, 26, supp. 2); Hügel C (Miglus and Strommenger 2002:pls. 23, 25f., 65, supps. 3, 15f.; Herbordt, et al. 1982:supps. 7f.; Arns, et al. 1984:supp. 3); Hügel M (Miglus and Strommenger 2002:pls. 9–12:1).

Sections: Hügel C (Miglus and Strommenger 2002:pls. 24f., supp. 4; Herbordt, et al. 1982:fig. 13, supp. 7–8); Hügel K (Miglus and Strommenger 2002:supp. 5); Hügel M (Miglus and Strommenger 2002:supp. 1).

Photos: Site aerial (Miglus and Strommenger 2002:pls. 5:2–6:2); Hügel A-C (Miglus and Strommenger 2002:pls. 14f., 19:2); Hügel C (Herbordt, et al. 1982:fig. 15; Arns, et al. 1984:figs. 19f., 26; Miglus and Strommenger 2002:pls. 14:1, 22, 27:1); Hügel K (Miglus and Strommenger 2002:pl. 27:2–5); Hügel M (Miglus and Strommenger 2002:pl. 12:2f.).

Tell Bi'a, near the modern settlement of Raqqa on the N bank of the Euphrates upstream from the confluence of the Baliḡ and Euphrates Rivers, was settled during the third millennium and first half of the second, when it was known as Tuttul. Extensive excavations of the site from 1980 to 1995 have provided a considerable overview of the site's settlement during these periods from the following areas: Hügel M on the S, Hügel C on the W, and Hügel K on the N. Within the confines of the Early Dynastic (ED) and MB walls the site appears to have been approximately 31 ha in size. In the final report on the town's fortification walls the ED wall is referred to as the "ältere Mauer", while the

MB wall is referred to as the “jüngere Mauer” (Miglus and Strommenger 2002:9–22). Unfortunately, though the earlier wall certainly dates to the third millennium, its exact placement in the ED period cannot be confidently asserted (Miglus and Strommenger 2002:21). It is only known for certain that the wall was erected prior to the Akkadian period based on an Akkadian tomb dug into the “glacis” in Hügel M.

Early Dynastic Fortifications

The town’s ED **fortification wall** has been explored in trenches on the s (Hügel M) and w (Hügel C) sides of the site. In the 1.5 m wide trench in Hügel M this wall was 6 to 6.3 m wide and was built of mudbrick (Miglus and Strommenger 2002:9f.). Bricks used in this wall varied in size and included both rectangular bricks (38 x 34, 42 x 36, 43 x 30, 47 x 32, 48 x 38, 49 x 31 cm and often 50 x 36 cm), and square bricks (30, 36, 43, 46, or 48 cm on a side), and their half brick variants. When the wall was later rebuilt a **glacis** of hard mudbrick material was added against its exterior face. Later a 1.8 m wide outer wall was added parallel to this wall but about 16 m s of it on the remains of an earlier wall that measured 1.2 m wide (*ibid.*, 10). The outer wall’s bricks measured 42 x 42 x 10 cm. During the phase associated with the outer wall child burials were added in front of and behind the outer wall.

The ED town wall was also revealed between Hügels A and C where a 25 m stretch of the wall was exposed to a height of 2 m and up to 6.3 m wide (Miglus and Strommenger 2002:9). On the w side of Hügel C the wall measured about 6.4 m wide and was built of rectangular mudbricks measuring 54 x 35 cm (*ibid.*, 17). Buttresses measuring roughly 1.5 m wide were added to the interior face of the wall and spaced about 3 m apart. A 1.8 m projection on the exterior of this wall may be part of a **tower** (see Miglus and Strommenger 2002:pl. 23). Rooms built against the interior side of the wall in this area have been dated to the mid-EB based on ceramics recovered from them (Arns, et al. 1984:47). The exterior, w walls of the structures built against the interior of

the town wall are 2.3 m wide (*ibid.*, 48) and added to the width of the wall would have meant that the average width of the wall in this period was effectively 8.7 m! On the N extension of the excavations in Hügel C the wall was also revealed to be 4.7 m wide (Miglus and Strommenger 2002:17f.).

Figure 21. Contour plan of Tell Bi'a indicating excavation areas. Reprinted, by permission, by P. Miglus and E. Strommenger (2002:pl. 5:1).



Remains of the **W gate** of the ED town have also been exposed between Hügels A and C (Miglus and Strommenger 2002:13f.). Unfortunately, the structure was poorly preserved and only part of the stone foundations in addition to three of the gate's doorsockets remain. Nevertheless, the plan of the gate has been reconstructed as belonging to the four-pier type, and it clearly featured two sets of doors, which were located at both ends of the chamber. The width of the passage can be discerned to have

been about 3 m. In the vicinity of the gate the ED town wall appears to have been about 8 to 8.3 m wide (ibid., 20). The location of two other gates have been suggested on the N and S sides of the site (ibid., pl. 5:1).

MB Fortifications

Excavation to the W of the ED wall in Hügel C in squares 38/17 and 37/16 also revealed the line of the MB **fortification wall** which measured 4.7 m wide and was preserved to a height of 3.8 m (Miglus and Strommenger 2002:18). There was also evidence of a bend or buttress on the inside of the S end of the wall in sq. 37/16. The wall was built on occupational debris without any special foundation and was covered with white plaster 0.2 to 0.3 cm thick. Further to the SW between Hügels A and C remains of this wall were also preserved to a width of 3.6 m built of mudbricks measuring 38–40 x 31–34 x 8–9 cm (ibid., 14).

This same wall up to 4.8 m wide was also revealed on the N side of the site in Hügel K (Miglus and Strommenger 2002:18f.) Here it was constructed of mudbricks measuring 42 x 42 x 9–10 cm.¹³ A passage through the wall was found in the W side of this trench has been identified as a **postern gate**. Mud plaster on the original wall was well preserved. During a second phase of the fortifications, the wall was prepared inside and out for a new superstructure to be built over the remains of the former wall. The wall was then reinforced on its exterior face with a 1.9 to 2.0 m wide exterior wall. The complete length of the MB fortifications may have been as much as 2,120 m, while that of the ED period was only slightly shorter assuming that they were located within the perimeter marked by the line of the MB wall. At no time does it appear that the walls were founded more than 2 m above the level of the surrounding plain and to date there is no evidence for the existence of a MB rampart at the site.

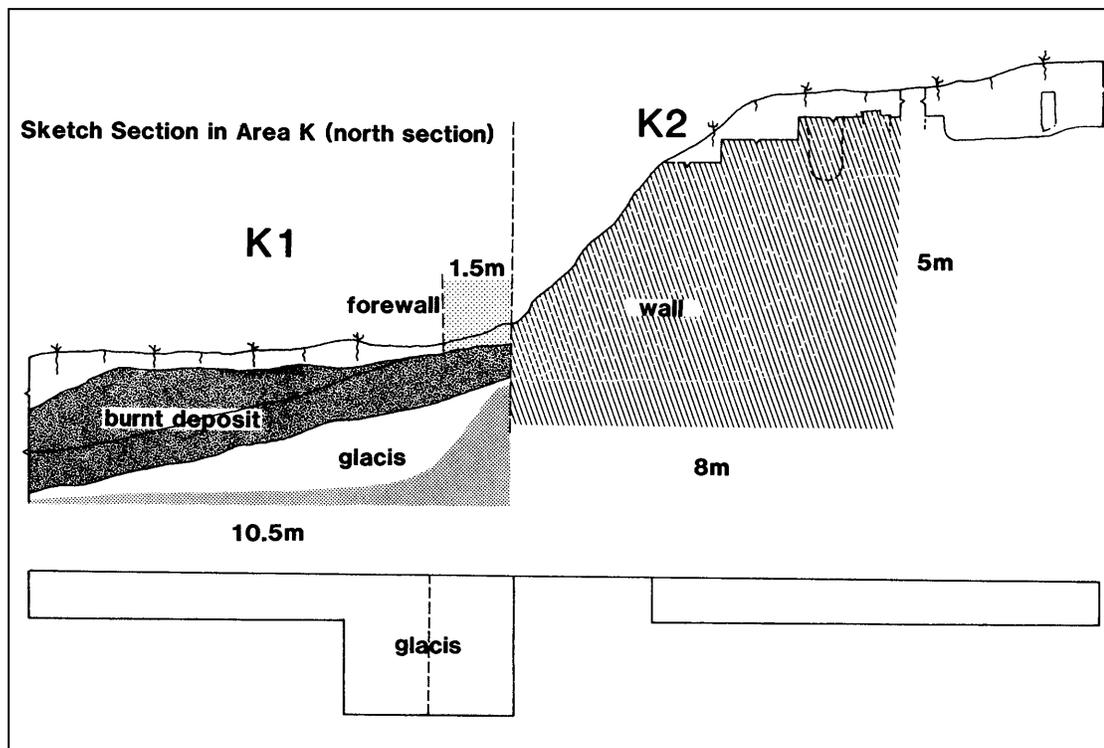
¹³ Similar size bricks were found during the excavation of the MB palace in Area E (Strommenger, et al. 1986:13).

URKEŠ (TELL MOZAN)**Lat. Long:** 37°03'27.9" N, 40°59'47.2 E **UTM:** 37 N 0677510.4103143**References:** (Bunnens and Roobaert 1988; Kelly-Buccellati 1990; Buccellati and Kelly-Buccellati 1997a; 1998).**Plans:** Site (Buccellati 1998:figs. 2f.); Area K (fig. 13).**Sections:** Area K (Buccellati and Kelly-Buccellati 1988:figs. 12, 14–16).**Photos:** Site (Buccellati and Kelly-Buccellati 1988:ill. 2–4).

Tell Mozan, which has been positively identified as Urkeš, is located in the Ḫabur triangle in northern Mesopotamia. The site appears to have consisted of an 18 ha upper town (High Mound) 25 m above the plain and a lower town (Outer City) of 135 ha. Although the lower town is surrounded today by an earthen embankment only a couple meters high and about 3,870 m long (see ill. 5 in Buccellati and Kelly-Buccellati 1988), which have been identified as the remains of the wall of the lower town (Buccellati and Kelly-Buccellati 1997a:60), the site's fortifications have only been excavated in Area K on the E side of the High Mound (Kelly-Buccellati 1990:122ff.).

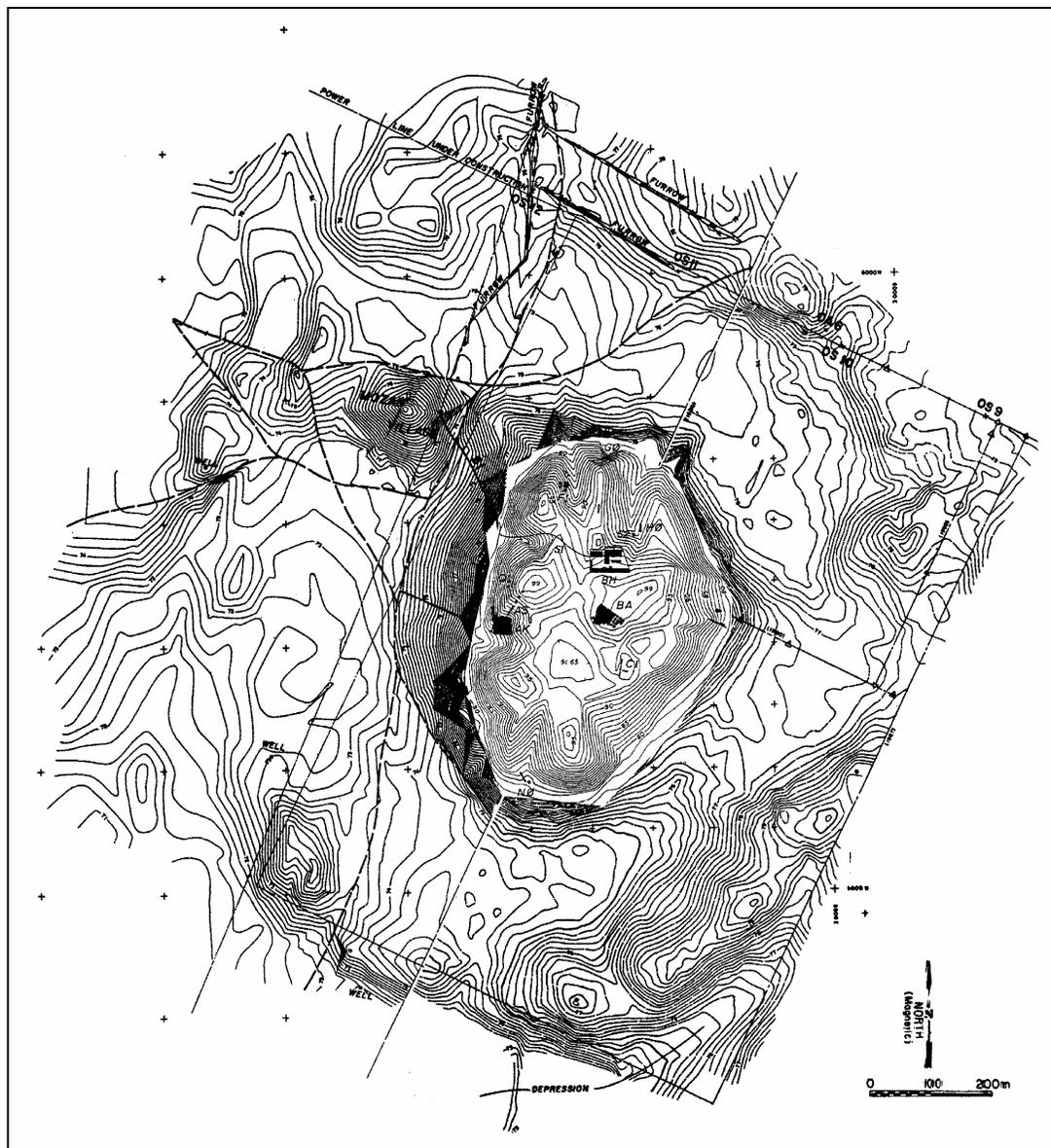
By the early third millennium the upper town was presumably fortified with an **fortification wall** of perhaps as much as 1,610 m in length. This wall has been explored in KW, on the E side, and in S1. It would have rested at the base of the mound's steep slope. Unfortunately, no exact date can be suggested for its construction since the base of the wall was never reached (Buccellati 1998:12). The wall was at least 6 m wide and perhaps as much as 8 m wide but only preserved to a height of 6 m (Buccellati and Kelly-Buccellati 1997c:79). It was built of bricks 32–33 x 8.5–9 cm (Bunnens and Roobaert 1988:fig. 12, p. 62). Its outer face appears to have been plastered and against this face a **rampart** (referred to as a "glacis" see Figure 22 below) 3.5 m thick and 10.5 m wide was added (Kelly-Buccellati 1990:123).

Figure 22. South section of Area K fortifications at Tell Mozan. Reprinted, by permission, from G. Buccellati and M. Kelly-Buccellati (1988:fig. 12). Note that the “glacis” should be identified as a rampart.



Excavation of Area KW also indicated that this wall, its rampart, and fosse fell out of use by the mid-third millennium (ED III or later), with the fosse having been filled in (Buccellati 1998:13). It is still uncertain whether the upper town's fortifications during this period were complimented by the circular enclosure that is presently evident on the site's topography around the entire lower town (*ibid.*, 18; see Figure 23 below). A single, though limited, sounding in OH 1 did not reveal any town wall. Buccellati has suggested that the wall around the lower town was only constructed after the destruction of the upper town's wall, but further excavation is required in order to test this hypothesis.

Figure 23. Plan of Tell Mozan. Composite of figs. 3 and 4 in G. Buccellati (1998), reprinted by permission from G. Buccellati.

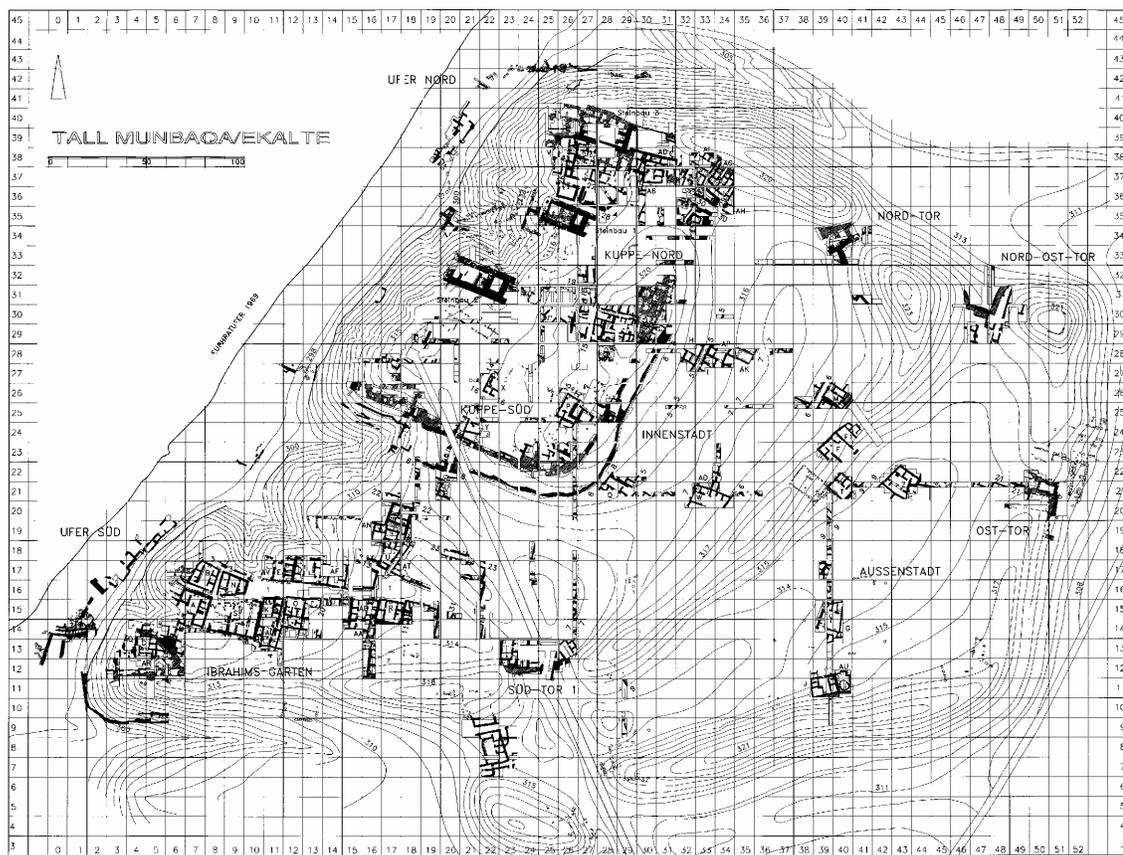


YAKALTUM (TELL MUNBAQA)**Lat. Long:** 36°09'23.4 N, 38°10'39.0" E **UTM:** 37 N 0426016.4001620**References:** (Kühne and Steuerwald 1979; Orthmann and Kühne 1974; Orthmann 1976; Machule, et al. 1992; Machule, et al. 1993; Machule, et al. 1996; Werner 1998).¹⁴**Plans:** Site (Czichon and Werner 1998:supp.); 'Kuppe' (Machule, et al. 1986:figs. 5f.); N Gate (Machule, et al. 1993:fig. 1); NE Gate (Orthmann 1976:fig. 4; Kühne and Steuerwald 1979:plans 1–3); E Gate (Machule, et al. 1993:fig. 12); S Gate 1 (Machule, et al. 1993:fig. 18).**Sections:** 'Kuppe' (Eichler, et al. 1984:fig. 9; Machule, et al. 1986:fig. 7); Rampart section (Machule and Rentschaler 1971:supp. 9); NE Gate (Kühne and Steuerwald 1979:plan 4).**Photos:** 'Kuppe' (Eichler, et al. 1984:figs. 10–11; Machule, et al. 1986:figs. 8–9; Werner 1998:fig. 17); Rampart section (Machule and Rentschaler 1971:fig. 33); N wall (Machule, et al. 1993:fig. 3; Werner 1998:fig. 35); N rampart (Werner 1998:fig. 41); N Gate (Machule, et al. 1993:fig. 10); NE Gate (Orthmann and Kühne 1974:figs. 27–32; Orthmann 1976:fig. 5; Kühne and Steuerwald 1979:figs. 1–12); Computer-reconstructions (Werner 1998:figs. 45).

The site of Tell Munbaqa, OB Yakaltum/MB Ekalte, lies on the E bank of the Euphrates River about 75 km E of Aleppo and was situated only 5 to 10 m above the floor of the river valley (Werner 1998:158f.). The first two periods of occupation of the site during the late EB III to EB IV and during the second half of the MB were limited to settlement on the upper town proper, referred to as the 'Kuppe' (lit. "hilltop").

¹⁴For preliminary reports of excavations at Tell Munbaqa since 1969 see MDOG 101 to 128, and 132 (1969–1996, 2000).

Figure 24. Plan of Munbaqa (after Czichon and Werner 1998:plan 1).



EB III–IV Fortifications (Phase IV-Ku-1/2)¹⁵

From 2500 to 2050 B.C. the settlement was fortified by a 5 m wide **casemate wall** built of mudbricks (ibid., 38ff.). The inner wall of this structure (as evident in squares 30/30–31/30) was as much as 2.8 m thick with a mudbrick superstructure built of mudbricks measuring 50 x 30 x 9 cm (Eichler, et al. 1984:73). The rectangular rooms of the casemate wall were about 1.2 m wide with an exterior wall less than 1 m wide.

Domestic structures were later built against the exterior wall of the casemate when the settlement expanded to the E in this area during EB IV (Machule, et al. 1986:68ff.). This settlement, which cannot date later than EB IVA (ibid., 85), was

¹⁵Phasing follows Werner (1998:37).

enclosed by a more than 5 m wide stone wall preserved to a height of 4.25 m (*ibid.*, figs. 5–6). The line of these fortifications enclosed the ‘Kuppe’, an area 170 m by 100 m, approximately 1.7 ha in area with a perimeter of about 540 m. Gates for this settlement leading inland were identified on the S and NE sides, while another gate let out from the center of the site’s W side to the Euphrates River. As the settlement grew structures were eventually constructed against the wall and outside of it.

MB II Fortifications (Phase III-Ku)

Following an abandonment of the site during the MB I (IIA) the site was resettled and fortified in the second half of the MB (Werner 1998:45ff.). Evidence for the line of the MB fortifications from the W end of the N side of the site (squares 28/40–29/40) suggests that the settlement was reestablished with a rectilinear plan parallel to the Euphrates River similar to that of the EB III settlement. Remains of the defenses in this area consisted of a 64 m stretch of mudbrick **fortification wall** with “saw-tooth” design preserved over 1.5 m high (Machule, et al. 1993:76f.).

One section was made through ramparts on the N side of the ‘Kuppe’ (Machule and Rentschaler 1971:supp. 9). The section, cut along a NW-SE line (*ibid.*, 53–55, Supp 9 and Photo in fig. 33), revealed a **rampart** of alternating layers 10 to 20 cm thick of fine and coarse pebbles (*ibid.*, 54). The core of the rampart and many of its subsequent layers consisted of gravel. On the exterior of the rampart two stone walls (nos. 5 and 6) running parallel to the rampart appear to have served to support the rampart. Mudbrick detritus overlay this, which may be the remains of an original mudbrick wall built atop the rampart (*ibid.*, 55). The rampart’s section suggests that it was approximately 10 m high. The exact date of this rampart is uncertain but an MB II date is possible.

LB I Fortifications (Phases II-IG 4–6)

The Late Bronze Age settlement, for which Munbaqa is best known, expanded over the ramparts of the original ‘Kuppe’ to include several new quarters (Werner

1998:49). At the start of the LB I settlement on the ‘Kuppe’ and over its ramparts totaled 2.1 ha when the ‘Innenstadt’ (Inner City) to the E along with the area of ‘Ibrahims Garten’ (Abraham’s Garden) to the SW were added (4.4 ha) and enclosed by **ramparts**. As was the case with earlier settlements at Munbaqa, despite an expansion of the settlement during the first part of the LB to the E and S followed by the circumvallation of these areas with a rampart, separate attention was again given to fortifying the ‘Kuppe’. The ‘Kuppe,’ therefore, can be identified as the upper town and it was surrounded by a 4 m wide stone **wall**. As an upper town this area included several temples and administrative buildings but no palace according to the excavators, since none was excavated or detected during a magnetometry survey. Two gates gave access to the upper town having been built in the same positions as the EB gates: one on the NE and another on the S.

As mentioned above the lower town settlement in the ‘Innenstadt’ and ‘Ibrahims Garten’ were also surrounded by an **earthen rampart** crowned by a mudbrick **fortification wall** (Werner 1998:52). The wall featured gates on the N (‘Nord-Tor’) and S (‘Süd-Tor 1’). The **N Gate** (‘Nord-Tor’) found in squares 39–41/33–34 featured a **six-pier** construction. The gate was 16 m deep with piers 3.5, 2.5, and 3 m wide, all of which protruded 1 m (Machule, et al. 1993:86). The minimum width of the passage was 4.2 m (ibid.). Bricks used in the wall’s construction measured 45 x 45 x 12 cm, while those used in the arch were rectangular (45 x 55 x 12 cm). The excavators have observed that the white mortar used in the construction of the mudbrick arch was actually harder than the mud in the bricks themselves. The floor of the passageway of the gate was sealed with gravel and the wall abutting the gate was 3.2 m wide (ibid., 85).

Limited information for the **S Gate** (‘Süd-Tor 1’) is available, though it was determined that the gate was 3.5 m wide (Machule, et al. 1993:89). Although the Süd-Tor was not completely excavated, the **fortification wall** around the ‘Innenstadt’ here was constructed with cyclopean masonry (Machule, et al. 1992:29–30, fig. 12). It measured 4

m wide and was preserved to a height of 2 m. It has also been suggested that another gate led from the lower town to the river bank, although it was never excavated (Werner 1998:52).

LB II Fortifications (Phases II-IG and 1–3)

During the LB II the ‘Außenstadt’ (Outer City, 2.9 ha) further to the E, the ‘Uferzone’ (Riverbank area, 0.5 ha), and the area atop the LB I ramparts (3.4 ha) were inhabited. The ‘Außenstadt’ was then enclosed by **ramparts** and a wall. In all, this was an increase of 11.6 ha in settlement from the end of the MB to the end of the LB.

With the later addition of the ‘Außenstadt’ and its ramparts, more gates were constructed of which at least two have been identified: the NE Gate (‘Nord-Ost Tor’) and the E Gate (‘Ost-Tor’). The **NE Gate** is the most familiar of these structures, and its dating has been the subject of considerable debate. According to Kühne and Steuerwald (1979) the earliest phase of the gate (‘Bauschicht 5’) appears to date to the late MB. Twenty meters of the wall (no. 18/29) approaching the gate’s E side were also exposed (ibid., 204). This wall was built with a mudbrick (brick dimensions 40 x 40 x 10 cm) superstructure 2.5 m high and 1.6 m wide on a stone foundation 3 m wide and 4.5 m high, both of which were plastered with mud on their exterior surface. (The **N Gate**, whose wall was 2.2 m wide, lies at a right angle to this wall (18/29), ibid., 205). The NE Gate was preserved as a result of the later addition of a stone wall parallel to the gate’s N elevation and located to its N (p. 206); 1.2 m of the original 2.2 m wide mudbrick arch gateway was preserved (p. 205f.). The passageway was 3.1 m wide and must have originally been 3.5 to 5 m high. The overall dimensions of the gate are 12.5 m wide by 17.5 m deep (plan 3). Although not much is known of the gate chamber to the S due to its poor preservation, the gate is thought to be of the **six-pier type**. It is only evident that a stone wall (15) was added to the W side of the chamber for later support (p. 207). The gate was later destroyed by fire and functioned as a pedestrian gate for a short while later

(p. 212). In the LB II ('Bauschicht 4') the fortifications in this area were renovated and reoriented (p. 213). In its final phase the gate was blocked by a massive stone wall (no. 7). The complex has been variously dated by Cypriote pottery found in association with burials (ibid., 213f.).¹⁶

The **E Gate** ('Ost-Tor') is 22 m long with a 3.25 m wide passageway (Machule, et al. 1993:99). Its direct-axis plan does not appear to have featured any piers. Its first interior space is 10 m long and 4 m wide. Its second short space constricts to 3.25 m wide where two tower-like constructions protrude into the gate. The length of its final space has not been determined owing to incomplete excavation. The gate is flanked by the rampart **fortification walls** which were over 3 m wide. Analysis of the gates position suggests that it was built during the construction of the ramparts or after it.

¹⁶In the original preliminary report H. Kühne observed that Schichten 5 and 4, to which the gate belongs, dated to "die Mitte und zweite Hälfte des zweiten Jahrtausends v. Chr." (Orthmann and Kühne 1974:79). This date was later reasserted (Kühne and Steuerwald 1979:211, and n. 17) and H. Kühne still maintains that it is possible that it was built at the end of the MB (personal communication 2002). Nevertheless, Peter Werner has advanced a LB date for both Schichten as stated in the latest reference concerning this gate (Werner 1998:52–54).

ZALPAH (TELL HAMMAM ET-TURKMAN)**Lat. Long.:** 36°28'58.7" N, 39°03'26.7" E**UTM:** 37 N 0505144.4037521**References:** (van Loon and Meijer 1987; 1988; Meijer 1989; 1988; 1997).**Plans:** Site (Meijer 1989:fig. 1); K 22 (ibid., fig. 4); J23 (Meijer 1988:pl. 39b), O18 (van Loon 1988:pl. 34).**Sections:** H 23 (Meijer 1989:fig. 2), O16–O18 (van Loon 1988:pl. 32).**Photos:** O18 (van Loon 1988:pl. 33b).

The site of Hammam et-Turkman, identified by some with ancient Zalpah from the Mari texts, is situated approximately 58.5 km N of Tuttul. Zalpah appears to have experienced near continuous occupation from the late fourth millennium through the Iron Age (Periods V–IX). Thus far excavations have been limited to the mound, which is thought to have been approximately 250 x 150 m, or 3.75 ha, during the EB IV (Period VI) tracing roughly the area marked out by the 335 m contour line (van Loon and Meijer 1987:1) about 25 m above the plain (Meijer 1989:1). Along this contour it is presumed that an EB IV **fortification wall** (ca. 2350 B.C.) was constructed as revealed in 1986 in the w trench on the acropolis (van Loon and Meijer 1987:1). There the remains of the town wall or the w elevation of a tower along the wall dating to this period were found. Excavation also revealed that the wall was destroyed by the first of two fires ca. 2200 B.C. (van Loon 1988:699). Upon the ashy remains of the first EB IV wall a second phase of EB IV defenses were built which featured an unimpressive wall with suites of storerooms built along its interior (see H 23 in fig. 2, Meijer 1989). These were also subsequently destroyed at the end of the third millennium in a fiery conflagration which resulted in the deposition of a layer of gray and orange ash (van Loon 1988:699). This was then followed by an occupation gap before settlement resumed in the MB (ibid.).

Period VII (MB)

MB occupation of Hammam resumed (perhaps in late MB I/IIA or II/IIB) with the construction of a mudbrick wall exposed in square O18 on the N side of the mound. Here a 5.5 m wide wall (Wall V) was built of more than 16 rows of gray mudbricks measuring 35 x 35 x 8 cm (van Loon 1988:80). The wall's base was at approximately 340.5 m ASL, about 30 m above the plain (see E section of N trench, van Loon 1988:pl. 32). Despite this evidence, the fact that the wall was only preserved to a height of a little more than 1 m led van Loon to conclude that the structure might in fact have been something other than the town wall (*ibid.*, 699ff.). But the evidence of erosion at the site and in other similar cases mitigates against the need for any other explanation. In square J23 on the w side of the mound a feature probably to be identified as the remains of a tower (W) were excavated (Meijer 1988:84). This was accompanied by a 5 cm thick mud plaster glacis with a slope of 18° (Meijer 1989:2).

APPENDIX B:

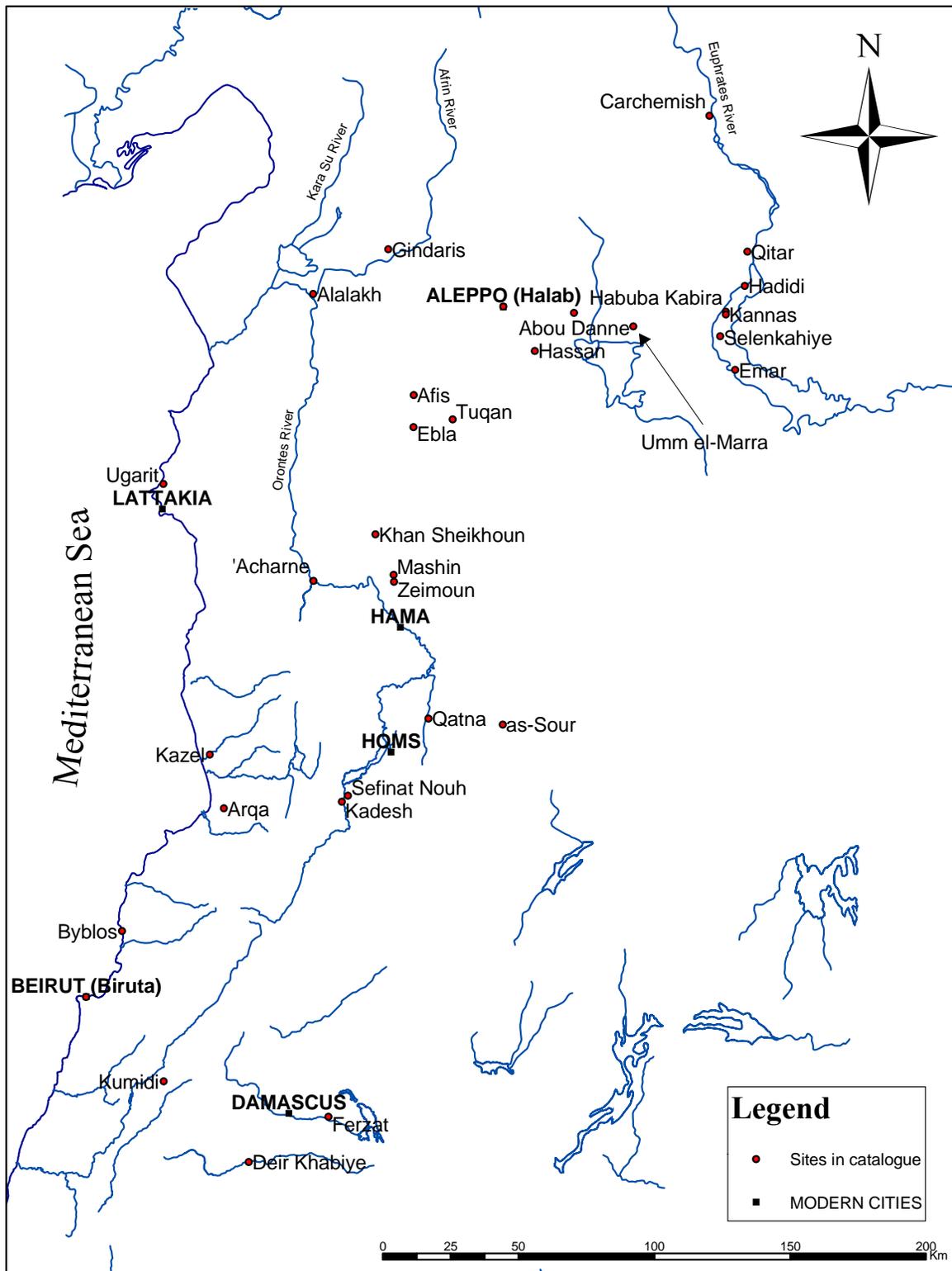
FORTIFIED SETTLEMENTS IN THE LEVANT IN THE EB IV AND MB

This catalogue of sites includes as much information concerning the fortifications of sites in the Levant during the period from EB IV to the end of the MB as has been published, as well as some information that has been obtained through direct communication with the sites' excavators. For the conventions adhered to in this appendix, please refer to the comments at the start of Appendix A.

1. NORTHERN LEVANT: WESTERN SYRIA, LEBANON, AND THE HATAY

Due to the nature of the data for rampart fortifications which have long been considered to be of northern origin, any catalogue of sites in Syria cannot be conveniently restricted to the rough timeline suggested above, EB IV–MB II. In fact, Syrian sites dating to the MB (ca. 2000–1550) would, by their very date, not prove useful in defining the tradition after which contemporary sites in the southern Levant were either modeled or founded. It is necessary therefore, in order to demonstrate the earlier existence of Syrian fortified settlements, to include sites that antedate MB sites in the southern Levant.

Figure 25. Sites in the northern Levant included in Appendix B.



ABOU DANNE, TELL

Lat. Long.: 36°10'44.5" N, 37°27'05.0" E **UTM:** 37 N 036739.4004915

References: (Tefnin 1978–1979; 1979a; 1979b; 1979c; 1981–1982; 1983).

Plans: Site (Tefnin 1979b:fig. 1); Area B (fig. 2); Sondage I level VI (1979a:fig. 12).

Sections: Sondage I-East (1979a:pl. 1); West (fig. 14).

Photos: NA.

Excavations at Tell Abou Danne, 25 km E of Aleppo, have exposed the site's EB and MB fortifications (Tefnin 1979a). Although the acropolis had been fortified during the EB I and II, there is no evidence that it was fortified during the EB IV, though the site itself appears to have been occupied (see discussion of Areas S IV and XXII in Tefnin 1981–1982:201).

Level VII (EB I–II)

The E section of Sondage I on the acropolis revealed that the N elevation of the EB I–II mudbrick wall (Level VII) was preserved over 7.5 m high (1979a:pl. 1), its upper portion being slightly canted back (*ibid.*, 197). Some of the bricks used in the construction of the EB wall (18–20 x 6–7 cm) have been described as *Riemchen* bricks (1978–1979), of the type known among late fourth millennium Uruk colony sites. It is uncertain whether or not the EB wall was built upon a berm or upon bedrock, but the depth of the wall seems to indicate that it was built at ground level when the site was founded, and not on an artificial mound. As mentioned above there is no evidence of EB IV defenses on the acropolis, though an EB IV citadel structure appears to have been built on the w side of the mound directly on top of the remains of the EB I–II wall (1981–1982:201).

Level VI (MB) Phase 1

During the MB (Level VI) three phases of construction are evident for the enclosure wall of the acropolis (1979a:192ff.). In the first stage a 2.1 m wide

fortification wall of mudbricks averaging 33 x 33 x 7 cm was built on a foundation of small stones above the preserved remains of the EB I–II wall. The construction of this wall probably followed the addition in front of the EB wall of an embankment, which perhaps should be identified as a **rampart**, approximately 9.3 m wide and 6 m high with a slope of 40° (ibid., pl. 1, p. 193). While a narrow wall of 0.85 m was found parallel but outside of this wall in Sondage I (ibid., 192), it is unlikely that this wall was present around the entire site and its function remains unclear. According to Tefnin in the same phase of construction or slightly later, two parallel mudbrick walls (36 x 36 x 8 cm bricks) were built on the interior of the original enclosure wall. Evidence of a **glacis** composed of loose, limestone gravel, and compact earth belonging to the first stage was also found (ibid., 193). The end of the first phase of the MB defenses was marked by a site wide destruction.

Level VI (MB) Phase 2

After the rebuilding of the town wall, during the second stage, structures identified as either **towers** or bastions built of gray mudbricks (38 x 38 x 10 cm) were added to the wall (Tefnin 1979a:193). In addition to these structures, the rebuilding during the second stage included the addition of a **new glacis** over top of the first MB glacis. Evidence of the town wall of the second stage has eroded in the area of Sondage I following its violent destruction.

Level VI (MB) Phase 3

Despite two considerable destructions of the site during the MB, the inhabitants engaged in a final phase of building upon the ashes of the previous settlement. In the area of Sondage I they built a modest wall only 0.7 m wide (35 x 35 x 8 cm bricks, 1979a:193f.). But on the acropolis they appear to have undertaken the construction of a more substantial **fortification wall** which was over 30 bricks wide (1981–1982:202).

Although it has not been confirmed, Tefnin has suggested that an earthquake contributed to the final destruction of the site at the end of the MB (*ibid.*, 197).

AFIS, TELL (ANC. APSUNA)

Lat. Long.: 35°54'18.4" N, 36°47'52.8" E **UTM:** 37 N 0301287.3975662

References: (Mazzoni 1994; Gianessi 1998; Cecchini and Mazzoni 1998).

Plans: Site (Cecchini and Mazzoni 1998:after p. 5); Area E₁ (Gianessi 1998:fig. 13).

Sections: Area E₁ south (Cecchini and Mazzoni 1998:after p. 4).

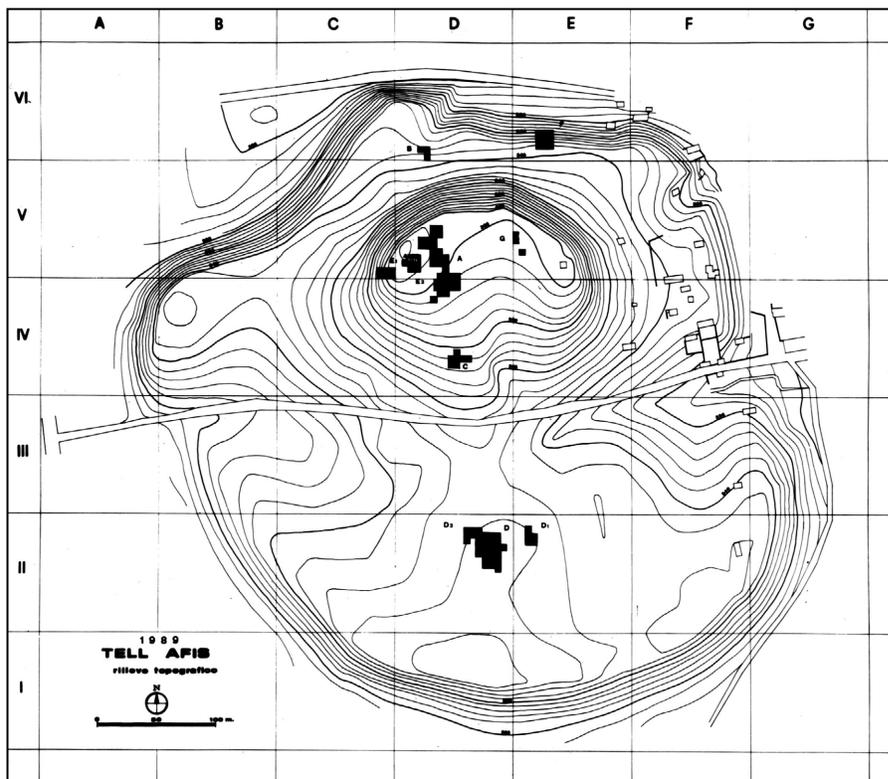
Photos: Area E₁ (Gianessi 1998:figs. 14.1–15.2).

The site of Tell Afis (18.5 ha) located 12 km N of Ebla, was settled from at least EB II through the LB (Cecchini and Mazzoni 1998). To date, what is known of the fortifications of Tell Afis is limited to the defenses of the w side of the citadel, which is roughly 1 ha in size, in Area E₁ (see Figure 26). Although the citadel was settled during the EB IV, the earliest evidence for the fortifications of the citadel are actually the remains of a 4.3 m wide **fortification wall** (M.1115) in Level 16 (MB) built of mudbricks (30 x 30 cm) on foundations stones roughly 40 x 50 cm and 30 x 35 cm (*ibid.*, 104). The area had been leveled for the construction of this wall and a **stone glacis** was added to the slope of the citadel; in Area E storage rooms were added to the interior of the wall (Mazzoni 1994:148).

In the following phase of settlement on the acropolis (Level 15), probably in the later half of the MB, another wall (M.1116), of red and yellow mudbricks, was built against the interior of the earlier wall (M.1115) (Gianessi 1998:104); it has not been possible to estimate the dimensions of this wall (*ibid.*, fig. 13).

Future excavations in Area F, N of the citadel, might provide an understanding of what type of fortifications enclosed the lower settlement (Cecchini and Mazzoni 1998:5).

Figure 26. Plan of Afis (after Mazzoni 1992:168, fig. 1).



ALALAH (TELL ATCHANA)

Lat. Long.: 36°19' N, 36°29' E

UTM: 37 N 264917.4013507

References: (Woolley 1955; Yener, et al. 2000; Yener forthcoming).

Plans: Site (Woolley 1955:pl. 14); Level VII N Gate (ibid., figs. 55f.).

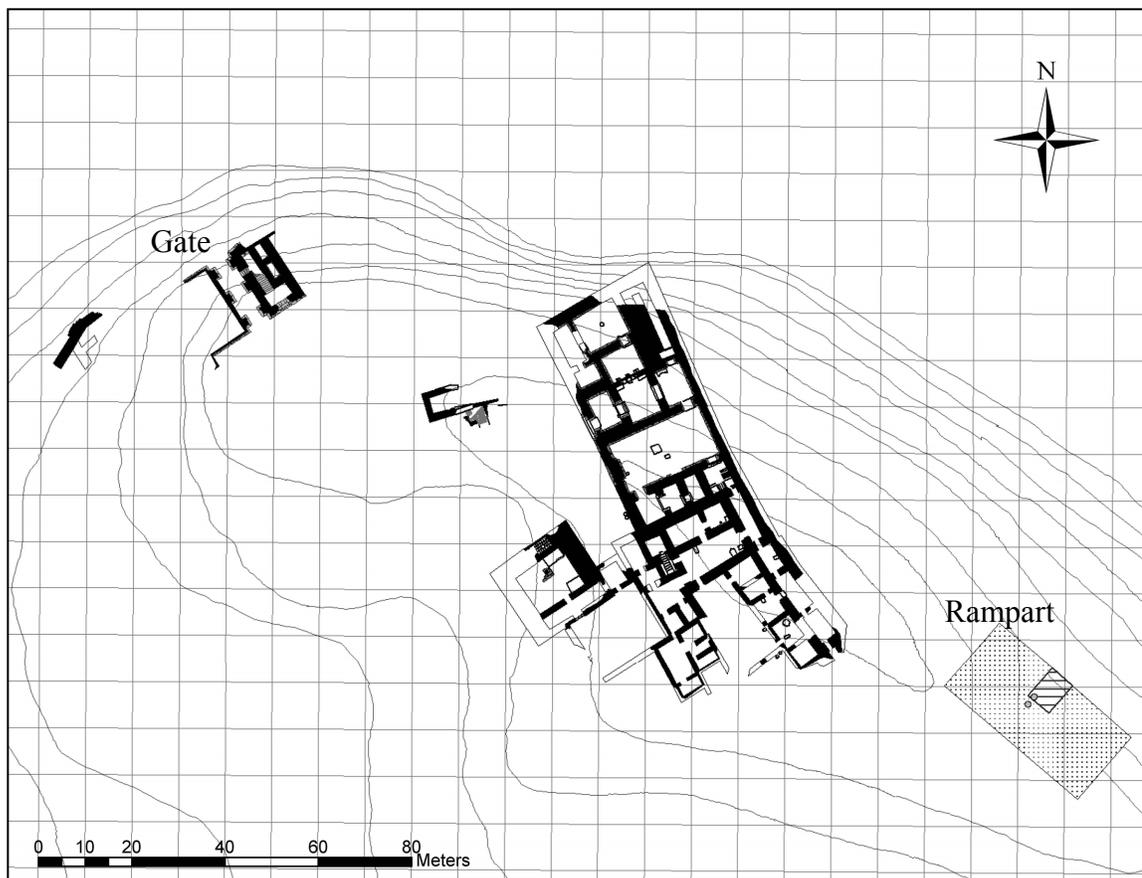
Sections: Trench F N Section (Woolley 1955:fig. 52).

Photos: Level VII N Gate (Woolley 1955:pls. 29–30a).

Alalah (Tell Atchana) is located in the 'Amuq Valley just E of the Orontes River. Although the site was extensively excavated by Sir Leonard Woolley (1955), excavations of the MB fortifications were limited to a sounding of the rampart on the NE side of the site in Trench F and exposure of the N Gate (Figure 27 below). The MB features in these areas belong to Level VII, which is usually identified as the last phase of MB occupation of Tell Atchana (*terminus* ca. 1550 B.C.). The site's gross size in this period is estimated

at about 22 ha (Yener, et al. 2000:185) and its inhabitable area within the fortifications as approximately 19.5 ha (see below).

Figure 27. Plan of Level VII and location of rampart. Courtesy of the Oriental Institute Expedition to Tell Atchana (Yener forthcoming).



Woolley acknowledged that there was probably a lower town with its own defenses, but he was not able to identify its limits or any fortifications that might have been associated with it (Woolley 1955:132f.). Therefore, the evidence for the site's MB fortifications consisted primarily of an early **earthen rampart** which was excavated in Trench F on the NE side of the site (ibid., fig. 52a; see pl. 22 for location of Trench F). It was built before Level VII and then widened in Level VII to feature a slope of at least 35° (ibid., 137). This sounding revealed that it was composed of “rubbish, ashes, pottery, and debris of all sorts” heaped to a height of more than 4 m above the present level of the

plain (*ibid.*, 135), perhaps as much as 9 m above the level of the plain at the time of its construction (*ibid.*, n. 2, p. 135). If the lines of the rampart in the section are projected, assuming that the rampart was of the freestanding type, then the rampart was about 30 m wide, though perhaps only the exterior half of this rampart was actually constructed with the inner part consisting of an elevated settlement.

The circuit of the mound is about 1,650 m and thus the rampart's volume, if it enclosed the entire mound, might be estimated to have been approximately 44,550 m³. This rampart, the earliest of two ramparts which were completely exposed—the other is dated to Level IV—was attributed by Woolley to Level VII because it contained a considerable quantity of pottery from Levels XII through VIII (*ibid.*, 135f.). Woolley concluded that the defenses of Level VII were used as frequently as possible in later periods to facilitate the construction of later defenses (*ibid.*, 137).

No evidence of the mudbrick town wall of this period which would have crowned the ramparts or a fosse that might have existed outside of the rampart has yet been encountered, though Woolley suggested that part of the E wall of the Level VII palace (in room 29—despite the fact that its wall was reconstructed here, see fig. 35 in Woolley 1955) continued in use as a defensive wall in Levels V and VI (*ibid.*, 137, 139, see also section in fig. 2). He did note too, that the site's fortifications probably varied in character around the town (*ibid.*, 139). But Woolley's suggestion of a wooden palisade located at the top of the early rampart is without any parallel in archaeological excavations of Middle Bronze Age sites in the Near East (*ibid.*, 137).

The Level VII gate was the earliest gate revealed at the site (Woolley 1955:145ff.).¹ This **six-pier gate** was centered in Square V7 (*sic* W7 in fig. 55, *ibid.*) and led from the mound to the NW. The structure's façade was 23 m wide and its passage was

¹There is no reason not to assume that earlier gates are located directly below this gate.

17 m long. It was built of mudbricks on stone foundation and was preserved about 1.5 m high. The faces of the piers and corners of the entrance were lined with limestone orthostats. The top of the orthostats still lean into the gate's passage indicating that it probably featured a barrel-vaulted corridor (cp. Woolley's reconstruction of a "relieving-arch" built of wood and mudbrick, p. 148; see 1955, fig. 55). The space between the piers averaged 2.7 m wide. There was also evidence of timbers used in the construction of the gate, above the orthostats and along the floor below the mudbrick superstructure. The E half of the gate was exposed to reveal an entrance leading to what Woolley referred to as a "sentry-chamber and guard-room" where a set of stairs led to a second story (ibid., 150). The W half was constructed of a mass of mudbrick (ibid., 148). It is presumed that the gate's plan changed considerably during later periods and appears to have gradually shifted E (ibid., 151).

Considerable evidence points towards the fiery destruction of the Level VII town at the end of a siege. The gate was burnt and vitrified bricks had fallen into its passage (Woolley 1955:148). This destruction has been attributed to Ḫattušili I (D. L. Stein 1997:56).

‘ARQA, TELL (ANC. IRQATA)

Lat. Long: 34°31'50.7" N, 36°02'47.0" E **UTM:** 37 N 0228906.3824971

References: (Thalmann 1978; 1991).

Plans: Sq. AK21 (Thalmann 1978:fig. 3; 1991:fig. 2).

Sections: NA.

Photos: Site aerial (Thalmann 1991:fig. 1).

Tell ‘Arqa (anc. Irqata)² is located on the Akkar plain in N Lebanon inland about 5 km from the Mediterranean Sea and about 20 km SSE of Tell Kazel (see entry below).

²See EA 62, 72, 100, 139, 140.

Preliminary reports of the excavations of Tell ‘Arqa report that the settlement was first fortified in Level 13, during the MB II (Thalman 1978:62–67; 1991:32–34). The fortified settlement of the mature MB replaced the unfortified EB IV (Levels 16–15) and early MB (Level 14) settlements (1991:25–32). What remained of the MB fortifications was found in square AK21. Although only a portion of a Level 13 **tower** has survived (see Thalman 1978:fig. 3), the continuation of the mudbrick perimeter **wall** from the tower, which had completely eroded away in the excavated area, is presumed to have been of a similar composition measuring 1.7 m thick and was built on a stone foundation (1991:32).

BIRUTA (BEIRUT)

Lat. Long: 33°53’54.7” N, 35°30’28.2” E **UTM:** 36 s 0731896.3753736

References: (Marquis 1995; Badre and Thalman 1996; Finkbeiner 1997; Finkbeiner and Sader 1997; Badre 1997a;2002).

Plans: Site (Badre 1997a:fig. 1a); BEY 003 (ibid., 1b); BEY 020 (Finkbeiner and Sader 1997:fig. 4).

Sections: Schematic (Badre and Thalman 1996:fig. 3); BEY 003(Badre 1997a:fig. 10b).

Photos: BEY 003 (Badre and Thalman 1996:figs. 4f.; Badre 1997a:fig. 10a; 2002:pl. 3); BEY 020 (Finkbeiner and Sader 1997:pls. 1f.).

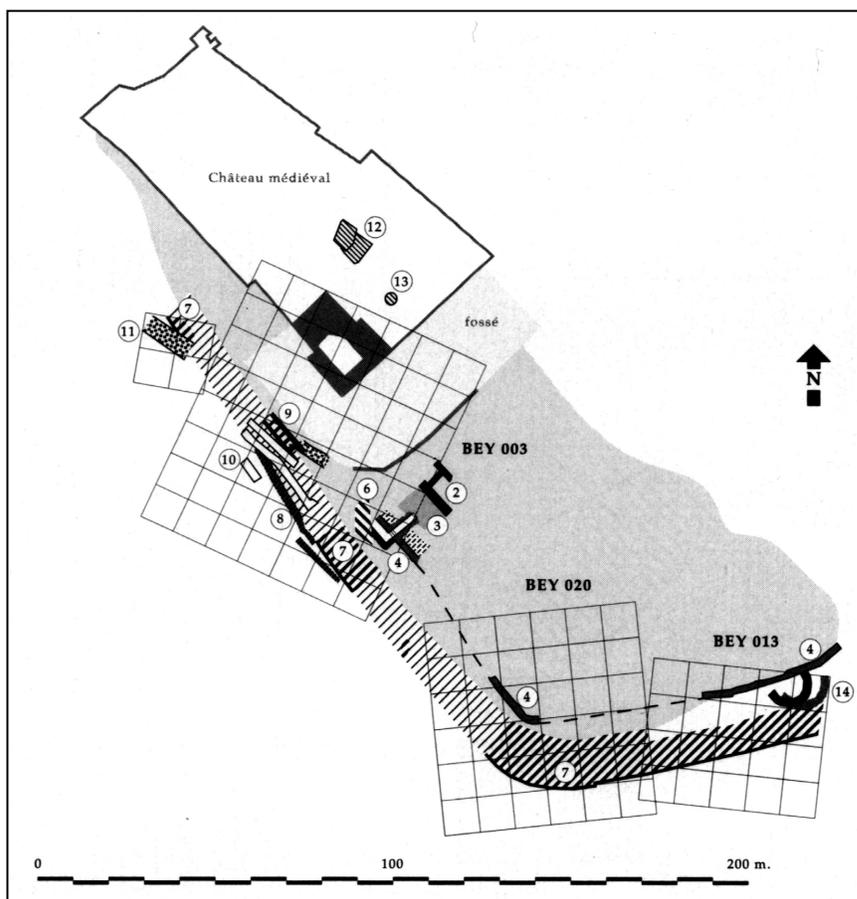
Tell Beirut is located 28 km SW of Byblos on the shore of the Mediterranean Sea. The elliptically shaped tell of Beirut measures approximately 250 x 120 m (Badre and Thalman 1996:91), covering a gross area of 3 ha. Fortifications including a gate dated to the MB have been recently exposed in areas BEY 003 and 020 on the SW side of the site (see Figure 28 below).

MB I/IIA (Complex I)

The earliest fortifications of the site are dated to the MB I (IIA) and are referred to as part of Complex I (Badre 1997a:26). They consisted of a 0.7 m wide mudbrick **wall**

which rested on a stone foundation (W.353) which in turn was built directly on bedrock. Although only fifteen meters of the length of its foundations were exposed in BEY 003 preserved to an average height of 1.7 m, the existence of a mudbrick superstructure is based on the observation that mudbrick detritus found atop the foundations are all that remain of this structure. Badre has observed that the wall (or at least its foundation) appears to have been built in sections with the addition of each length after one was complete. Once completed the wall was coated with clay plaster and only later was a **glacis** of “rammed clay” built against this wall directly upon bedrock with a slope of 30° (Badre 1997a:26f., fig. 8b; 2002:3). Badre estimates the dimensions of the earliest settlement to have been around 115 m by 70 m or roughly 0.8 ha (2002:3).

Figure 28. Plan of MB and LB Fortifications of Biruta. Reprinted, by permission, from L. Badre (Badre and Thalmann 1996:fig. 2). (4) MB I gate and ramparts; (6) MB II rampart; (7) Early Iron Age rampart.



MB II/IIB–C (Complex II)

During a later phase of the MB (Complex II) another **wall**, preserved to an average height of 6 m in BEY 003, was built 13 m outside the original wall but parallel to it (Badre 1997a:28). The wall (W.329/398), which was about 1.7 m wide, was constructed of large quarried stones of up to 2.85 m in length and 0.2 m in width which were laid in alternating rows of long and short blocks. Additionally, pillars which protruded slightly from the wall were incorporated into the wall at 5 m intervals (ibid., fig. 11a). A stone wall excavated in area BEY 020 in 1995 was probably the extension of this wall from BEY 003 to the w (Finkbeiner 1997:124ff.).

Wall 329/398 in BEY 003 was the first for which evidence of a **gateway** was recovered, though it is possible that the gate was opened after the construction of this wall (Badre 1997a:28). This is indicated by the fact that the pillars in the wall are not spaced in relation to the gate's opening and because the town wall (W.329/398) is continuous below the gate's threshold. The gate whose passage was 2.1 m wide is a simple direct-axis gate featuring high steps (obviating the use of this gate by wheeled vehicles). Evidently, the gate experienced another modification when an L-shaped wall (W.320), which Badre referred to as a *chicane*, was added outside the gate (Badre 1997a:30). Its addition created a bent-axis approach that meant that the town would be more difficult to enter through this gate. The wall of Complex 2 continued to the E into BEY 020 where 12.5 m were traced and E of that in BEY 013 where another 35 m were found preserved to a height of up to 7 m (1996:4; Karam 1997:107–109). Badre has suggested that the settlement associated with Complex 2 was about 225 m long by 80 m wide (Badre 2002:5), or roughly 1.8 ha. Perhaps at the same time that the gate was modified if not a little later, W.329/398 was reinforced by another wall against its interior measuring 3.75 m wide (Badre 1997a:30).

Late MB/LB I Modifications

This fortification system was used throughout the remainder of the MB until it was overhauled, either at the end of the MB or at the start of the LB, with the addition of a stone faced **glacis** (Glacis I) to the exterior face of the earlier fortification system (Badre and Thalmann 1996:92, fig. 5). Glacis I was built of large limestone boulders with a slope of 20° and stood more than 2.6 m high (Badre 1997a:48). Its irregular curve which effectively blocked the earlier bent-axis gate led to its falling out of use. L. Badre has suggested that Glacis I may have been built in two stages: during the first stage a glacis was built as part of the defenses along the line of W.329 and only later was the gate blocked by the extension of the glacis in an arc towards the S (Badre 1997a:50). To date it has not been possible to test this hypothesis because a modern concrete pillar has disturbed the junction between these two sections of glacis.

At a later stage during the end of the LB a second glacis, the most impressive exposed at ancient Beirut, was built against the earlier one (Badre 1997a:60ff.).

BYBLOS (ANC. GEBAL)

Lat. Long: 34°07'11.0" N, 35°38'46.0" E **UTM:** 36 S 0744051.3778594

References: (Dunand 1949–1950; 1954:124f., 270; 1955a; 1955b; 1955c; 1956a; 1956b; 1961; 1964; 1968; Saghieh 1983).

Plans: Site (Dunand 1939:pls. 202–204; 1954:pl. 212); NE Gate in Sqs. 26–28/10 (Dunand 1954:Levels 28–27).

Sections: Schematic (Dunand 1967:fig. 2).

Photos: Site aerial (Dunand 1954:pl. 212); N ramparts (Dunand 1949–1950:pl. 7:1–2; 1954:pl. 47:1–3, 50:3, 51, 52:2); NE Gate (Dunand 1954:pls. 48f., 50:1); Hyksos rampart near NE Gate (Dunand 1954:pls. 50:2, 52:1; 1956a:pl. 2; 1956b:pl. 4; 1961:pls. 1–3:1).

Byblos (anc. Gebal), located 28 km NE of Beirut on the coast of Lebanon, is among the most important MB sites in the northern Levant. While its cultural

assemblages have often played a key role in the Levantine archaeological sequence, working with the site's publications continues to prove challenging.³ Many of these difficulties have been discussed by Saghieh who also adds that especially with regard to the fortifications Dunand employed different terminology at different times in the phasing of the same features (Saghieh 1983:65f.). Nevertheless, visiting the architectural remains in person and carefully examining the available publications does make it possible to provide a coherent understanding of the development of the site's defenses during the EB and MB.

The clearest presentation of Dunand's results concerning the third and second millennium fortifications of the site are to be found in one of his later preliminary reports (1955b). Here Dunand summarized his conclusions about what he discerned to be seven building phases (*ouvrages*) in the development of the fortifications of the site (*ibid.*, 18ff.), the main element of each being a wall or rampart, the French term *rempart* usually being employed for both. Each of these seven distinct phases is recognizable in the unpublished section of the N fortifications which is displayed at the site today (Figure 30 below).⁴ Of these various phases only the first four directly concern this study, while the fifth phase includes a LB rampart. The last two remaining phases belong to the Iron Age ramparts. Byblos, like many other sites in the Levant, demonstrates again that a site's earliest fortifications (i.e., in the third millennium), often had a direct bearing upon the

³The first reason for this is that the site was almost completely excavated, making it nearly impossible to verify many of the results which Dunand obtained between 1926 and 1965. The second reason is that Dunand worked in arbitrary levels; his plans, for instance, were divided by arbitrary meter intervals rather than by coherent and contemporaneous stratigraphic phases. Finally, the absence of complete publication of his final seasons makes it difficult to fully assess the results of his excavations between 1938 and 1965. For an overview of Dunand's methodology see M. Saghieh (1983:x-xi).

⁴Upon my visit to Byblos in September 2002 I was surprised to find full color plans and photos posted at each major excavation area with detailed summaries of Dunand's results based on his archival records in France. These appear to be the most coherent summary of his findings that has been made available to date. They are presented here as Figure 30 and Figure 31.

development of later fortifications (i.e., in the MB). During the EB the line of the fortifications appears to have limited the settlement to an area of approximately 5 ha (Dunand 1968:21). Although this line moved outwards slightly, it is probable that the site was not much larger during the MB. Whether or not the area outside of the main settlement was occupied in these periods cannot be confirmed. In the summary that follows the major phases of occupation at Byblos which have been identified by Dunand are referred to as “Levels” based upon the summary of the occupational sequence that he published in his overall plan of the site in *Fouilles de Byblos II* (see Dunand 1954:pl. 212).

Figure 29. Plan of Byblos and course of EB and MB Fortifications (after Dunand 1939:pls. 202f.).



continues on the S side of the NE Gate for a short distance. The width of the fortifications on the NE side of the site, which actually constitute more of an **earthen rampart** than a wall, was determined to be about 24 m, though no section of these fortifications was made near the gate. Although Saghieh was not particularly concerned with a study of the fortifications, he suggested identifying the earliest phase of the NE Gate and the first ramp within the gate with this set of fortifications (1983:66), but it is not possible to verify his hypothesis. If the fortifications encircled the entire mound at this time then their length would have been approximately 850 m.

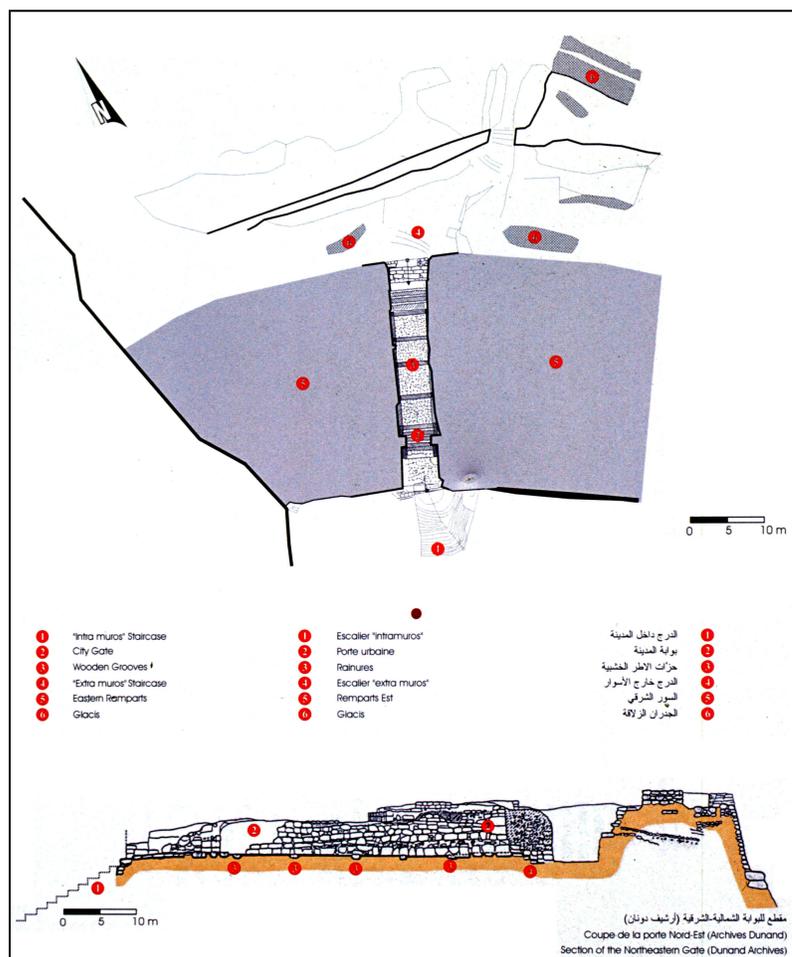
EB III–IVA (Level VI)

The site's original fortifications were supplanted in the next period, Dunand's Level VI (often referred to as "Pre-Amorite") or Saghieh's Period KIV (1983:67, 84, 131), which corresponds roughly with the period of EB III–IVA (Dunand 1954:pl. 212, no. 30). These fortifications (*ouvrage 2*) remain perhaps the most distinctive discovered at Byblos due to the fact that the stone **wall** discovered on the N side of the site featured large interior buttresses measuring between 3 and 4 m wide which were spaced approximately 2.5 m apart, while the exterior surface was built of dressed stones; this wall was 4 m wide and was preserved up to 6 m high (Dunand 1939:421ff.; 1955b:19f.). On the NE side of the site Dunand suggested identifying the continuation of the fortifications of this period with an **earthen rampart** more than 18 m wide into which a gate was then built (Dunand 1954:pl. 212).

Two gates were added during the expansion and renovation of the fortifications in this period. A simple **direct-axis gate** was added on the NW that could be referred to as the "Sea Gate" due to its orientation. Another much larger **pierless gate** was also added on the NE side of the site which would have led directly inland (see Figure 31 below). This gate's passage was 4.8 m wide and 18 m long and was built into the rampart on the NE side of the site during this period (Dunand 1961:84). A wooden frame built into the

floor and along the walls supported the sloping sides and roof of the gate's passage, which judging from the canting of the stone walls of the passage probably featured a mudbrick barrel vault. If so, this gate may very well have been the largest vaulted stone structure in this region during the late third millennium, and would suggest a high degree of architectural proficiency at Byblos. Saghieh has suggested identifying the NE Gate in this period as the second gate, which was also accompanied by a second phase of a ramp leading to the gate from within the site (1983:66).

Figure 31. Plan of NE Gate at Byblos. Photograph, by Aaron Burke, of plan displayed at Byblos.



Based on archaeological evidence from the gate and around the site it seems that the beams used in this gate were burned in a conflagration towards the end of the third

millennium that ultimately caused the gate to fall out of use.⁷ This destruction, which also claimed many other structures throughout the site, was identified by Dunand with an Amorite conquest. But given the known involvement of the Akkadian kings in this region during this period they would seem to have been a more likely culprit. This conclusion also fits Saghieh suggestion that the end of Period KIV roughly coincided with the end of the Dynasty VI in Egypt, ca. 2150 B.C. (Saghieh 1983:131).

EB IVB (Saghieh's Period JI/II)

Although Dunand's presentation of the stratigraphy and remains of the fortifications of Byblos do not provide a separate reconstruction of the site's defenses during the last phase of occupation in the third millennium (late Level VI), M. Saghieh has suggested that another phase can be detected in the fortifications on the NE side of the site referred to as JI/II (Saghieh 1983:). This phase, he suggested, represented the final phase of the NE Gate and a third and final phase of the ramp leading to the gate from within the site (*ibid.*, 66). Like the previous phase, Saghieh has observed that the final phase of this gate was also destroyed in a fire (1983:131f.).

MB I (IIA)–II (IIB–C) (Level VII)

The next major phase in the development of the fortifications of Byblos belongs to Dunand's Level VII which consisted of MB occupation traditionally associated with the Amorites (e.g. see Dunand 1954:pl. 212). The various distinct phases of the fortifications of this phase (*ouvrage* 3), which include at least two ramparts and their glacis, are best preserved just to the N of the EB fortifications of Level VI. These ramparts were also identified to the SE of the Medieval castle outside of the line of the EB

⁷ Although Dunand has usually suggested ca. 2100 B.C. as the date of this destruction it is difficult to be certain of the date of this destruction layer since the ceramic assemblages for Byblos are not very clearly presented in the publications. It is, therefore, probably better to place this destruction within the period from 2200 to 2000 B.C. until greater clarity is possible. A sign recently posted at the gate suggests a date between 2300 and 2100 B.C. citing the Dunand archive.

rampart (Dunand 1961:64f.), however, here the ramparts are clearly damaged by late expansion of the settlement (see Dunand 1954:pl. 212).

At least two MB ramparts, each featuring a cobble glacis, can be identified in the W section on the N side of the site (see Figure 30 above). The **first rampart** was built against the exterior face of the EB buttressed wall of Level VI. It consisted of several stages of building; its lower half was composed of red earth filled with Chalcolithic sherds while above this it was composed of black earth filled with EB sherds with, finally, a few MB sherds found in the highest part of the rampart (Dunand 1955b:19). Though the combined width of the various phases of the MB rampart was approximately 19 m (Dunand 1949–1950:62), based on the section the first MB rampart appears to have been only about 16 m wide and 8 m high. The **glacis** of this rampart was very crudely constructed with *kurkar* cobbles (cp. Ashkelon).

The **second rampart**, which was added against the first sometime later but also during the first half of the MB, consisted of less than one meter of earthen fill above the first glacis which was then covered by a **second glacis** made of cobbles identical to those used in the first glacis. A small **retaining wall** can also be identified in the section a few meters from the bottom of the slope of the second glacis. The slope of both ramparts and their glacis appears to have been about 35°. Whether another rampart of ‘terre brune’ should be identified between the second MB glacis and the later ‘Hyksos’ glacis is uncertain (see below).⁸

One **gate** has been also identified with these fortifications on the W end of the N rampart. It appears to preserve the location of the EB (Level VI) “Sea Gate” (see no. 38 on pl. 212, Dunand 1954). It featured two stone-built staircases just outside the gate, one

⁸ A two meter thick layer of brown earth (‘terre brune’) is identified in the aforementioned unpublished section displayed at the site of Byblos. But no ‘glacis’ can be distinguished above this layer.

descending towards the port to the NW and another set descending to the NE, possibly to the location of a lower town (*ibid.*, pls. 212, nos. 39 and 40). This staircase is visible at the site today and can still be traversed (Dunand 1954:pl. 51). Evidently no wheeled vehicles were intended to use this gate.

Late MB II (IIC) (Level VIII)

Towards the end of the MB (Level VIII) a new and very steep and wide glacis accompanied by a rampart of interspersed layers of sand and black earth (*ouvrage* 4) was constructed against the earlier MB ramparts (no. 42 on pl. 212, Dunand 1954; 1955b:19). A **revetment wall** was built of large roughly hewn sandstone blocks at the foot of the rampart (1961:84). Of the various **ramparts** at Byblos this is the most precisely dated due to the late MB sherds found in its construction (Dunand 1955b:19). These allowed Dunand to suggest that it should be dated to the 18th century B.C. and led to its identification as the “Hyksos” rampart. Despite being able to date the rampart, it is much more difficult to define its dimensions; it was roughly 5.6 m high and 8 m wide with a preserved slope of about 15° (see Figure 30). Although less is known of the **gate** which was newly constructed in this period, it was located to the NE of the EB NE Gate where the MB rampart departed from the line of the EB rampart. The rampart was moved further to the NE in this area probably in order to expand the town’s overall size.

That no evidence of a MB wall was found above either of the MB ramparts should not be surprising. Considerable building activity through modern times makes it remarkable that any part of the site’s early defenses have remained intact. Furthermore, it is impossible to be certain that the meager remains of part of the mudbrick wall were not missed by Dunand during his excavations.

LB (Level IX)

The final Bronze Age rampart is identified as part of *ouvrage* 5 and is dated to the LB (Level IX). It featured a **rampart** of red earth laid against the late MB rampart and a

stone **glacis** built of cobbles larger than those used in the two later Iron Age ramparts (Dunand 1955b:19). Dunand has observed that the surface of the glacis was gently parabolic, which probably refers to its curve at the top (see Figure 30). Sherds of the same date as those found in the previous rampart were also found in this rampart and it is therefore possible that this rampart was constructed at the very end of the MB, though probably at the start of the LB.

CARCHEMISH (JERABLUS)*

Lat. Long.: 37°10' N, 38°01' E

UTM: 37 N 411474.4076803

References: (Woolley and Barnett 1952:71; Parr 1968).

Plans: Site (Woolley 1921:pl. 3); W Gate “inner” town (pl. 10); S Gate “inner” town (pl. 12); Water-Gate (pl. 16).

Sections: NA.

Photos: “Inner” town W Rampart (Woolley 1921:fig. 7); W Gate “inner” town (pl. 11a); S Gate “inner” town (pl. 11b); Water-Gate (pl. 17a).

No expedition has returned to Carchemish since the work of Sir Leonard Woolley and therefore most observations concerning the site are limited to the initial findings of British Museum expeditions between 1911 and 1914 (Hawkins 1997:423). While the site is said to consist of an acropolis and an inner town during the MB (the “outer” town was only occupied after ca. 1200 B.C. according to Woolley 1921:48), the degree to which any remains can be ascribed to the MB is wholly uncertain. The features which have frequently been identified as MB in date consist of the Water Gate at the base of the citadel on the E side (e.g., Gregori 1986; Herzog 1986) and the rampart around the inner town with its W gate and S gate (Woolley 1921:44f.). The **earthen rampart** running from the S side of the inner town to the N around the W, stood about 20 m high and was supplemented by a fosse outside of it which is said to have been as much as 5 m deep (Woolley 1921:44). While the suggestion of identifying some of these features as

belonging originally to the MB is tempting particularly by way of comparison with the site of Munbaqa to the south, with suggestions such as P. Parr's that these features might be dated to the Iron Age (1968:30ff.) and confirmed by Irene Winter (1973:167), caution is certainly warranted in assuming that any of these features were actually MB in date.

EBLA (TELL MARDIKH)

Lat. Long.: 35°47'56.1" N, 36°47'54.0" E **UTM:** 37 N 03031051.3963882

References: (Matthiae 1967; 1968; 1970; 1980b; 1996; 1997a; 1997b; 1997c; 1998; 2000; Guardata 2000; Peyronel 2000; Pinnock 2001).

Plans: Site (Matthiae 2000:fig. 1; Pinnock 2001:fig. 1); Area A (Matthiae 1970:figs. 2f., 16; 1997b:fig. 14.2); Area M (Pinnock 2001:fig. 15); Area V (Matthiae 2000:fig. 10; Peyronel 2000:figs. 1–3); Area AA (Matthiae 1997c:fig. 23; 1998:figs. 16, 18; 2000:fig. 12); Area BB (Matthiae 1998:fig. 19); Area DD (Matthiae 2000:figs. 21, 24); Area EE (Matthiae 2000:fig. 16).

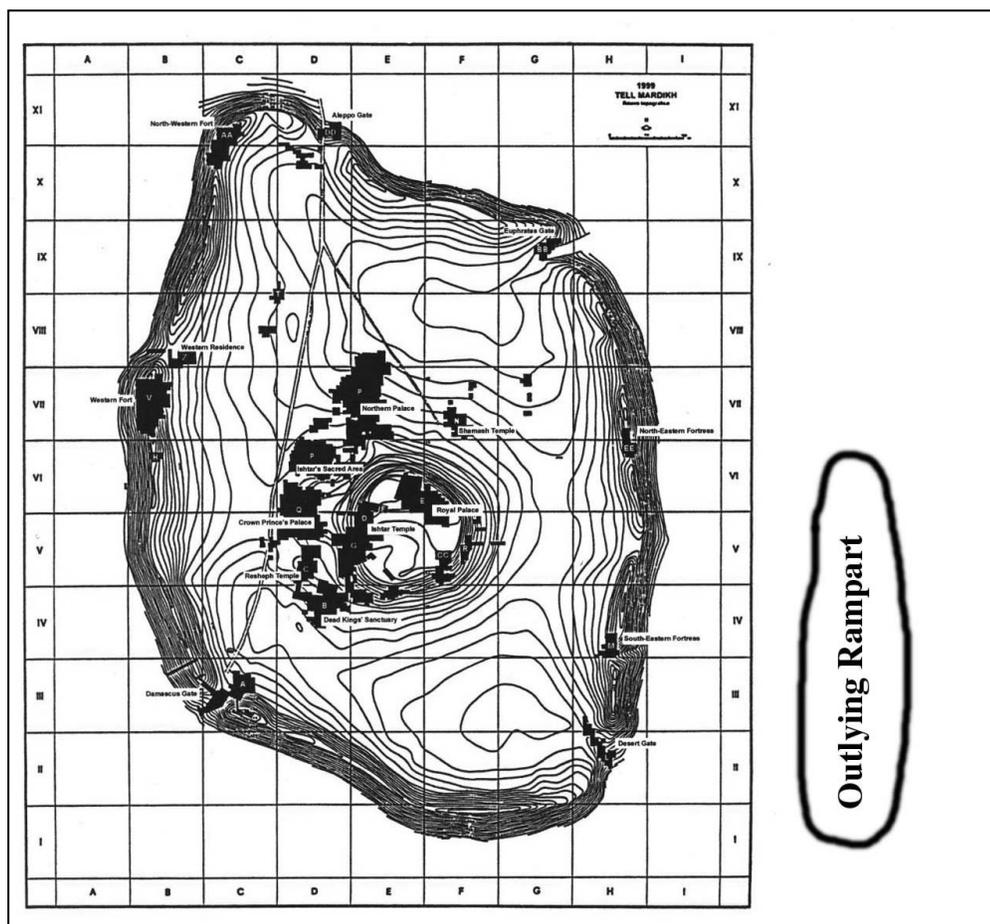
Sections: S section Area R (Pinnock 2001:fig. 4); Area Z (Matthiae 1998:fig. 10).

Photos: Area A (Matthiae 1995a:fig. 75, 77–83); Area G (Matthiae 2000:fig. 4); Area H (ibid., fig. 74); E rampart (ibid., fig. 3); Fortress M (ibid., figs. 115f.); Area R glacis (Matthiae 1997b:fig. 14.3); Area V (Matthiae 1998:fig. 13–15; 2000:figs. 2, 11; Peyronel 2000:figs. 4f.; L. Nigro 2002a:fig. 29); Area Z (Matthiae 1998:fig. 11; 2000:fig. 5); Area AA (Matthiae 1998:fig. 17; 2000:figs. 9, 13f.); Area BB (Matthiae 1998:figs. 20f.); Area DD (Matthiae 2000:fig. 3); Area EE (Matthiae 2000:figs. 17–19).

Ebla (Tell Mardikh) is located 55 km sw of Aleppo (Figure 32). Although a great deal has been written on the archaeology of Ebla since excavations began in 1964, no final reports have yet been published. Therefore, the description that follows has necessarily been drawn from summaries of the expedition's findings (Matthiae 1980b:114–124; 1997b:380–384; Pinnock 2001) and preliminary reports of excavation seasons in an attempt to outline Ebla's defenses during the EB IV and MB. To this

observation it should be added that preliminary reports of the excavations since 1994, which were undertaken with the explicit purpose of exploring the town's ramparts, remain mostly unavailable.⁹ Nevertheless, the data provided do permit the formulation of general observations, despite the absence of extremely insightful technical data such as the widths of walls and brick dimensions, etc.¹⁰

Figure 32. Plan of Ebla showing location of outlying rampart (after Pinnock 2001:fig. 1).



⁹Matthiae has considered these excavations to be part of the sixth phase of archaeological exploration of Tell Mardikh (1997c:3). They have included exploration of the W Fort (Area V) begun in 1995 (see Matthiae 1996), the NW Fort (Area AA) begun in 1996 (see Matthiae 1997c:12), and Areas BB (begun in 1997), DD (begun in 1999), and EE (see Pinnock 2001:fig. 1).

¹⁰We are, however, informed that bricks used in the MB house constructed at the foot of the acropolis measured 31 to 32 cm square by 12 cm high (Matthiae 1980b:125).

EB IVA–B (Mardikh IIB1–IIB2)

Due to the fact that Ebla's MB ramparts overlay its EB IV defenses, it has until recently been impossible to do more than speculate concerning the fortifications of the late third millennium at Ebla and the size of the settlement. But evidence of the EB IV **mudbrick wall** has recently come to light beneath the MB forts in Areas AA and V, on the NW and W sides of the site respectively. These discoveries suggest that Ebla's size during the EB IV was approximately the same as that during the MB (Pinnock 2001:21, n. 6), which confirms Matthiae's original hypothesis (1980b:114). In Area AA the wall (M.7357) was at least 6 m wide and was preserved to a height of 3 m (Matthiae 2000:580 and n. 33)! The size of the mudbricks used in the wall (60 x 40 cm), which were identical to those used in Palace G, suggest that the wall probably dates to the EB IVA and not EB IVB (*ibid.*). Due to the impossibility of safely reaching the earliest levels of the rampart it has not been possible to provide evidence of an EB IV rampart below the EB IV wall.

With this information it is possible to speculate concerning the size of the EB IV and MB settlements at Ebla.¹¹ Using the published plans to trace the top of the rampart's contours, the length of the rampart (and by extension the lengths of the EB IV wall and MB rampart) can be estimated to have been approximately 2,640 m. By the same means the gross size of Ebla including its ramparts is shown to be 56 ha, the size suggested by Pinnock (2001:13) for the MB settlement. If the EB IV settlement was approximately the same size as that of the MB, a gross size of roughly 56 ha, then the area occupied by the exterior slopes of the ramparts where no occupation was found in either period would

¹¹Matthiae had earlier suggested that the EB IV settlement was almost 50 ha (1997a:180) while that of the MB was 60 ha (*ibid.*, 181).

have totaled roughly 8.6 ha or approximately 15% of the site's gross size.¹² This leaves 47.4 ha for occupation within the ramparts. After subtracting the gross area of the acropolis (3 ha), whose net area was 1.5 ha, the lower town would have been 44.4 ha.¹³ These figures can be taken as reliable estimates of both the EB IV and MB towns based on the information we now possess.

At the end of the EB IVA Ebla experienced a massive destruction of which the best evidence have been remains of Palace G. This destruction is attributed to the Akkadian ruler Sargon, although Naram-Sin also claims to have conquered Ebla. Another destruction is presumed at the end of the EB IVB (Matthiae 1997a:181), although the evidence is not as clear as that of the earlier destruction.

MB I (Mardikh IIIA)

In contrast to the EB IV remains, the excavation of Ebla since 1964 has resulted in a thorough understanding of the MB town (Mardikh IIIA–B) and its network of fortifications. We now know that the defenses of Ebla, built at the start of the MB I, were constructed directly atop those dated to the EB IV with no gap after the destruction of Mardikh IIB2.¹⁴ In their completed state these consisted of several elements: the rampart, the gates, the wall, fortresses along the rampart, and the defenses of the acropolis.

¹²Although Pinnock (2001:18) has suggested 40 m as the rampart's original width, Matthiae's original statement that the rampart was 50 m wide (1980b:118) seems to better fit the data (see south section of rampart in Area Z, fig. 11, in Pinnock 2001). Recently Matthiae has reiterated this dimension (1997b:382). The figure for a larger rampart yields a more conservative estimate of the size of the site, which is appropriate given the degradation of the rampart over time and the realization that it would have been a far more imposing structure in its original state.

¹³These figures were arrived at from measurements taken along the crest of the rampart in August 2002.

¹⁴The lack of a gap is attested by the absence of MB I pottery in the rampart fills (Matthiae 1980b:118). The basis for Pinnock's suggestion that a "gap not exceeding fifty years" might have existed is not clear (2001:n. 11).

Matthiae had suggested that both the location of the MB gates of Ebla and the general layout of its ramparts were dictated by the layout of the EB IV town (1997b:382), having been built “at the beginning of Mardikh IIIA phase” (1980b:119). This has been confirmed during recent years with the discovery of the remains of the EB IVA town wall under the MB rampart (see discussion of EB IV Ebla above). This **earthen rampart** rises 20 to 22 m above the level of the surrounding plain, but only 12 m above the lower town,¹⁵ and its base was 40 to 50 m wide (Matthiae 1997b:382). The rampart’s fill consisted of white, chipped limestone, red clay-like soil, and occupational debris. Most of the limestone and clay material was probably obtained from a **fosse** which was dug on the outside of the base of the rampart during this period, as is evident on the SW and S sides of the site, however, no dimensions are yet available for the fosse. The remainder of the rampart’s fills consisted of ashy EB IVA (Mardikh IIB1) and IVB (Mardikh IIB2) occupational debris were taken from within the enclosure (ibid.). The date of this material along with the evidence from MB I burials in the rampart and below many of the rampart’s fortresses (Pinnock 2001:n. 12) provide conclusive evidence supporting an early MB I date for the construction of the rampart. It is not yet possible to accurately determine the slope of the rampart from published plans and the proposed figure of 22° for the slope of the w rampart in Area Z is probably too little (see s section of rampart in Pinnock 2001:fig. 11).¹⁶ In contrast, Matthiae had previously suggested that the rampart in Area A probably had a 45° slope, although it was only preserved to 30° (1970:61). If the dimensions cited above are correct then the total volume of the ramparts can be estimated to have been more than 1,247,400 m³.

¹⁵It is difficult to provide an exact height for the rampart as much of the top is assumed to have been lost (Pinnock 2001:fig. 11) and excavations appear to have only reached a limited depth so far.

¹⁶The reconstruction offered for Area Z is entirely speculative. Furthermore an examination of the position of the Area Z trench (Pinnock 2001:fig. 1) indicates that because it is located in a depression in the w rampart it is not an appropriate location in which to ascertain the true profile of the rampart.

As recently revealed, the core of the MB rampart consisted of the remains of Ebla's EB IV defenses which included the EB IVA mudbrick wall (Pinnock 2001:n. 4), which may have served essentially as a **core wall** for the construction of the MB rampart. The base of the exterior of the rampart was reinforced by a low **revetment wall** of dressed stone (M.325 in Area A, Matthiae 1970) that was preserved to a height of about 1.5 m that Matthiae has speculated was originally 3 to 4 m high (1997b:382). Evidence of a "relatively shallow wall" to "the east of the southwest gate" has been identified by Matthiae as the **fortification wall** crowning the MB I rampart (Matthiae 1997a:181). Elsewhere nothing remains of this wall which was probably destroyed by the fortresses constructed on the rampart during the MB II.

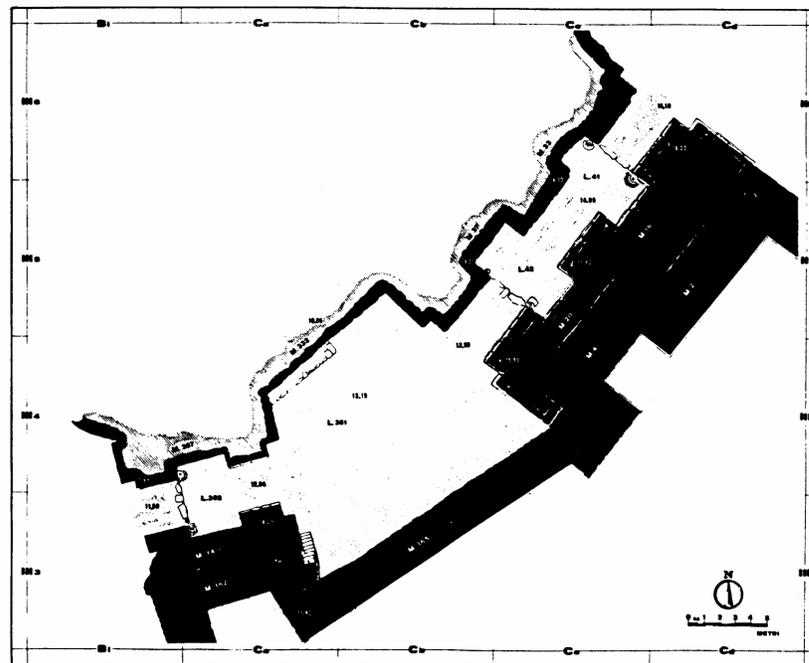
In four areas at Ebla excavation or examination of the site's contours have also enabled identification of the major **gates** dated to the MB I which continued to function through the MB II: the "Aleppo Gate" (Area DD) on the N, the "Euphrates Gate" (Area BB) on the NE, the "Desert Gate" or "Qatna Gate" (Area L) on the SE, and the "Damascus Gate" (Area A) on the SW (for the names of the gates see Pinnock 2001:fig. 1, p. 21).¹⁷ Of the gates thus far identified only those in Areas A ("Damascus"), L ("Qatna"), and BB ("Euphrates") have been completely excavated (*ibid.*, 21). The gate in Area DD may lie outside the line of the ramparts or if it was situated like the others within the ramparts it has been completely destroyed (Matthiae 2000:n. 75).

The gate in Area A, known as the **Damascus Gate** (Figure 33), was the best preserved of the gates at Ebla (Matthiae 1980b:119–123). Making a gradual left turn upon entry from an ENE approach, it consisted of three parts: an outer four-pier gateway, a central courtyard, and an inner, six-pier gateway. The **outer gateway** lying on a WSW-

¹⁷It is worth noting that the designations of these gates follow the typical Near Eastern convention of naming them according to the major settlement to which one might travel directly from the gate.

ENE axis was of the four-pier type with two outer piers (M.341 and 358) and two inner piers faced with basalt orthostats (M.326 and 356). The outer gateway appears to have possessed only one set of doors, which based on the location of the two door sockets were located on the inside of the first pier when approaching from outside the town. These doors opened inward and would have measured slightly more than 1.8 m wide. The outer gate was 10.5 m deep with 3 m wide entries. On the interior of the outer gate was a trapezoid-shaped court on a SW-NE axis. On the S side of the courtyard stood a massive **retaining wall** (M.365) of rough-hewn stones 2.75 m high with a stone stairway which led to a bastion and sentry walk, according to Matthiae (1980b:122).

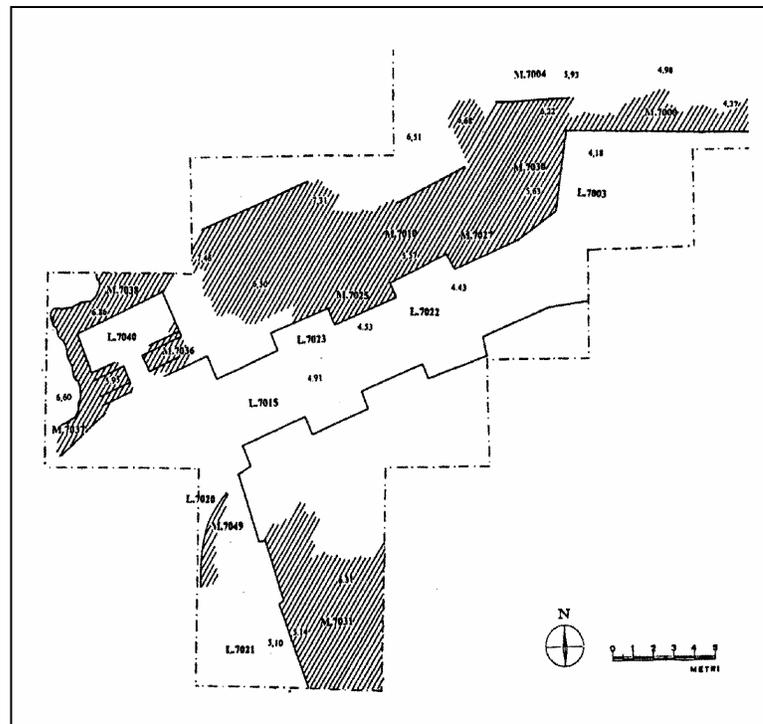
Figure 33. Gate in Area A at Ebla (after Pinnock 2001:fig. 14).



The inner, **six-pier gateway** was constructed of rough-hewn stones that protruded 1.32 m from the gate's sides (Matthiae 1968:16). Only the E half of the gate was faced with orthostats to a height of 1.8 m, the piers with basalt orthostats (M.22, 18, and 14) and the two intervening spaces with limestone orthostats. All the orthostats had smoothed exterior surfaces, though the interior surfaces of the basalt orthostats were not smoothed,

and they featured circular holes spaced regularly to accommodate attachment of the masonry superstructure. The basalt orthostats also were trapezoidal in section, supposedly in order to function as foundations for the voussoirs which are thought to have supported a barrel vault constructed over the passageway. The orthostats, therefore, should not be understood as simply ornamental but also integral to the structure of the gate. Although Matthiae (1980b:121) has suggested that the weight of the masonry structure was to blame for the cracks in the orthostats, this to me seems unlikely since they may have cracked as a result of the final collapse of the gate. The inner gate was roughly 21.3 m deep.

Figure 34. Gate in Area BB at Ebla (after Matthiae 1998:fig. 19).



The construction of the gate complex has been dated to the MB I (Mardikh IIIA) based on ceramics found on the surface associated with its initial construction. It experienced only modest modifications during the following period (Mardikh IIIB) that included a new **retaining wall** (M.41), which resulted in the trapezoidal courtyard

becoming smaller in area. Although a building excavated in Area A just inside the gate has been identified as the guards' quarters (Matthiae 1970:66, fig. 3), it is not yet possible to confirm this designation.

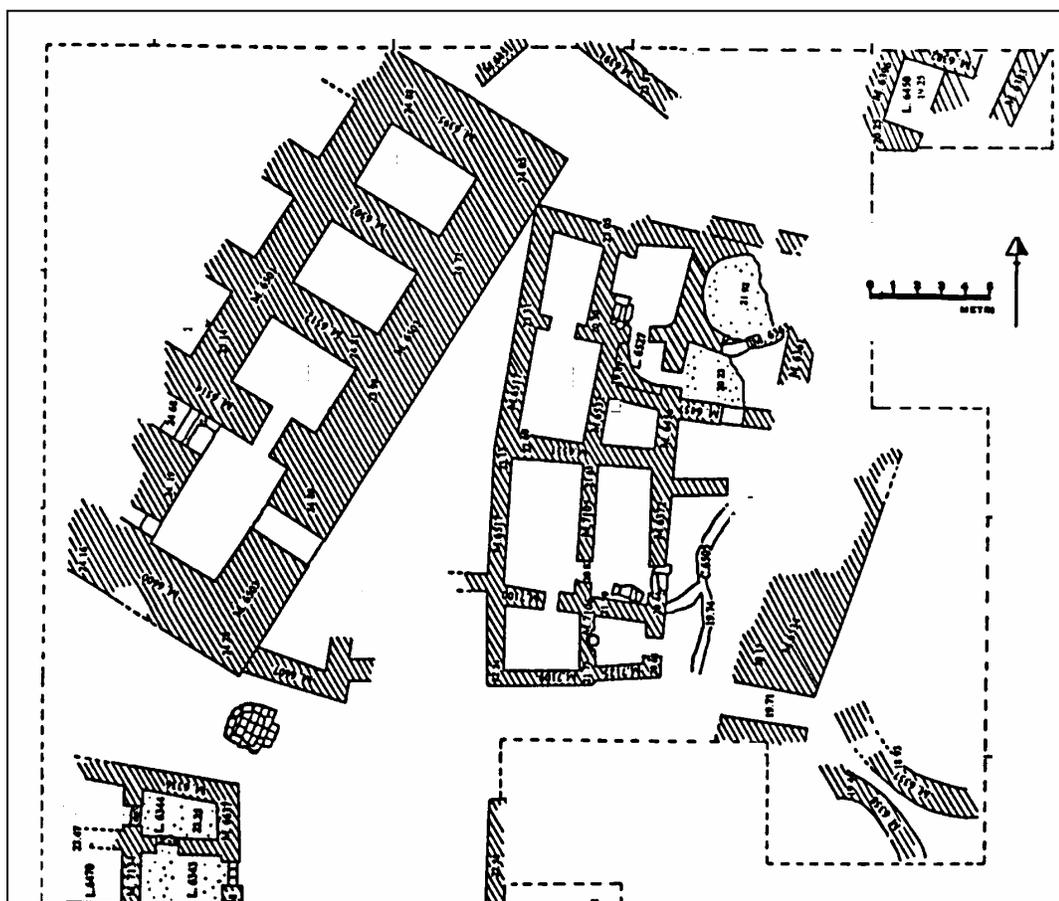
The **Qatna Gate** in Area L on Ebla's SE side, though poorly preserved, should probably be understood to have been nearly identical to the six-pier gate in Area A. Although the Area BB or the six-pier **Euphrates Gate** on the NE was also excavated (Matthiae 1998:584–587, fig. 19), indications are that it too was rather poorly preserved (Figure 34). Only two of its six piers on the N side of the gate survived the effects of erosion on the NW side of the site. The dimensions of the gate passage (ca. 3.2? x 20 m) are nevertheless comparable to those of other MB gates (see Matthiae 1998:586 and n. 55).

MB II (Mardikh IIIB)

As further evidence of the site's defenses during the MB, a number of fortresses or **bastions** have been discovered on top the rampart which have been dated to the renovation of the site's defenses at the end of the MB I or start of the MB II. These include the fortifications of the SE Fortress (Area M), the W Fort (Area V), the NW Fort (Area AA), the NE Fortress (Area EE), and the remains of a fortress detected on the surface in Area A (see Pinnock 2001:fig. 1 for their locations) and in grid BV to the S of Area V (Matthiae 1998:n. 46 and p. 587f.). As Matthiae has noted the placement of the fortresses was probably determined by the juncture between separate stretches of the fortifications (*ibid.*). The construction of these fortresses must be dated to some period after the initial phase of the MB I (Matthiae 1998:582, 588), since they overlie earlier MB I burials dug into the rampart before these fortresses were built (Guardata 2000). While excavations of many of these structures have only recently been conducted, their existence had already been posited based on surface remains (Matthiae 1980b:118f.). These fortresses are thought to have functioned as armories during peacetime, bastions

mudbrick, also featured a second story as attested by the staircase at its s end where a ground floor entrance on the w side of the building was also located. Having been destroyed at the end of the MB (Mardikh IIIB) several remains were found in situ amidst the ash. These included a piriform, limestone macehead and two spearheads found beneath a staircase, one of which was inscribed in cuneiform with a name (Matthiae 1980b:123).

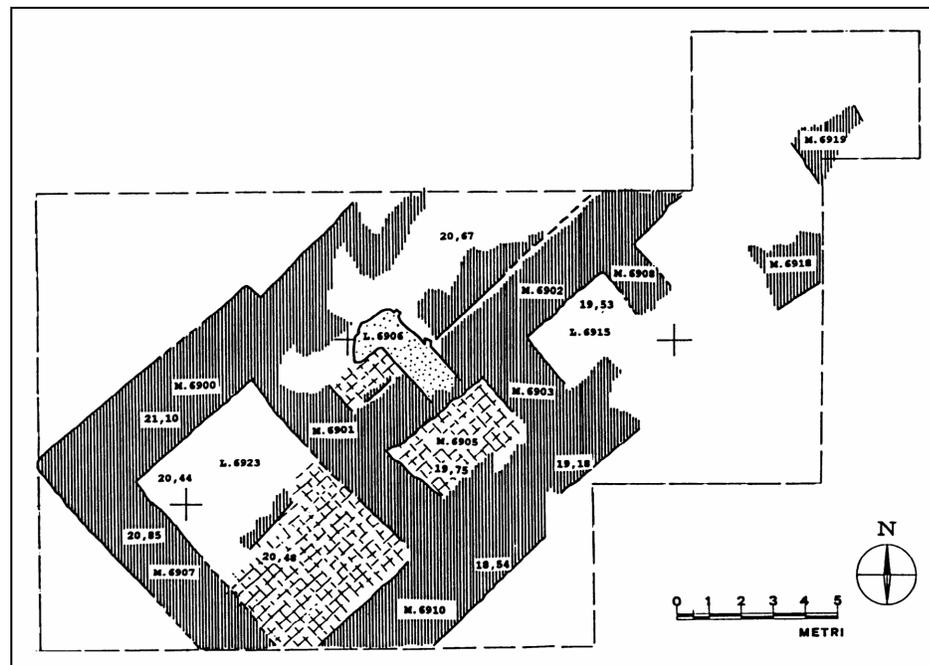
Figure 36. Bastion in Area V at Ebla (after Pinnock 2001:fig. 13).



On the w side of the site in Area V another fortress, referred to as the **W Fortress** (Figure 36), has been identified (Peyronel 2000). It appears that this fort was constructed about a century into the MB I (MB IB) when use of the MB IA-built rampart as a cemetery had come to an end (ibid., 1354). In that period both the N and W ramparts were used as cemeteries. The fortress which measured 26 m N-S by about 16 m E-W was in

continual use until it was destroyed at the end of the MB II (ca. 1550 B.C.). Its walls were slightly less than 3 m thick. The bricks of this structure were of similar dimensions to those of other MB structures on the site and measured 30–32 x 32–35 x 10–12 cm (ibid., n. 9). Of particular interest with regards to the construction of this fortress are both the use of orthostats and that the orthostats between rooms L.6516 and L.6522 were clearly angled so as to probably support an arched doorway (see fig. 5 in Peyronel 2000; and fig. 29 in L. Nigro 2002a).

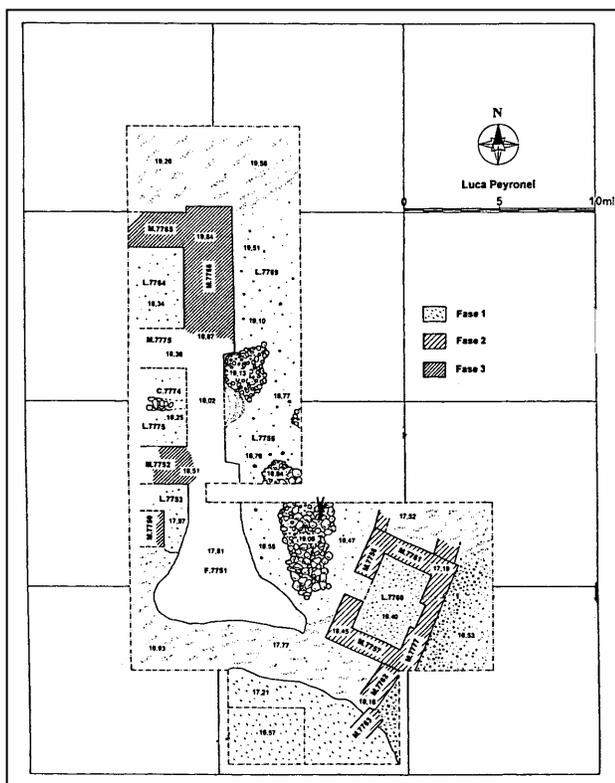
Figure 37. Bastion in Area AA at Ebla (after Matthiae 1995b:fig. 23).



In 1996 part of the fortress in Area AA known as the **N Fortress** was excavated (Figure 37). Although it is less well-preserved than the others, featuring only its w peripheral wall (M.6958), its E supporting wall (M.7330), and a small part of the rectangular fortress (Matthiae 2000:fig. 12, p. 584f.), its plan is comparable to that of fortresses M and V. Its exterior walls were more than 2 m thick. The N continuation of the E supporting wall (M.7330), M.7369, which was built of stone and mudbrick was found preserved to a height of more than 3.5 m (ibid., 587). Matthiae has suggested based on

the discovery of a hearth with three or four vertical openings in room L.6906 of the N Fortress that it was used for sending smoke signals (1997c:12; 1998:580). He believed that the absence of evidence for cooking or metallurgy around the hearth made this suggestion plausible. Additionally, an Old Babylonian lexical tablet was found in this fort (ibid.).

Figure 38. Bastion in Area EE at Ebla (after Matthiae 2000:fig. 16).



The **NE Fortress** in Area EE (Figure 38) was neither very well preserved nor completely excavated, but appears to have been of a comparable plan to the other rectangular fortresses known (Matthiae 2000:fig. 16, pp. 588f.). Although poorly preserved the fortress in Area EE does provide potential insight into the development of the rampart defenses of Ebla during the MB in three phases. According to the most recent publication of the findings, during the earliest part of the MB I just after the construction of the rampart a fosse seems to have been dug into the rampart, perhaps along its crest,

which was then later filled with refuse (Matthiae 2000:593). Later in the MB I some structures, apparently of smaller size than the MB II fortresses, appear to have lined the crest of the rampart providing a defensive line composed of the back walls of structures (ibid., fig. 16). Only during the MB II, as also evident from the other fortresses, was the Area EE fortress constructed, again on the interior slope of the rampart (ibid., 591). While almost no data has been provided concerning the mudbrick town wall that crowned the rampart, it may have been at least 3.5 m thick during the MB II if the plans of the exterior walls of the fortresses spaced along its length are any indication (Pinnock 2001:figs. 12f., 15).

MB Acropolis Defenses

In addition to all of these defensive structures fortifications also surrounded the acropolis in the center of the lower town during the MB I and II (see fig. 4, Pinnock 2001). From bottom to top these consisted of a stone **revetment wall** (M.4573) preserved 1 m high and 2 m wide, which would originally have been about 4.15 m high; a 31 m wide **glacis** with a slope of 9°, a citadel **rampart** (“mudbrick revetment” in Matthiae 1997b) atop the glacis at the foot of the citadel’s wall 5.7 m high and 7 m wide covered with mudbricks, and a mudbrick **citadel wall** (M.4500) over 2.5 m wide whose original height is unknown (Matthiae 1997b:382f., fig. 14.3). The combined height of these defenses was around 14 to 16 m to which must also be added the complete height of the crowning wall (ibid., 383). Towers constructed of large stone blocks protected the approach to the citadel (ibid., 384).

Outlying Rampart

Another structure that has not yet been mentioned in Ebla’s publications bears mentioning as part, specifically, of the site’s MB settlement and defense. Surprisingly, these remains consist of a massive outlying rampart which has not been published in the literature or plans for Ebla, and which is only evident to a visitor of the site upon

climbing the E rampart (Figure 32 above). This **earthen rampart**, which lies in a N-S alignment between 275 and 290 m E of the site's E rampart, is approximately 515 m long, 60 m wide, and over 12 m high with a slope of 23° to 26°. It occupies an area of 3.1 ha with a volume of approximately 185,400 m³. Although it is nearly three-quarters of the length of the E rampart, it is not stratigraphically linked to the settlement itself by any ramparts or any apparent occupation between it and the E rampart of the settlement to its W (personal communication, Marco Ramazzotti 2002). While the feature is clearly manmade, as the severe flatness of the surrounding plain confirms, the date of its construction, its purpose, and its relationship to the settlement remain enigmatic. The Italian expedition that has surveyed the feature has, nevertheless, considered several possibilities regarding its construction. Among them are the possibility that it was (1) a mistake in urban planning, (2) consists of the deposition of excess building materials, or (3) a late phase of aborted expansion.

Having examined and measured the feature personally, none of these explanations seem likely. Instead, I suggest that a fourth alternative should be considered, namely that the structure was built by an attacking force in order to protect the enemy encampment from suppressing fire by the settlement's defenders during a protracted siege. We may arrive at this conclusion by first realizing that none of the other explanations suggested can realistically account for the location of the structure and the absence of other cultural data on or around it. To suggest that it was either a mistake in urban planning or that it consisted of excess material for rampart construction requires employing an anachronistic argument about the nature of urban planning and construction projects in the Bronze Age. One must realize that such massive efforts would not have been undertaken until almost imperative and they would certainly not have been completed before the error was realized. Furthermore, some occupation of the area between these ramparts would be expected before construction of the rampart had begun.

In light of the limited data available from which to draw any conclusion regarding this rampart's function and the fact that we may rule out these possibilities, we must consider the dimensions and position of the rampart in order to derive a hypothesis as to its purpose. These facts are that the rampart is located more than 275 m away from the town's E side, runs directly parallel to it, and stands 12 m high. Although at first such data may seem extraneous, these figures support the possibility that this rampart was intended not as a defensive structure for the town's defenders but rather for the defense of an enemy force encamped just outside the optimal range of archers using the composite bow. While one might argue that this seems unlikely, two additional observations also support this conclusion. Aside from being out of range of the settlement's defenders, the rampart and its location to the E of the settlement could have provided greater protection of the attacking force from the fierce W wind which blows across the plain here. While this wind is of less consequence to permanent structures, particularly those within the confines of ramparted settlements, it would have been of an entirely different concern to those attempting to establish a long term camp in the fields surrounding Ebla. Finally, a tight blockade as could be afforded by a very close encampment such as this one which might have been intended to prevent the escape of any individuals seeking to muster Ebla's allies against the attacking force. The construction of such a rampart with earth taken from nearby fields would probably not have required as much time as might be thought given that it was not necessary to take other factors into consideration, such as load bearing capability, protection against erosion, compaction, etc. The volume of this rampart (ca. 185,000 m³) was about one-eighth that required in the construction of the ramparts around the settlement of Ebla itself. A five thousand man army, for instance, could have completed the task by moving 3 m³ of earth a day in twelve to thirteen days. In the absence of further data we may only suggest that it represents the work of either Naram-Sin's army ca. 2200 B.C. or that of the Hittite army ca. 1550 B.C.

EMAR (TELL MESKENE)**Lat. Long.:** 35°59'14.4" N; 38°06'35.7" E **UTM:** 37 N 0419764.3982911**References:** (Margueron 1995; Finkbeiner and Leisten 1999–2000).**Plans:** Lower town (Finkbeiner and Leisten 1999–2000:fig. 11); Squares 082–085/048–049 (fig. 20).**Sections:** Schematic (Finkbeiner and Leisten 1999–2000:fig. 22).**Photos:** Wall (Finkbeiner and Leisten 1999–2000:pl. 40).

Tell Meskene (Emar) is located 88 km ESE of Aleppo along the Euphrates bend on the shore of Lake Assad. Although little is known of EB and MB Emar, its layout as early as the mid-third millennium may have resembled that of Mari and Terqa, namely a tell encircled by ramparts, as Margueron has suggested (1995). Unfortunately, excavations have been predominantly limited to the LB settlement.

Limited excavation on the E edge of the lower town to the E of the LB town has produced the remains of a fortification wall and glacis that may date to the end of the MB, or possibly early LB (Finkbeiner and Leisten 1999–2000:29ff.). As seen in the schematic section (*ibid.*, fig. 22), the defenses, excavated in square 085/048, consisted of a mudbrick **fortification wall** over 3 m thick built on a stone foundation with a **glacis** (*ibid.*, 29). Further details concerning the identification and date of these remains must await completion of the final report of the excavations. The LB layout of Emar conforms to a rectilinear plan (Margueron 1995:128).

FERZAT, TELL (TELL ES-SALIHIEH)**Lat. Long.:** 33°30'47.0" N, 36°28'32.7" E **UTM:** 37 N 0265512.3711020**References:** (von der Osten 1956).**Plans:** Site (von der Osten 1956:fig. 19); Stratum XII (fig. 18).**Sections:** E section (von der Osten 1956:fig. 98).**Photos:** E section (von der Osten 1956:fig. 55); Walls (figs. 53f.).

The site of Salihiyeh, known today as Tell Ferzat and occupied by a military base, lies about 17 km E of the center of Damascus. Founded by at least the start of the MB II, its strategic importance is evident as W. Pitard has noted since “it is possible to see all the major entry points into the Damascene basin” from the site (Pitard 1987:38). Although its topographic signature appears irregular in plan today, von der Osten has suggested that the MB site (Strata XII–XI) measured about 250 m N-S by 300 m E-W (von der Osten 1956:15). However, a closer examination of the contours which overlay the MB II rampart and walls in 1951 (ca. 113 m contour line, von der Osten 1956:fig. 19) suggests that the citadel would have been limited in size by a 400 m long wall around it. Thus it would only have been about 1.4 ha in size; whether or not the surrounding area within the dimensions provided by von der Osten was inhabited in the MB cannot be verified. While it is not certain that the earliest occupation of Salihiyeh has been identified, preliminary examination by von der Osten suggests that the MB II fortifications of the citadel were the earliest defenses constructed for the site shortly after two short-lived phases of occupation, only a small part of which has been exposed (*ibid.*, 79); there is no evidence of an enclosure around the site of the type known at nearby Deir Khabiye (see below).

Stratum XII, began around the end of the 19th cent. B.C., introducing the first phase of fortification construction on the site with the building of a 3 m high **earthen rampart** around the citadel, XIIb1a (von der Osten 1956:38). (It appears that the trench in which these results were obtained on the N side of the site has been backfilled.) It is

uncertain whether or not this rampart featured a wall at that time. Unfortunately, the interior slope of the rampart was not preserved in the area excavated, since it had been carved away in antiquity. In a second phase of construction, following the removal of much of the interior of the rampart's slope, the area was leveled with a fill 2.8 m deep (XII α). Upon this fill a 1.2 m wide mudbrick wall (XIIb2) was built; this wall was then subsequently leveled in order to create a large flat area (XII β), effectively extending, or renovating the earliest rampart. During this third phase of construction, directly above the extant remains of the earliest rampart (i.e., on the exterior edge of this large embankment with a flat top), a 1.9 m wide **wall** (XIIa1) was built of gray and yellow mudbricks (43–44 x 10–11 cm) and the front of the wall had been faced with two rows of mudbrick (XIIA); today five courses of this structure are preserved. This wall identified as a **revetment wall** ('vormauer') stood 2.1 m in front of a mudbrick wall (XII δ) of identical width (1.9 m); it was only preserved to a height of 0.9 m (bricks 36–39 x 10–12 cm). It is possible that both of these walls belonged to a bastion or casemate construction as part of the defenses of the citadel. Both were destroyed at the same time (p. 39) and then built over in Stratum XI with a single, thicker **wall** (XI1), 2.5 m thick, which was built again of mudbrick (44–57 x 11–15 cm) as the fourth and final phase of the site's MB fortification (p. 35). All fortification walls on the site lacked any evidence of stone foundations.

GINDARIS, TELL**Lat. Long.:** 36°23'13.8" N, 36°41'24.5" E **UTM:** 37 N 0292824.4029372**References:** (Khadour, et al. 1997; Sürenhagen 1999).**Plans:** Site (Sürenhagen 1999:fig. 2).**Sections:** NA.**Photos:** NA.

Preliminary evidence is gradually surfacing regarding this MB and LB settlement approximately 5 km w of the Afrin River in NW Syria (Khadour, et al. 1997). It is possible that the extent of the 12.4 ha mound which is almost square in plan represents an original MB I settlement in the Afrin valley.¹⁸ However, much of the mound's 20 m elevation above the plain is certainly the result of settlement during later periods.

Examination of the S, W and NW slopes of the site reveal a very clear line of large stones undoubtedly the foundations of a fortification **wall** as Khadour has noted (ibid., 119), resting 15 m above the elevation of the plain to the S. If this wall surrounded the entire mound, then its length would have been approximately 1,200 m. These stone foundations are about 7 m lower than the MB and LB occupation in Area I. The fortification wall is suggested to have been 8 m wide. It may have rested at the top of an earthen rampart which gave the mound its rectilinear plan.

At least two gates may have existed: one in the SW corner in the area of a depression and in the center of the N side in the area of a second depression evident on the contour plan.

¹⁸Khadour's figure of 20 ha (1997) is too large based upon my reconnaissance of the site.

HABUBA KABIRA, TELL**Lat. Long.:** 36°10' N, 38°4' E**UTM:** 37 N 416484.4004787**References:** (von Schuler, et al. 1969; Ludwig, et al. 1970; Schmid, et al. 1971; Schmid, et al. 1973; Strommenger 1976; Heusch 1979; Strommenger 1979;1980).**Plans:** Site (von Schuler, et al. 1969:fig. 8); Level 5 (Heusch 1979:165; Strommenger 1976:fig. 3), Level 6 (Heusch 1979:167; Strommenger 1979:fig. 17; 1976:figs. 1f.), Level 7 (Heusch 1979:169), Level 10 (Heusch 1979:170; von Schuler, et al. 1969:fig. 9; Ludwig, et al. 1970:supps. 2, 4; Schmid, et al. 1971:supp. 3), Level 11 (Heusch 1979:173), Level 15 (Heusch 1979:175; Schmid, et al. 1971:supp. 4), Levels 17–20 (Heusch 1979:177).**Sections:** Level 10 (Ludwig, et al. 1970:supp. 3).**Photos:** Level 6 (Strommenger 1979:18), Level 10 (von Schuler, et al. 1969:figs. 10–12; Ludwig, et al. 1970:figs. 3f.); Level 15 (Schmid, et al. 1971:fig. 5).

The 0.4 ha site of Tell Habuba Kabira, which is located about 1.2 km N of Tell Kannas on the w bank of the Euphrates River, sits 14 m above the floor of the valley at 303 m ASL (von Schuler, et al. 1969:41). Today, like Tell Kannas, it has been inundated by the waters of Lake Assad. Excavations revealed twenty levels (*Schichten*) of occupation on the SE side of the tell that span the period from the mid-fourth to the mid-second millennia (Strommenger 1979:73).¹⁹

The earliest level, Schicht 1, has been dated to the Late Uruk (Heusch 1979:161). The next major period was dated to the EB (ED), Schichten 2–3. The N building located on SE side of tell in this phase has been identified as a work area (ibid., 163). The exterior surface of the outer walls of this structure as well as its interior surface were renovated in

¹⁹The data from the preliminary reports are insufficient to provide more precise dates for the archaeological phases presented here.

this period and appear to have been plastered or resurfaced with a chalky mud (*ibid.*, 164). The site does not appear to have been enclosed by a free-standing wall in this period; rather the rear walls of the various structures served as a perimeter or casemate wall for the settlement. In this wall a roughly 1.5 m wide gate was identified on the S side of the settlement. This passage remained open and in use through Schicht 10.

The next major alterations in the site's plan are visible in Schicht 6. In this phase the outer wall of the settlement, which had until Schicht 5 consisted only of the exterior wall of the settlement's E structures, was widened with the addition of a 1 to 1.2 m wide **wall** outside of it (Heusch 1979:166). The space between the original wall and the new wall was filled with clay. During this phase a 2.2 m wide breach was added to the E side to permit access to the river through this part of the settlement. Few modifications of the interior structures seem to have taken place in this phase. Schicht 7 featured the improvement of the settlement's exterior wall after modification of the earlier perimeter wall led to it being built taller (*ibid.*, 168).

Schicht 10 represents the next significant change in the settlement's plan in this area (Strommenger 1979:168). The major renovation in this phase included the replacement of the E opening with a formal gate built on a stone foundation (Heusch 1979:168; von Schuler, et al. 1969:44). The new gate featured a steep pavestone ramp leading towards the gate with a 1.6 m wide entrance (Heusch 1979:168). The direct-axis gate, which is E-W aligned and was 5 m long, features side rooms 3.8 m deep (Ludwig, et al. 1970:35). The bricks used in its construction measured 24–27 x 45–50 x 9–10 cm (von Schuler, et al. 1969:44). The walls added from the S side of the gate to the E wall, which enclosed a newly dug well, also featured interior buttresses for additional support (*ibid.*, 171). This wall was 1.2 m wide and built on a stone foundation which was 1.5 m wide (Heusch 1979:171) of bricks measuring 34–38 x 48–50 x 10–12 cm standing to a height of 1.5 m (Ludwig, et al. 1970:38). The buttresses averaged 1.45 m deep by 1.25 to 1.30 m

wide. Another 3.5 m wide entrance was added in the S half of the excavated area (Heusch 1979:171).

In the following phase, Schicht 11, the E gate, which was opened in the previous phase, was renovated and converted into an **indirect axis gate** (Heusch 1979:172). The closing of the gate was completed with the addition of a massive **wall** more than 3 m wide on its E and N sides. The gate's entrance now emptied to the S and an opening was added between the junction of the town wall and the buttressed wall that was added in the previous phase. This phase appears to date to the Akkadian period (Schmid, et al. 1971:18). Schichten 12–13 saw improvement of the fortifications constructed in Schicht 11 and eventual modification of the E gate again (Heusch 1979:174).

Major modifications of the settlement's fortifications also took place in Schicht 14. The **wall** of this period, which was added as an extension S from the corner of the buttressed wall in square S13, was built 2.8 m wide and at least 5 to 6 m high (Heusch 1979:174). It was constructed at an average level of 295.44 m ASL of fired bricks approximately 38–40 x 38–40 x 10–12 cm without a stone foundation (Schmid, et al. 1971:18). The structure is dated by special finds to ca. 1950 B.C., during the Ur III dynasty or the First Dynasty of Babylon (ibid., 18). Schicht 15, which immediately followed, was predominantly of the same plan as Schicht 14. Although the entrance during this phase, which was located in the S side of the settlement, was not well preserved, it appears to have been a simple direct-axis gate.

By the final phases of occupation at Habuba Kabira, Schichten 17–20, the earlier walls appear to have fallen out of use and almost no evidence is available from which to formulate conclusions regarding the settlement's defensive strategy. Despite the limited data which is available in preliminary reports for the dating of the architectural phases at Tell Habuba Kabira, the site offers a unique perspective on the defensive strategies of

settlements which may have been almost continuously occupied from the Late Uruk through the MB in northern Mesopotamia.

HADIDI, TELL (ANC. AZU)

Lat. Long.: 36°15'54" N, 38°08'56" E

UTM: 37 N 423723.4013702

References: (Dornemann 1979a; 1979b).

Plans: Site (Dornemann 1979b:fig. 1); Area B, Level D (1979a:fig. 25).

Sections: NA.

Photos: Areas A (Dornemann 1979a:fig. 29; 1979b:fig. 12); Area B—LB (Dornemann 1979b:fig. 13).

Tell Hadidi was located on the w bank of the Euphrates but is now under the waters of Lake Assad. The late third millennium (ca. 2250–1950 B.C.) settlement of Tell Hadidi included occupation of both the upper town on the w (1.8 ha) and the lower town to the E (2.2 ha) during the EB IV (Dornemann 1979b:217). By the completion of excavations at the site scant evidence existed for any fortification of the site during this period (1979a:116).²⁰

In the following period (MB I–II), however, when the settlement retracted to the 1.8 ha upper town it was surrounded by the first fortification system built at Hadidi. The site's MB fortifications were excavated in Area A on the w, in a long step trench in Area B on the N, and on the S in Areas G, J, and P (1979a). In Area A 17.5 m of the more than 4 m wide **fortification wall** was exposed (1979b:225), while in Area B the remains of the stone fortification wall were revealed to be only 3 m wide (1979a:132). Although the phasing is not entirely clear from the limited publications that exist, a gravel **glacis**

²⁰This admittedly vague statement cannot be taken as an indication that the site was not fortified during the EB IV. The excavations, particularly of the lower town, were extremely limited in both duration and extent as Dornemann has noted and the fact that EB IV fortifications were not revealed in Area B, where the best evidence for the MB fortifications was found, does not conclusively demonstrate that the site was unfortified in this period.

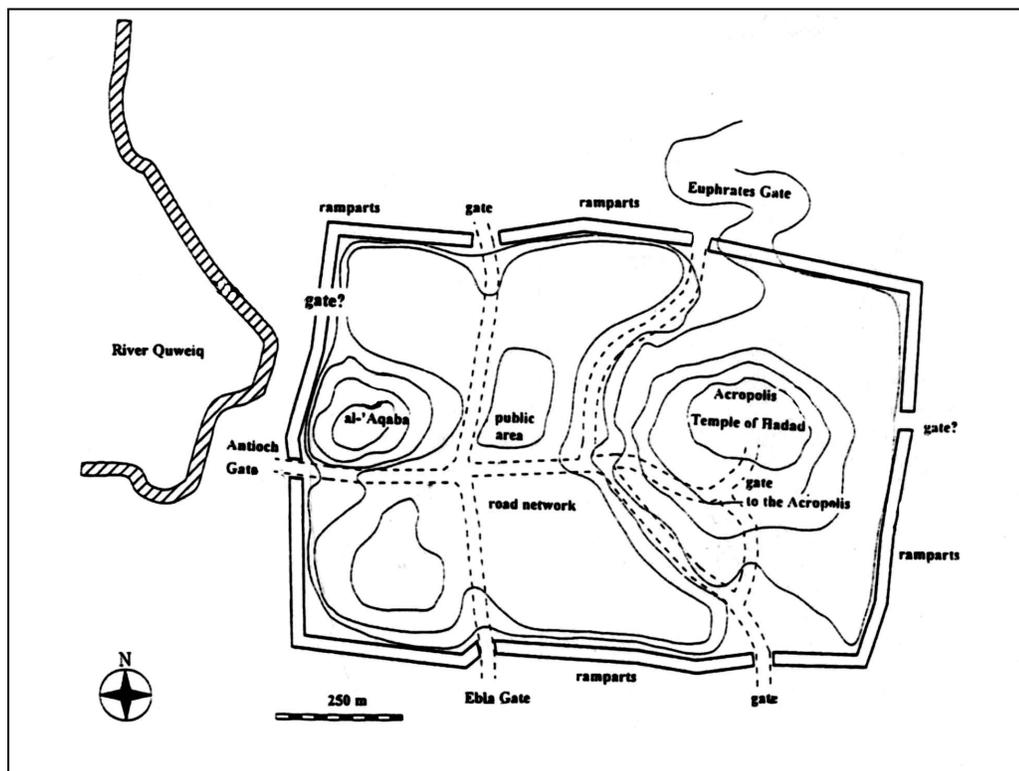
appears to have complemented this fortification wall during the first part of the MB. The function of this glacis was replaced by a **revetment wall** (Level D) which was built on the interior surface of the MB **fosse** towards the end of the period (1979b:225). In Area G the defensive wall was found to be 7 m thick, although Dornemann admits that this may indicate the location of the foundation of a tower (1979a:141). While no gates were excavated, the location of a gate was suggested by depressions located between Areas G and P on the s side of the upper town and in the center of the w side (ibid.). An enclosure wall around the entirety of the upper town is estimated to have been approximately 1,425 m in length, and would have contributed to the roughly rectangular plan of the upper town.

During the LB the site returned to its earlier grandeur (4+ ha) with occupation of both the upper and lower towns (1979b:217f.). Expansion of the site during this period is evident as the settlement's LB I fortifications were moved some 20 m beyond the line of the earlier MB fortifications (ibid., 225). In Area B two phases of the LB defenses, using river gravel as fill behind them, were revealed. During the first phase (Level C in Area B) a **fosse** about 4.25 m wide also appears to have been cut into the bedrock to replace the Level D (MB II) **fosse**, which had by now been filled in (1979b:225; 1979a:141). In the following phase (Level B) a new 20 m wide **fosse** was dug in Area B and a **revetment wall** of cyclopean masonry was added to the interior slope of the fosse with a batter slope of 30° (1979a:141). In Level A gravel was added behind the rebuilt revetment wall in Area B (ibid.).

HALAB (ALEPPO)***Lat. Long.:** 36°11'57.4" N, 37°09'44.5" E**UTM:** 37 N 0334787.4007617**References:** (Sauvaget 1929; Suleiman 1983; 1985; L. Nigro 1997–1999).**Plans:** Reconstructed MB site plan (L. Nigro 1997–1999:fig. 8).**Sections:** NA.**Photos:** NA.

The mound of Aleppo is located 55 km NE of Ebla (Tell Mardikh). To date no excavation of the lower town of Aleppo has been possible on a wide scale and the acropolis's defenses also remain unknown. Despite this lacuna in the study of ancient Aleppo's fortifications, recent excavation of the acropolis since 1997 by the Syro-German expedition in addition to minor examinations of the lower town have enabled some speculation regarding the layout of the MB town.

Figure 39. Reconstructed plan of third millennium Aleppo according to L. Nigro. Reprinted, by permission, from L. Nigro (1997–1999:fig. 8).



The most recent attempt to reconstruct the settlement's layout has been that of L. Nigro (1997–1999) who proposed that MB Aleppo was rectangular in plan, measuring 1200 m E-W by 900 m N-S (*ibid.*, 49, fig. 8). This reconstruction would yield a MB settlement of approximately 108 ha (*ibid.*). He bases his conclusion on the position of five important urban features that he has identified around the mound of Aleppo (Figure 39). These include: (1) an occupied acropolis beginning in the third millennium, (2) the remains of what may have been an MB rampart, (3) the hypothetical location of six gates, (4) a central terrace, which Nigro speculates accommodated public structures in the MB as it did in later periods (pp. 53f.), and (5) the mound of al-'Aqaba on the w side of the site just inside the fortifications (p. 49).

Since the acropolis at Aleppo is presently under excavation, nothing of its defenses is yet known and, as stated above, nothing can be definitively stated regarding the MB fortifications of the lower town. For this reason Nigro has drawn what little evidence there is for the ramparts around the lower town from a variety of sources, though the excavators of these features were not primarily concerned with the third or second millennia fortifications (*ibid.*, 51ff.). Nevertheless, Nigro reports that the **rampart**, which he refers to as a revetment, was composed of crushed limestone, fieldstones, and clay (*ibid.*, 53). The rampart's height is said to have been between 15 and 25 m, composed of "broken mudbricks and limestone blocks", and it was built at the start of the second millennium (*ibid.*); but the date of the rampart's construction is, unfortunately, not confirmed by ceramic evidence.²¹ Furthermore, the general

²¹ If in fact Nigro has identified a rectangular plan for the MB settlement and its fortifications then until further ceramic evidence can date them more precisely to the start of the MB I (ca. 2000 B.C.), an MB II date ca. 1800 B.C. (at the start of the "Late Rampart" phase of fortifications) would, based upon the evidence from other MB settlements (see chapter three, section D.4), have seemed more appropriate. I see, however, even fewer problems with identifying Nigro's plan of Aleppo as that of the LB rather than that of the MB.

composition of the rampart including questions regarding the composition of its core such as the presence or absence of a core wall, the existence of a stone revetment wall along its exterior foot, or the presence of a wall on top of the rampart are unknown at this time. Although Nigro does not discuss it, there also does not appear to be any evidence for a fosse outside the rampart.

In his proposed reconstruction, Nigro has suggested identifying “six gates of Old Syrian Aleppo” (ibid., 53), as well as the possible location of a seventh gate (ibid., fig. 8). The seven gates, therefore, would include, clockwise (see Figure 39 above), (1) the Antioch Gate on the w side, (2) the NW Gate leading to the Quweiq River, (3) the N Gate, (4) the NE or Euphrates Gate, (5) the SE Gate, (6) the Ebla Gate, and (7) the E gate (unmentioned though shown in figure) (ibid., 53). While Nigro has argued that the Ayyubid period Antioch Gate preserves the plan of “second-millennium bent axis city gates” with even a “triple-arched” passage (ibid.), it is doubtful that one can conclude that the inspiration for this particular gate was at all derived from what lay hidden under the soil more than two thousand years!²² Nevertheless, while we cannot yet confirm the existence of each of these gates at these locations, Nigro’s model serves as one basis for future exploration of the second millennium plan of Aleppo.

The validity of his reconstruction for the MB, however, can be called into question on several grounds. First, as Nigro himself has noted, the N border of this layout is not clear since “modern buildings have damaged its ancient boundaries” (ibid., 51). Second, also unexplained by this reconstruction is the unusual placement of the acropolis on the leeward side of the site downwind from most of the town, which to my knowledge has no parallels in EB or MB town planning in the Levant. At Ebla, for example, the

²²In fact, if this were the case, Aleppo’s continuity of settlement and urban planning would be unique in the region of Syria-Palestine, if not the entire Near East, since to my knowledge no other equally late phase of occupation has preserved elements of the Bronze Age city plan.

placement of the acropolis, containing the palace, in the center of the site (a third millennium layout) is compensated for by the fact that non-industrial, public structures such as temples and administrative buildings occupied nearly the entire area to the W between the acropolis and the W rampart. Nigro's reconstruction leaves, however, the focal point of Aleppo downwind from everything in the town. The third and perhaps strongest objection that may be leveled against Nigro's reconstruction is that it relies too heavily upon the plan of Medieval Aleppo, one which quite likely has no bearing upon its second millennium plan (see n. 22 above). Finally, Nigro's reconstruction of MB Aleppo presumes a situation wherein the plan of the third millennium town, which is presently unknown, did not have any bearing upon its MB layout. This is very significant since, on the one hand archaeological evidence confirms that Aleppo was occupied in the third millennium, and on the other hand Aleppo has been identified by some with Armānum whose impressive fortifications were mentioned in Naram-Sin's inscription of his siege of the town (see chapter four, section A.1).

Due to these objections regarding Nigro's reconstruction of MB Aleppo I believe it is warranted to set forth the most basic conclusions concerning the layout of the site during the third and second millennia which are possible without attempting to identify all of the town's major defensive features, since they have been mostly obscured by modern construction. A visitor today who stands outside the gateway of the Medieval citadel can observe that the land around the citadel slopes downward from E to W quite considerably. As in many cases concerning the use of topography to draw conclusions we can probably assume that this slope is indicative of the original underlying topography of the area. As noted above excavations on the acropolis, which have yielded the plan of a third millennium temple (ca. 432 m ASL), make it absolutely certain that the Medieval citadel overlies the site's Bronze Age acropolis. Due to the fact that the citadel's Medieval glacis has encased the tell it is not possible to be certain of the location of the

entrance to the citadel during the Bronze Age, a fact which probably bears upon the location of much of the settlement below. Nevertheless, given the fact that the area to the w of the citadel slopes away from the mound and that even in Medieval times the gate was not located on this side, but rather to the SSW, we may presume that the ramp from the citadel led most likely from a position on the S to E sides of the tell. It is quite possible that the ramp led in a counterclockwise fashion, the most defensible type of ascent, beginning at the present location of the citadel gate and emptied to the E making the ascent the most gradual possible since here the difference in elevation between the upper and lower towns was the least of anywhere around the citadel. Such a location for the gateway might also explain the outcrop upon which the Medieval gateway was built.

These observations are significant because they are difficult to rectify with Nigro's reconstruction of the MB town, since the ramp from the citadel would lead directly out of the town (or into the town for attackers) to the E. Given that points of access to acropoleis do not usually lead directly to an exit from the settlement without first passing through the lower town (presumably more for the purpose of increasing accessibility to the lower town rather than preventing an easy exit of the settlement from the acropolis) and that the acropolis is usually located on the windward side of the settlement, I would suggest that the settlement was predominantly located to the E of the tell itself. Furthermore, the topographical contours provided by Nigro when considered in this interpretation lead to the conclusion that the continuous depression leading from the Euphrates Gate, NNW of the citadel, to the proposed gate S of the citadel may in fact be the w limits of the settlement during the Bronze Age. This would mean that all the structures built to the w of the line marked by this depression were first built only after the MB (as the evidence seems to support) and that it is highly doubtful that any early structures exist below them. At the present time, however, it is not possible to speculate further concerning the settlement of the third and second millennia.

HASSAN, TELL 'AIN**Lat. Long.:** NA.**UTM:** NA.**References:** (Nigro 2002:315, n. 99).**Plans:** NA.**Sections:** NA.**Photos:** NA.

Tell Hassan is located less than 20 km SSE of Aleppo. The site, though unexcavated, was examined in 1994 by Lorenzo Nigro and Nicolò Marchetti who observed that a modern cut on the w side of the site revealed the MB mudbrick **fortification wall** (Nigro 2002:315, n. 99). This wall they suggest could be dated to the early MB II (IIA) based on ceramics which were associated with it. Furthermore, it could be traced for a distance of more than 50 m.

KADESH (TELL NEBI MEND)**Lat. Long.:** 34°33'26.4" N, 36°31'09.3" E**UTM:** 37 N 0272389.3826751**References:** (Pézard 1931; Parr 1983; Bourke 1989; Parr 1991; 1993; 1997; Marfoe 1995:159).**Plans:** Site (Parr 1983:figs. 1f.); Wall 1/'Mur X' (Parr 1983:fig. 3; Pézard 1931:pl. C).**Sections:** Trench I with 'Mur X' (Pézard 1931:pl. C).**Photos:** Trench I with 'Mur X' (Pézard 1931:pl. 13, fig. 3).

The mound of Tell Nebi Mend is situated between the Orontes River, which provides a natural boundary on its E side, and the Orontes tributary, known as the al-Mukadiyah, to its W. According to P. Parr (1983:101f.), the site today consists of three main components: the main mound, the lower mound(s) extending to the S, and an enclosure to the W. The main mound or acropolis measures approximately 450 m NNE-SSW x 250 m ESE-WNW (ibid., 101), or less than 11.3 ha assuming that its steep slopes

were not inhabited. The highest part of the acropolis today is about 30 m above the level of the plain (Bourke 1989:155). The lower mound—or more properly mounds, since there are two—project SSE from the acropolis about 450 m and are about 300 m wide (Parr 1983:102), comprising approximately another 13.5 ha. The N of these two mounds, adjacent to the acropolis, is approximately 7 m high, while the S one, separated from it by a depression to its SSE, is slightly lower (*ibid.*).

To the W of the mound Parr has identified a rectilinear ‘enclosure’ (*ibid.*), which measures approximately 750 m WNW-ESE by more than 900 m NNE-SSW (*ibid.*, fig. 1). The lines of the enclosure only appear to be preserved at its SW corner and along 800 m of its W side. In these places its remains consist of a ditch about 30 m wide with an embankment, at its highest reaching 5 m, on its interior (*ibid.*, 102). Parr has suggested that a “bay” or depression just N of the SW corner of the enclosure may be the location of a gate in the enclosure at this point (*ibid.*). Various dates for the enclosure have been suggested which include an MB–LB date, identifying the structure with the moat depicted in Egyptian reliefs of the Battle of Kadesh. But according to Parr, excavation has demonstrated that this enclosure cannot predate the 4th cent. A.D., thus making it Byzantine in date (*ibid.*, 102, 108). This dating appears to be borne out by stone architecture which can be seen along the surface of this embankment today.

Thus far, therefore, MB fortifications have only been positively identified in Trench I on the E side of the acropolis (Parr 1983:106, fig. 3). Here a 2.5 m wide mudbrick **wall** (Wall 1) was built on a foundation of fieldstones supported on the inside by buttresses. Pézard (1931:pl. C) had originally identified this wall (Mur X) exposing it to a height of 3.67 m (24 courses?); its exterior sloped back 11° and the wall was encased on both sides by mudbricks that were identified as different than those used in the core, two rows on the exterior and one on the interior. Although it no doubt served as a defensive wall as indicated by its location, it may also have served as the wall of a palace

built on the acropolis, and therefore Parr has identified this wall and its interior rooms as part of a “double casemate fortification” system (1983:106). This wall has been identified as MB in date by its stratigraphic association with floors on its interior, which yielded pottery identified as belonging to phase H at Hama (*ibid.*, 106), and more specifically it has been dated to the mid to late 17th cent. B.C. (Bourke’s phase H–G, 1989:162; see also Parr 1991:83). According to Bourke’s (1989:163) phasing of MB occupation, which was based on ceramics from Trench I, the wall was built in Phase H dating to the mid 17th cent. The wall was destroyed in a conflagration at the end of the 17th cent. at the end of Phase G (*ibid.*, 164).

Parr has also identified an artificial **rampart** dated to the MB in one part of the site, but has not specified where this was located (Parr 1997:114). The MB occupation of the site was brought to a close “with the destruction of the fortifications and associated buildings” (ca. 1550 B.C.) after which the site may have been temporarily abandoned (1997:115). The only other relevant data concerning the fortifications of Kadesh are relief depictions from Egypt dated to the reign of Ramesses II (see for example Yadin 1963:238). Unfortunately, it is very difficult to correlate these depictions with the archaeological landscape. In any event from these illustrations one may conclude that the settlement was either circumvallated by a rampart, a water-filled moat, or both.

KANNAS, TELL

Lat. Long.: NA.

UTM: 37 N 416484.4003535

References: (Strommenger 1979).

Plans: Semi-circular tower (Strommenger 1979:fig. 9).

Sections: NA.

Photos: Site (Strommenger 1979:fig. 1); Semi-circular tower (*ibid.*, figs. 7f.).

Tell Kannas is located along the w bank of the Euphrates River now submerged below Lake Assad. The data for the EB IV–MB fortifications of Tell Kannas are limited

to a single report (Strommenger 1979). Traces of the **fortification wall** of Kannas, probably EB IV (possibly MB) in date, were detected from the SW to the NE corners; bricks along this wall measured 40 x 40 x 10 cm and were laid upon a stone foundation (ibid., 83). This late EB wall featured mudbrick, **semi-circular towers** with stone foundations (ibid., 84). These appear to have been replaced in the MB by stone-built, **rectangular towers**; the dimensions of one of these towers (Bastion 1) are 7.5 x 4 m (ibid., fig. 9).

KAZEL, TELL (ANC. SUMUR?)

Lat. Long.: 34°42'31.2" N, 35°59'11.6" E **UTM:** 36 N 0773534.3844798

References: (Badre, et al. 1990; Bounni 1997).

Plans: Site (Badre and Gubel 1999–2000:fig. 1).

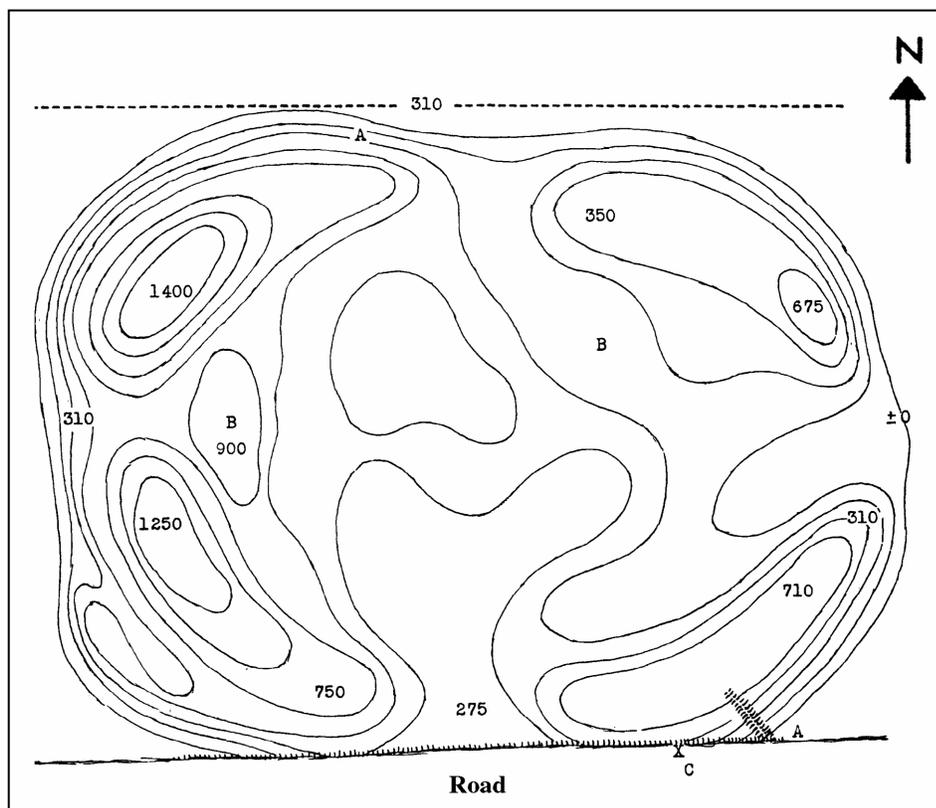
Sections: NA.

Photos: NA.

Tell Kazel is located a few kilometers from the Mediterranean coast in the Akkar plain about 20 km NNW of Tell 'Arqa. The site's contours reveal that Tell Kazel's plan was roughly circular (Badre and Gubel 1999–2000:fig. 1), measuring 310 x 280 m or about 8.7 ha (Bounni 1997:275). The site was settled during the MB, though the exact phases of this early occupation are not yet known (personal communication, Leila Badre 2002). At that time it stood only about 10 m above the plain (Bounni 1997), the underlying layers including, it is thought, some EB occupation (personal communication, Leila Badre 2002). During the MB a stone-built town wall and glacis encircled the site, as was revealed during excavations in Area III (Badre, et al. 1990 :87). Excavations there, on the NE side of the site, exposed the remains of a stone **wall** more than 0.8 m wide against which a **glacis** of hard, yellow beaten clay was laid at a 45° was built (ibid.). Unfortunately, excavation of the fortifications has not been completed and the exact date of their construction, as well as their nature, remain unclear.

KHABIYE, DEIR**Lat. Long.:** 33°21'37.1" N, 36°09'43.0" E**UTM:** 37 N 0235920.3694830**References:** (von der Osten 1956:13f.).**Plans:** Site (von der Osten 1956:fig. 3).**Sections:** NA.**Photos:** NA.

The small MB–LB site of Deir Khabiye is located about 20 km ssw from Damascus on the s outskirts of the modern settlement of Deir Khabiye. In addition to being transected by the modern road leading s from the town, the site today is occupied by a military base that has badly pitted the site's surface with trenches and tank emplacements. The site's contours and general plan reveal, however, the MB ramparts that enclosed it (Figure 40).

Figure 40. Plan of Deir Khabiye (after von der Osten 1956:fig. 3).

Although one cannot survey the site thoroughly, the section cut by the road through the N rampart reveals mudbrick architecture and provides clear evidence of the rampart's construction. The site's plan is rectangular, as evident in plan; it measures 310 m E-W by 220 m N-S with its summit 12 to 14 m above the surrounding plain (von der Osten 1956:13). Its inhabitable area (2.2 ha) is easily defined by the ramparts that enclose the site on four sides. The defenses were apparently examined in Area A, a NNW-SSE road-cut section through the SE corner, where they were found to consist of a **mudbrick wall** built on an **earthen rampart**; the presence of a cylinder seal dated to the first dynasty of Babylon has been used to date the rampart; ca. 1800–1500 B.C. (ibid.). The rampart also features openings, no doubt the location of its four main gates, oriented to the cardinal points (ibid., 14); the basalt orthostats (?) of one of these gates appear to have been visible on the surface during the early 1950's (ibid.). The difference in elevation of the W area within the ramparts indicates that this would have been the location of the most important public buildings (see fig. 3, ibid.).

KHAN SHEIKHOUN, TELL

Lat. Long.: 35°26'36.9" N, 36°38'46.5" E **UTM:** 37 N 0286362.3924781

References: (du Mesnil du Buisson 1932).

Plans: Site (du Mesnil du Buisson 1932:pl. 32).

Sections: Schematic (du Mesnil du Buisson 1932:fig. 2).

Photos: Site aerial (du Mesnil du Buisson 1932:pl. 31).

Khan Sheikhoun was an EB IV–MB settlement 42 km SSW of Ebla on the road between Hama and Aleppo. Du Mesnil suggested that the mudbrick **fortification wall** that he exposed at the site was built during the MB (Zone B, du Mesnil du Buisson 1932). The site's circular layout averages 175 m in diameter with an area of approximately 2.4 ha and a perimeter of about 550 m (du Mesnil du Buisson 1932:pl. 32). The site consisted of an area on its N side, which resembles the remains of a **rampart**, elevated about 3 m

above its central area in addition to the remains of what might have been a citadel on its SW side. This small rise was only one meter above the settlement surrounding it on the N and E sides, but much more elevated above the terrain to the S and E, where a depression is suggestive of the position of a gate. As a small site, it may have only featured one other gate located on its W side.

KUMIDI (KAMID EL-LOZ)

Lat. Long.: 33°37'24.8" N, 35°49'15.8" E **UTM:** 36 N 0761703.3723986

References: (Bertemes 1986; Hachmann 1991; Marfoe 1995; Badre 1997b).

Plans: Site (Marfoe 1995:fig. 71); ID 15 (Marfoe 1995:fig. 58); IIE6-IIG7 (Bertemes 1986:supp. 1).

Sections: S1–S6 (Bertemes 1986:supp. 1).

Photos: NA.

The site of Kamid el-Loz has been identified as ancient Kumidi which is located in the Beqa Valley. Its MB fortifications (presumably MB II) that surrounded the tell have been excavated on the N and E sides of the site. On the N the **wall** (Wall 3) ran from square ID 15 to IIC1 and IID1 (Marfoe 1995:104). Its fieldstone foundation was more than 2 m wide and preserved to a height of more than 2 m “with bastion-like **towers** and projecting walls” (ibid.). The superstructure was built of mudbrick as “substantial collapse levels in the east sections of IC 16 and IC 17 testify to [its] once extraordinary height” (ibid.). These fortifications were probably contemporary with those revealed on the E side of the site, since they were similarly planned with rooms 2.3 to 3.5 m wide built against its interior side (ibid., fig. 58, p. 107). The mudbrick superstructure of the wall appears to have averaged between 0.7 and 1 m wide between the N and E sides of the site (ibid., 107). Although it has been determined that this fortification wall belonged to the seventh building period (Bauperiode 7), which included building levels 17–20 for the intramural structures, it has not been possible to distinguish any stages in the construction

of the wall (*ibid.*). This wall belonged neither to the earliest nor latest phase of MB settlement, as there are building levels below this (e.g., Level 21) that also extend N of the wall's position (p. 104) and MB occupation after it during Bauperiode 6 (p. 110).

The MB fortifications of Kamid el-Loz were also excavated on the E side of the tell during rescue operations in 1978 after they were accidentally exposed by local workers (Bertemes 1986). Excavation in squares E6, F6, F7, and G7 (salvage operation S1 to S6) revealed an offset-inset style wall that has been interpreted as the outer face of a MB **casemate-type wall** (*ibid.*, fig. 6). The evidence of its construction over a length of 32 m consisted of fieldstone foundation walls averaging 1.3 m wide with, at certain points along its length, a mudbrick superstructure (*ibid.*, 80–82, supp. 1). The mudbricks used were 36 cm square. At least three phases are distinguishable from the excavations, as reconstructed by Bertemes (*ibid.*, fig. 6). In the first phase the exterior walls appear to belong to the E side of two rectangular structures, the N of which is slightly to the W of the S room (fig. 6.1). During the next phase it appears that a larger rectangular structure was built to the N of these two preexisting structures, but further out from the tell to the E. The walls of this structure were notably wider and the mudbricks on the wall were still preserved (Walls 1 and 3, pp. 80f.; fig. 6.2). The final phase of this wall is less clear. It appears that the original casemate structure, around which the other structures to the N and the S had been added, had by this time fallen out of use and it was probably replaced by another similar, rectangular structure to the W (fig. 6.3).

The site was also fortified during the LB (Badre 1997b:265).

MAŠIN, TELL**Lat. Long.:** 35°18'36.5 N, 36°43'14.2" E **UTM:** 37 N 292771.3909822**References:** (du Mesnil du Buisson 1935b).**Plans:** Site (du Mesnil du Buisson 1935b:pl. 47).**Sections:** NA.**Photos:** Site aerial (du Mesnil du Buisson 1935b:pl. 46:2); Tell (ibid., pl. 48:1).

The site of Tell Mašin is located more than 20 km N of Hama and just to the W of the road towards Aleppo. The site was occupied during the EB IV and MB as is evident from ceramics recovered during excavation (du Mesnil du Buisson 1935b:pls. 49f.). The site was roughly square with dimensions of approximately 125 m N-S by 140 m E-W for a total of 1.8 ha (ibid., pl. 47). These can be compared with du Mesnil's figures of 185 m x 140 m (ibid., 123). The site also appears to have featured a small citadel in the S quarter of the site rising only 2 to 3 m above the settlement.

Only limited evidence for the fortifications is available. This includes excavation in Trench III on the W side of the site where a MB wall was encountered (ibid., 131). The **fortification wall** was built on stone foundations 3 m wide and was preserved to a height of 1.9 m. It was built of square mudbricks: 38–40 x 38–40 x 12–14 cm.²³ The length of the glacis, wall, and rampart can be estimated at around 530 m. Although additional details of the features identified on the site in the preliminary report are limited, it does appear from the plan that a **glacis** (or rampart?) was identified in trenches III and IV on the W and NW sides of the site (ibid., pl. 47). While these features are probably to be dated to the MB based on the dimensions given for the bricks and the report of the stratigraphy given by du Mesnil, the nature of the settlement with regards to fortification during the EB IV remains uncertain.

²³Similarly sized bricks measuring 40 x 40 x 6–9 cm were used in the construction of what was probably the palace located on the citadel (du Mesnil du Buisson 1935b:124).

QATNA (TELL MISHRIFE)**Lat. Long.:** 34°50'04.5" N, 36°51'53.0" E **UTM:** 37 N 0304745.3856779**References:** (Ronzevalle 1914; du Mesnil du Buisson 1926; 1935a; al-Maqdissi 2001; Cremaschi, et al. forthcoming).**Plans:** Site (du Mesnil du Buisson 1935a:pl. 1–1a; Novák and Pfälzner 2001:fig. 1); E Gate (du Mesnil du Buisson 1927:pl. 60:1); W Gate (du Mesnil du Buisson 1926:figs. 1–5, 6–7).**Sections:** N Gate (1926:fig. 11).**Photos:** Site aerial (1926:pl. 50; 1935a:pl. 2); Ramparts (1926:pls. 52f., 57:3f.); N Gate (ibid., fig. 10); E Gate (1927:pl. 63:1f.); E interior gate(?) (al-Maqdissi 2001:fig. 9); W Gate (du Mesnil du Buisson 1926:pls. 55f.); E wall (du Mesnil du Buisson 1927:pls. 62:3, 63:2).

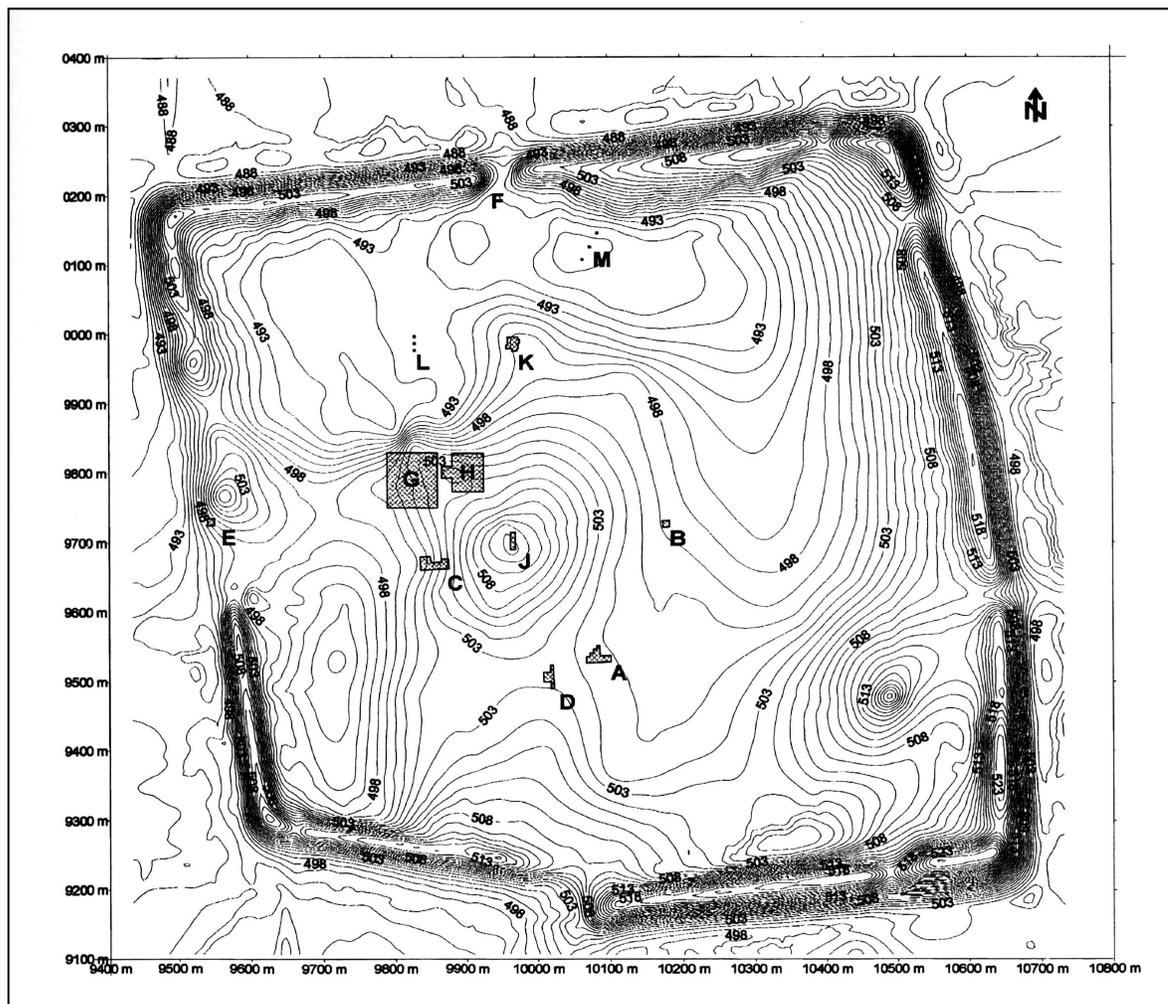
Qatna (Tell Mishrife) is located 154 km SSW of Aleppo and 41 km NE of Tell Sefinat-Nouh. The site was discovered by R. P. S. Ronzevalle who excavated there in 1906 and 1912.²⁴ But it was only as a result of the excavations of du Mesnil du Buisson (1926–1929) that the site was first identified as a traditional fortified enclosure of the MB type.²⁵ Archaeological work on the site's defenses by the DGMA under the direction of M. al-Maqdissi have been conducted in Areas E and F in the vicinity of the W and E gates

²⁴ It is fascinating to observe that Ronzevalle identified the enclosure as the remains of a LB camp established by the Sea Peoples who had landed in Amor (1914).

²⁵ Although R. du Mesnil du Buisson published the summary results of his excavations in a single volume (du Mesnil du Buisson 1935a), it is not widely known that the greater details of his findings are actually to be found in his numerous reports published in *Syria* (vols. 7–9, 11) from 1926 to 1930. Only the relevant reports have been cited here.

since 1994 when excavations at the site were renewed (al-Maqdissi 2001),²⁶ but none of the details of the findings in these areas have yet been published.

Figure 41. Plan of Qatna. Reprinted, by permission, from Novák and Pfälzner (2001:fig. 1).



Qatna, as alluded to above, is best known for its well-preserved, rectilinear **ramparts**, which enclosed the site on four sides during the MB and LB (Figure 41). Their layout formed a square enclosure which has been frequently cited as one kilometer long on a side (after du Mesnil du Buisson 1935a:40) for a total of about 3,980 m.

²⁶Note the discrepancy in areas excavated by DGMA as reported by Novák and Pfälzner (2000:fig. 2).

However, after subtracting the large gaps, which are the locations of its major gates, the total length of the ramparts is about 3,520 m. They appear to have been erected to an average height of approximately 15 m above the surrounding plain with an exterior slope which du Mesnil du Buisson measured at 30° (ibid.); the slope was no doubt slightly steeper in antiquity prior to more than 3,000 years of erosion. The average width of the ramparts appears to have been about 70 m. With these dimensions the ramparts' total volume may be estimated to be about 1,848,000 m³. Subtracting the uninhabitable area occupied by the ramparts the site's net size was 78.4 ha.

Despite the prominence of the site's ramparts and its identification as being of MB construction, no soundings were made through the rampart itself by any of the archaeological expeditions, including those that have resumed excavations at the site since 1994, except for a micromorphological study of its composition (see below). For this reason it is only possible to rely upon du Mesnil du Buisson's observations, which were based on his excavations in the area of each of the gates, that the rampart was composed of chipped limestone and earth (ibid., 41). He has also suggested that the materials for the ramparts were probably taken from the fosse, which has been identified outside the ramparts in several locations (1935a:pl. 1). Although gross estimates of the site's area are often more than 100 ha, closer measurement of the area within the ramparts actually yields about 85 ha, which includes the interior slopes of the ramparts. While du Mesnil du Buisson never identified a mudbrick wall which crowned the rampart, he was convinced of its existence on the basis of a 2 m wide **stone wall**, presumably the foundation of such a wall, which was revealed along the top of the ramparts to the S of the E Gate (du Mesnil du Buisson 1927:281, pls. 62:3, 63:2). Though its preserved height is not cited, it appears to have been at least one meter tall in the photographs. While it is difficult to be certain of the date of this foundation, it probably belongs to either the MB or LB occupation of Qatna. It also provides some evidence for the relationship between

the wall and rampart, suggesting that the wall was built behind the present crest of the rampart. No traces of this foundation wall can be seen along the tops of the ramparts, which may be the result of stone robbing for construction in the modern village of Mishrife which was built within the ramparts of Qatna or possibly because it simply lies buried well below the surface of the rampart.

Despite the lack of excavation of the ramparts, recent work has been done on the soil micromorphology of the site by the Italian expedition in an attempt to answer questions concerning their construction (Cremaschi, et al. forthcoming). As a result of this work three distinct parts of the ramparts have been identified based on the color of the soil used and their micromorphological characteristics. These are the white, the pink, and the brown ramparts. The E rampart and the E ends of the N and S ramparts, not including the SE corner, are identified as the white rampart, which was probably constructed first. The small portion of the SE corner not included with the white rampart is to be identified as the pink rampart. Finally, the entire W rampart has been identified as the brown rampart. Stratigraphic data suggest that most of the N, S, and E ramparts, which were composed of the white material, were constructed first, followed by the W rampart (brown rampart) and at the same time or later the SE corner (pink rampart). This study also brought to light the first evidence that the rampart was at one time crowned by a **mudbrick wall**, but the date of this wall has not yet been established archaeologically (ibid., 10).

The **fosse** outside of the ramparts on all four sides was stated by the excavator to have been as much as 100 m wide in places (du Mesnil du Buisson 1935a:41), though on plans it appears to average no more than about 70 m wide. Since it has never been explored its actual depth remains unknown, but it appears to have been about 5 m deep. If the fosse encircled the entire site it would have been approximately 4,560 m long and the

volume of earth removed from it would have been about 1,596,000 m³ (cp. with figure for estimated rampart volume of 1,848,000 m³).

Based on the topography of the site du Mesnil du Buisson had identified what he considered to be four primary and five secondary **gates** to the town (1927:293f.). While the primary entrances to which du Mesnil refers are apparent on the plan of the town (1935a:pl. 1), only two of the so-called secondary passages, which were located in the NE corner of the enclosure, are visible on the plan. The main gates, on the other hand, are evident as gaps of up to 70 m long in the ramparts: the N Gate is virtually in the center of the N rampart; the W Gate is in the center of the large gap in the W rampart; the S Gate was located in the center of the S rampart and directly in line with the N Gate; and the E Gate was identified with the gap in the E rampart approximately 370 m N of the SE corner of the enclosure. Given the representation of these openings in the rampart, it is not entirely clear why du Mesnil considered the depression (or the NE Gate) approximately 100 m to the S of the NE corner of the enclosure to be a secondary gate, since the size of the gap is comparable in size to that associated with the E Gate.²⁷ It seems, therefore, most reasonable to identify five rather than four main gates, which included the N Gate, the NE Gate, the E Gate, the W Gate, and S Gate.

Although du Mesnil du Buisson supposedly identified the plans of the W and E Gates within the depressions located in the ramparts, it is clear that both of these gates are not dated to the MB. The **E Gate**, excavated in 1927, is clearly of the **six-pier type** with foundations constructed of roughly hewn limestone blocks. Its plan, aligned

²⁷ It seems reasonably certain that du Mesnil du Buisson's conception of the city plan conformed to an ideal inspired by the perception of the very regular layout of Tell Mishrife's ramparts. Thus each of the four ramparts would have needed only one primary gate. C. Clermont-Ganneau had already explored the area of the NE Gate, and it is therefore possible that the lack of impressive finds dissuaded du Mesnil from suggesting that a major gate could have been responsible for the unimpressive gap in the rampart here.

perpendicularly to the line of the ramparts, was perfectly integrated into the overall plan of the site in a manner familiar at other MB settlements. Its interior passage measured approximately 22 m long by 3.5 m wide. Recent reexamination of the publication of Clermont-Ganneau's soundings inside the E Gate (du Mesnil du Buisson 1935a:42ff.) have resulted in the proposed identification of an interior gate by M. al-Maqdissi just inside the main gate (2001:148, figs. 8f.). Maqdissi has suggested that the structural remains on the S end of the Ganneau's trench were the remains of the S half of an inner gate featuring a single pilaster and a set of interior steps (ibid., fig. 9). While his reconstruction is interesting, insufficient material has been published by which this proposal can be tested. Furthermore, parallels for a gate within the main gate are lacking, though similar structures are known outside of main gates. The topography lines published on the original plan appear to counter the proposed reconstruction.

Although the E Gate should probably be identified as one of Qatna's original MB gates, the W Gate, which was excavated the year before (in 1926), was only identified as an MB gate after the excavation of the E Gate in 1927. In the initial preliminary report for the excavations of the W Gate du Mesnil du Buisson had not provided any clear basis for the dating of the structure (1926:294–301). Since this dating was first advanced by the excavator other scholars have assumed that his dating of the structure was correct without considering the various data against such a date (Kaplan 1975:fig. 14; Herzog 1986:60; Gregori 1986:fig. 12). The most obvious clues against an MB date for the W Gate include that the structure was neither of comparable dimensions, similarly oriented, nor built of comparable masonry as any of the other MB gates. The orientation of the W Gate was also notably different than that of the E Gate. The W Gate's axis was *parallel* rather than perpendicular to the line of the ramparts like both the N and E gates. This is particularly problematic since it is clear that the E elevation of the gate was also exposed as is evident from the boss on the E face of the stones in Wall XI (du Mesnil du Buisson 1926:figs. 1,

6). The W Gate was also of considerably smaller dimensions (cp. figs. 11 and 12 in Gregori 1986). Both of these factors, its orientation and its small size, are peculiar for what would have constituted a primary entrance into the town. Additionally, the masonry of the W Gate is very different from that which was attested in the other MB gates. An examination of the stone-by-stone plans and photos of the W Gate reveal the use of a technique unfamiliar to any of the so-called six-pier gates in Syria during the MB (du Mesnil du Buisson 1926:figs. 1–7, pls. 55f.). The stones used in the gate feature a distinguished, wide and flat perimeter around their rough-hewn faces and they were fitted together very carefully with sides which were chiseled flat (*ibid.*, pl. 56). Furthermore, none of the worked stones featured holes in their upper surfaces for fixing the superstructure to its foundations as was common in the MB and LB (e.g., see pl. 55:3 in du Mesnil du Buisson 1926). This argues against either a MB or LB date for the gate. In fact, the type of stone construction used in the W Gate closely resembles the stone masonry of the Hellenistic period in the southern Levant (cp. Samaria Sebaste). If such evidence were not sufficient, the discovery of what appear to have been infant jar burials under Wall XI on the E side of the gate suggests that the MB gate was probably not located in this particular place within the gap between the N and S ends of the W ramparts (*ibid.*, 301).²⁸

Du Mesnil also explored the **N Gate** in the gap between the two parts of the N rampart (1926:301–303). Unfortunately, little remained of the gate except traces of two parallel lines of fieldstones that suggest the placement of a direct-axis gate (*ibid.*, fig. 10). The masonry here is again comparable to that of the E Gate, but entirely different than

²⁸ Given the criteria set forth here for dating the W gate, and that it appears to be neither MB nor LB in date, I would suggest that at the earliest an Iron Age date is possible for the gate. Unfortunately, the pottery recovered from the gate was meager and is not helpful for establishing its date (du Mesnil du Buisson 1926:300f., figs. 8f.).

that of the W Gate, adding further weight to the redating of the W Gate suggested above. Although du Mesnil explored the vicinity of the S gate (1927:283), his findings do not provide evidence concerning the MB fortifications in this area.

Despite considerable exploration of Qatna's gates, important data concerning the dating of its defenses are still lacking. Based on the plan alone, Levantine archaeologists have suggested dating the enclosure to the MB II (ca. 1750 B.C.), comparing its plan with sites such as Tel Dan and Hazor in northern Israel (e.g., A. Mazar 1990:201). Similar dates could be proposed on the basis of historical references to the Amorite kingdom of Qatna in OB texts from Mari to suggest that these defenses might have been undertaken during the settlement's floruit (Klengel 1992:65ff.). Nevertheless, in the absence of excavation of the ramparts themselves the date of these features remain uncertain.

QITAR, TELL EL-

Lat. Long.: NA.

UTM: 37 N 424938.4026392

References: (Culican and McClellan 1983; McClellan 1984–85;1986).

Plans: Site (McClellan 1984–85:fig. 1); Area X (ibid., fig. 2); Area Y (ibid., fig. 3, and 1986:fig. 3).

Sections: NA.

Photos: NA.

El-Qitar (lit. “the train”) was a small but prominent site on the Upper Euphrates 60 km S of Carchemish which is now submerged under Lake Assad. While the site was certainly occupied during the LB, it also appears to have been occupied at least in the latter half of the MB.²⁹ Excavations from 1982 to 1984 revealed the settlement's defenses in Areas X and Y, which consisted of two gates and a curtain wall with towers. While

²⁹A settlement in the vicinity, if not Qitar itself, was also occupied during the EB IV as indicated by a burial excavated at Qitar (Sagona 1986).

only the stone foundations of these features remain, these foundations were no doubt crowned by mudbrick superstructures. Only one course of stones, probably the foundations of the curtain **wall**, were found around the site and in most places these were laid directly on bedrock; in Area Y the wall was preserved 2 m wide and appears to have been built in an offset-inset manner (Culican and McClellan 1983:33). It is possible to estimate that the wall was about 1 km in length and enclosed an area of about 5.6 ha. As is obvious from the topographic plan, it does not appear to trace the contours of the tell (McClellan 1984–85:fig. 1).

The **River Gate** located on the E side of the site (Area X), was a direct axis gate aligned N-S with 4 m wide walls with a 4.5 to 5 m wide passageway about 10 m long. The gate was flanked on the E by one **tower** (Tower 6) and on the W (Tower 7) by another; one of these towers was preserved to a height of 4 m (*ibid.*, 37).

Another gate complex was excavated on the W side of the site (Area Y) and thus identified as the **W Gate** (*ibid.*, 37f.). This complex consisted of two gates: the Lower and Upper W Gates. The Lower W Gate, less well preserved, was located about 19.5 m W of the W line of the curtain wall and featured flanking orthostats and two sets of piers along its 4.5 m wide and 10 m long passage (McClellan 1986:fig. 3). The Upper W Gate was probably a second element of the defenses of the W Gate complex, though its stratigraphic relationship to the latter is uncertain (Culican and McClellan 1983:38). Although no orthostats or piers were identified, it appears that the gate's passage was approximately 5.5 m wide and 10 m long.

Two more **towers** identified as the N (Tower 5) and S (Tower 4) towers were revealed in Area Y at the N and S ends, respectively, of the upper settlement; Tower 5 being the best preserved at the site (*ibid.*, 35). A crushed limestone **glacis** 1 to 2 m composed of “coarse yellowish-white limestone chunks” and “darker layers of stony fills and patches of fine dark grey ashy soil” was found in the vicinity of Tower 4 around the

sw corner of the site (McClellan 1986:88f.). The glacis appears to have been held in place with a **revetment wall** (W.747/749) built at its foot (ibid., 90). The revetment wall and glacis run parallel here to the **curtain wall** (W.741/745) behind it which may date to the MB (ibid., 105). The combined width of the revetment wall, glacis and curtain wall averages 17 to 18 m (ibid., 90). But the effectiveness of this defensive system may have been made obsolete during the LB if, as it appears, these features had been built over. Although a fosse was never located during excavations, it may have been detected as an anomaly by magnetometry conducted in the final season (ibid.).

SEFINAT-NOUH, TELL*

Lat. Long.: 34°34'39.9" N, 36°32'35.6" E **UTM:** 36 N 0274639.3828956

References: (Mousli 1989/1990; G. R. H. Wright 1969; 1985a:163).

Plans: Site (Mousli 1989/1990:fig. 110).

Sections: NA.

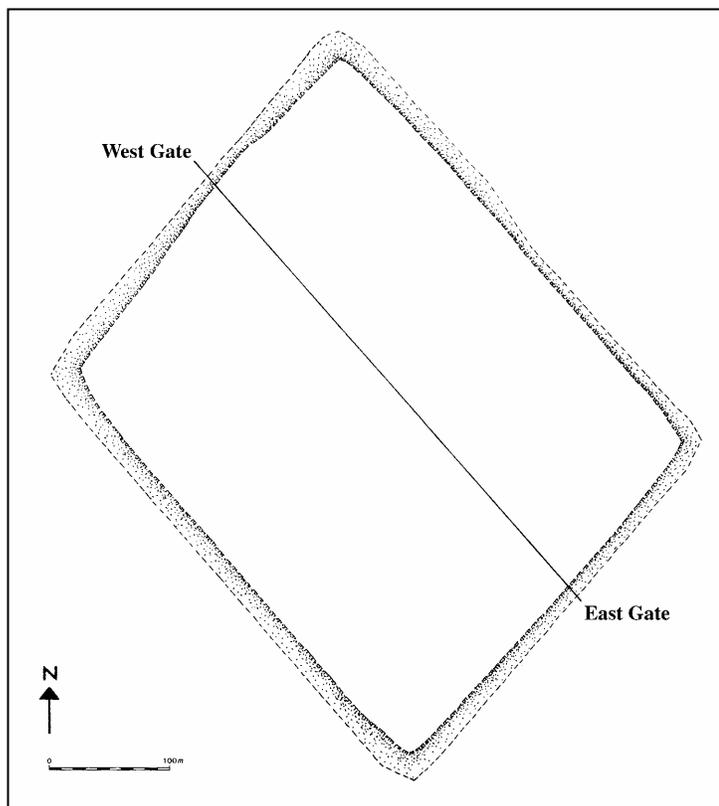
Photos: Site aerial (Tallon 1956:pl. 10 from R. P. A. Poidebard).

Sefinat-Nouh lies about 3.2 km NE of Tell Nebi Mend (Kadesh). This rectangular site which sits 7 m above its surroundings has been repeatedly identified as a fortified enclosure of the MB (Mousli 1989/1990:300) and compared with Qatna and Khan Sheikhoun since the work of P. L. Ronzevalle (1914). Although soundings within the enclosure have demonstrated MB occupation (Mousli 1989/1990), no sections of its fortifications have yet been made. The site is surrounded on all four sides by a 20 m wide and 4 to 5 m deep **fosse** (Tallon 1956:60). It was 1,905 m long and covered an area of approximately 3.8 ha (Figure 42). The volume of earth removed for the construction of the fosse can be estimated to have been around 171,450 m³. **Earthen ramparts** (and the wall which crowned it) about 1,585 m long were built from the inner scarp of the fosse to a height of about 7 m. The width of the rampart from its base to its crest is approximately 20 m, though if was originally constructed as a freestanding rampart then its cross-section

may have been trapezoidal with a base about 40 m wide. Its volume can, therefore, be estimated to have been approximately 221,900 m³. This is only slightly more than the volume of the fosse itself. The uninhabitable area covered by the ramparts would have been approximately 3.2 ha.

The site's inhabitable area was therefore about 15.2 ha, or an area with average dimensions of 435 m by 350 m. Although no gates have been excavated and their location is not entirely evident from the site's contours, Mousli has suggested that the site featured gates at least on the NW and SE sides of the site (1989/1990:301). But there can be little doubt that the site also featured gates on its other two sides, since the route to the SW led to Kadesh and the route to the NE led to Qatna. Unfortunately, until further excavations are conducted details regarding Sefinat-Nouh's defenses will remain limited to those cited here.

Figure 42. Plan of Tell Sefinat-Nouh showing ramparts and location of at least two gates (after Mousli 1989/1990:fig. 110).



SELENKAHIYE, TELL ES-**Lat. Long.:** NA.**UTM:** 37 N 414292.3995707**References:** (van Loon 2001; Meijer 2001).**Plans:** Site (Meijer 2001:fig. 3.2); Area B (fig. 3.18); Area B, O/P26 (fig. 3.14), Bastion B in Q21 (fig. 3.19); Area C, T06/S04 (fig. 3.30); Gate in Q3 (fig. 3.32).**Sections:** N section of Area B, P26 (Meijer 2001:fig. 3.15); W section of Area SSS07 (fig. 3.31); O26 (fig. 3.36).**Photos:** Area B: O26–P26 (Meijer 2001:pl. 3.10), Wall IV (pl. 11), Bastion B (pl. 3.23).

Selenkahiye, which is now submerged under Lake Assad, was established along the w bank of the Euphrates River around 2350 B.C. and occupied until 1850 B.C. (EB IV to MB IA). In addition to benefiting from the defensibility afforded by the river on its E side, the site was also surrounded by a series of fortification walls during this period. The settlement of Selenkahiye measures approximately 11.5 ha inside the town walls that stretched around the settlement tracing approximately the 305 m contour line for about 1,430 m and forming a roughly rectangular plan.

Although a sequence of four town walls have been identified for the five hundred years of occupation mentioned above, all four walls have not been identified in all areas and the town wall was not excavated on the E side of the site by the river. The clearest sequence of the town walls was identified in Squares O26 through Q26 in Area B (Meijer 2001:51). Here it appears that the **first mudbrick wall** (Wall I), which only resembles rubble 40 cm high, was built upon a boulder foundation 1.5 m high and 2.5 m wide which had been laid upon a pebble surface (see pl. 3.10, Meijer 2001). After the wall had fallen out of use a **second mudbrick wall** (Wall II) was built upon the ash layer overlying Wall I. Pebbles were again used as a foundation for Wall II, which measured 2.5 m wide (ibid.). A **third mudbrick wall** (Wall III) was later built inside the line of Wall II after much of the earlier wall had been removed.

Meijer has identified pebbles laid against Wall III and covering the remains of Wall II as a 4.5 m wide **glacis** (Meijer 2001:53, fig. 3.15), though much of its upper portion has supposedly eroded away. At some point after its construction it appeared necessary to double the width of Wall III. In some areas this was accomplished by adding what has been identified as Wall IV inside Wall III, while in other areas the rooms of houses adjacent to Wall III were filled with laid bricks (*ibid.*, 53). After its construction the interior face (E side in Area B) of Wall IV was re-plastered. Although it has been suggested that the site contracted in size after the abandonment of Wall IV, this suggestion is based upon speculation that a later wall may have been constructed further back upon the tell. But this is mainly an attempt to explain the mudbrick detritus found above the four walls discussed above (*ibid.*). Also in Area B portions of a **tower** built onto the town wall were identified as Bastion B measuring 5 m long (N-S) and 5 m wide (E-W) (*ibid.*, 53 and pl. 3.23).

The town's defenses were also excavated in other areas at Selenkahiye. While these areas have proved helpful in the reconstruction of the nature of the town's defenses during these periods, it has not been possible to correlate each of the features from these various areas with the sequence of walls outlined above (see *ibid.*, 103). This is in part due to the various methods of construction and repair that were employed in different areas around the site and the different interpretations of various excavators.³⁰ In Squares T06–04 the NW corner of the town wall was also identified (*ibid.*, 83). Against the interior of the corner (Squares S05–06) a mudbrick structure was built diagonally, apparently with the intention of reinforcing the corner of this town wall (*ibid.*, 87). In Area D on the N side of the site a red brick wall built upon a pebble foundation (as in Area B) and

³⁰It should also be noted that no consensus was reached between the director (M. van Loon) and the main supervisor (D. J. W. Meijer) concerning the interpretation of the city walls in addition to other aspects of the settlement (see Meijer 1988:104).

measuring 2.25 m in width should probably be identified with the eroded remains of one of the town's early walls. The remains of a second bastion or a portion of a second phase of the town wall also appear to have been identified in Square TTT07 (*ibid.*, 87). Another bastion that was built against the exterior of the town wall and measured 10 m long and 7 m wide was excavated in Square Z07 (*ibid.*).

Although evidence of a **fosse** surrounding the site was brought to light during the excavations the exact correlation of these remains with the walls of various periods is uncertain. Nevertheless, a 3 m deep by 9 m wide fosse was excavated in Squares N25–26 w of the town wall in Area B (*ibid.*, 93f.). Its volume can be estimated to have been about 38,610 m³. Despite the ambiguity of Meijer's conclusions, the discovery of this fosse at the foot of the mound would seem to support the suggestion that the extramural settlement w of the tell was later than the construction of this fosse. It does certainly appear to belong to an earlier defensive system than Wall A and Bastion B here (*ibid.*, p. 89).

One **gate** was identified in Square Q3 (*ibid.*). Its 3 m wide and 10 m long passage was flanked by two towers, each 10 m long along the gate's axis and 8 m wide, that only projected beyond the town wall on its interior side. This gate would have served the NW quarter of the town and given access to the w and possibly to the lower town on that side. It is also possible that a second gate may have existed in the vicinity of Squares P26–Q26 based on the depression evident in the site's topography (*ibid.*, 105). This gate would have served the s end of the town. By the same means it might also be feasible to suggest that a River Gate was located on the opposite side of the town from the gate in Q3 and another on the w side around Square Q26–27.

ŞOUR, TELL AŞ- (ŞOURANE)***Lat. Long.:** 34°48'53.9" N, 37°09'47.0" E**UTM:** 37 N 0331974.3854119**References:** (Tallon 1956).**Plans:** Site (Tallon 1956:fig. 1).**Sections:** NA.**Photos:** From various locations around the site (Tallon 1956:pls. 1–9).³¹

Tell Aş-Şour is located 28 km ESE of Qatna (Tell Mishrife).³² It was first identified as a ramparted enclosure of the type comparable to Qatna and Sefinat-Nouh by M. Tallon (1956). The site of Aş-Şour was transected in antiquity by the road from Qatna leading E into the desert (see Figure 43 below). It appears to have been composed of both an upper and lower town, both of which were enclosed by separate sets of ramparts. The upper town, lying to the N of the E-W road is less than 9.2 ha in size and was roughly square in plan, while the portion appended to the site on the S, which was of similar layout, measured less than 13.2 ha in area. The entire site as represented by these two halves was, therefore, rectangular in plan measuring 545 m long (N-S) by 485 m wide (E-W).³³ The site sits around 6 m above the surrounding plain that slopes gently from N to S away from the mountain to the NW. The modern road following the course of the wadi now divides the upper and lower towns. This line also demarcates the line of drainage within the town's ramparts: to the N the upper town drains S, and to the S the lower town

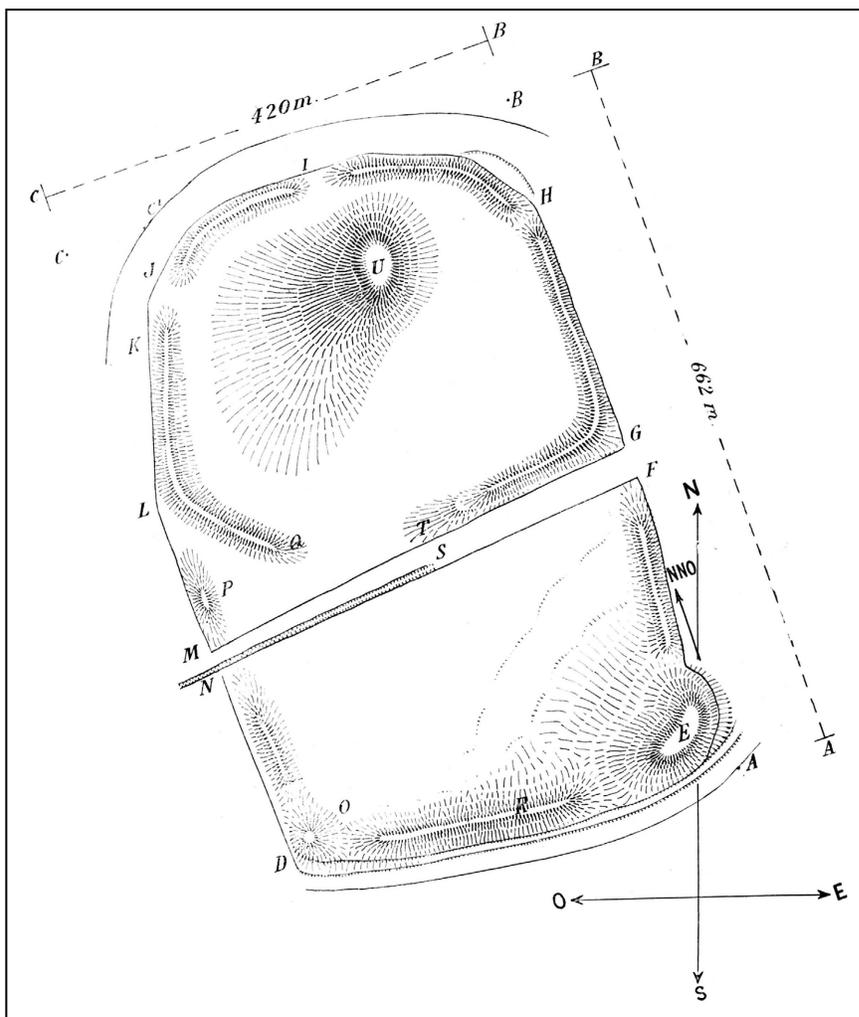
³¹ While some of the locations of the photos are discernible from the texts and their captions, due to the quality and poor textual description of some of the photos they cannot all be related to the site's plan.

³² It is worth noting that the use of the Arabic word *şour* in the name of the site refers to the visibility of its walls (or rampart). Therefore, the ruins of Qatna are locally referred to as Şour-Mishrife. Similarly, a site to the north of Homs is also called Şourane.

³³ The figures provided here are more reliable than those of 662 m by 420 m provided by Tallon and they were taken on-site in August 2002.

drains N. It is perhaps on this basis that one may observe that the W and E gates at both ends of this line served as the main gates of the town during the site's flourish.

Figure 43. Plan of Tell Aş-Şour (after Tallon 1956:fig. 1).



The upper town was surrounded on all sides by ramparts except where four depressions suggest the locations of gates leading to the N (point I), to the E (point H), to the S (between points Q and T) into the lower town, and to the W (point J) which probably led towards Qatna (Tallon 1956:fig. 1). Considerable remains of the stone foundations of the fortifications are preserved one course high for the E half of the N Gate at point I. Here the wall's foundation was constructed of roughly hewn stones 5 m wide. The stones flanking the W side of the gate near point Q are also still preserved in situ. The so-called

upper town also appears to have featured an acropolis in its center, located at point U on the plan, which was defended by similarly constructed walls of unknown thickness; the lines of the stone foundations of these walls are still traceable today.

The lower town which lies directly to the S was separated from the upper town by the E-W wadi running between them. It too was enclosed by ramparts on its three remaining sides (*ibid.*). Two main depressions in its ramparts just N of hill E and E of the SW corner indicate that in addition to the W and E gates adjacent to the upper town, two more gates were located at the S end of its E side and on its SW corner. As part of its defenses Aş-Şour appears to have featured walls (and perhaps bastions or towers) built upon its ramparts (*ibid.*, 56, 59; pl. VII:3). It may even have featured a double wall around the citadel above the upper town (*ibid.*, 55, pl. III:1). Evidence of these walls is present today on the site and the lines formed by the foundation stones are extremely clear. In addition to the ramparts and walls, the site was also surrounded by a fosse which appears to have measured anywhere from 8 to 30 m wide; it was detected outside the S rampart of the lower town and in the vicinity of the gate at point I on the NE corner of the upper town (*ibid.*, 54–57). Examination of the fosse leads to the conclusion that it averaged 3 to 4 m deep. Tallon was probably correct to suggest that the fosse provided most of the material for the building of the ramparts which surround both the upper and lower towns (*ibid.*, 51), given the bedrock protruding on both the exterior and interior slopes of the fosse on the N and S ends of the site.

As Tallon noted, while a date comparable to the other known sites with rectilinear enclosures seems appropriate, evidence for later settlement at Aş-Şour such as during the Roman period precluded his suggesting beyond doubt that the defenses described above were MB in date. Nevertheless, my own visit to the site yielded no information or visibly late ceramics, which can confirm a late date for the architecture of the settlement and, furthermore, illustrated its very clear architectural relationship with Qatna, which

included not only a rampart but also a fosse and evidence of the stone foundations of a wall along the rampart. These facts thus lead to the suggestion that the site was probably a MB fortified settlement.

TUNIP (TELL ‘ACHARNEH)*

Lat. Lon.: 35°17’16.3” N, 36°23’45.4” E

UTM: 37 N 0263182.3908077

References: Michel Fortin (forthcoming).

Plans: NA.

Sections: NA.

Photos: NA.

Tell ‘Acharneh, the site most likely to be identified with ancient Tunip, is located towards the S end of the Ghab Valley E of the Jebel Ansariye and NW of Hama. Although the site was clearly occupied during the Iron Age, as evident from the fortifications on the N side, which have been dated to the 8th century B.C. (personal communication, Elisabeth Cooper 2002), the tell no doubt attained much of its size and height during the Bronze Age occupation which preceded it. The size of the tell (2 ha) and its accompanying lower town (52.8 ha) make it one of the most impressive settlements of the Bronze and Iron ages in the Ghab Valley, with an inhabitable area inside of its ramparts of about 55 ha (see Figure 44 below).

The question concerning ‘Acharneh’s MB settlement is, therefore, whether the ramparts around the site are to be identified as Iron Age or Bronze Age in date, or whether they were a result of fortifications in both periods. Recent excavations by E. Cooper in the depression associated with the N Gate adjacent to the E side of the tell have revealed a rampart and two walls, all of which are to be dated to the 8th century B.C. (personal communication, E. Cooper 2002). The question, therefore, is whether or not there is sufficient depth below the Iron Age fortifications for there to have been a rampart

dated to the MB. Further excavation in this area during future seasons will certainly answer this question.

Figure 44. Plan of Tell ‘Acharneh. Reprinted by permission. Courtesy of Michel Fortin.



TUQAN, TELL**Lat. Long.:** 35°49'33.4" N, 36°57'24.7" E **UTM:** 37 N 0315441.3966571**References:** (Matthiae 1979; 1982a; 1983; 1989–1990; Guardata 1990; Matthiae 1997b).**Plans:** Site (Guardata 1990:fig. 1); Area A (ibid., fig. 2b); Area E (Matthiae 1982a:fig. 11); Area F (Guardata 1994:15); Area G (Guardata 1990:fig. 4:4).**Sections:** Area E schematic (Matthiae 1982a:figs. 14f.).**Photos:** Area A (Guardata 1990:fig. 2a); Area E (Matthiae 1982a:figs. 12f.); Area F (Matthiae 1982a:figs. 18f.); Area G (Guardata 1990:fig. 4a).

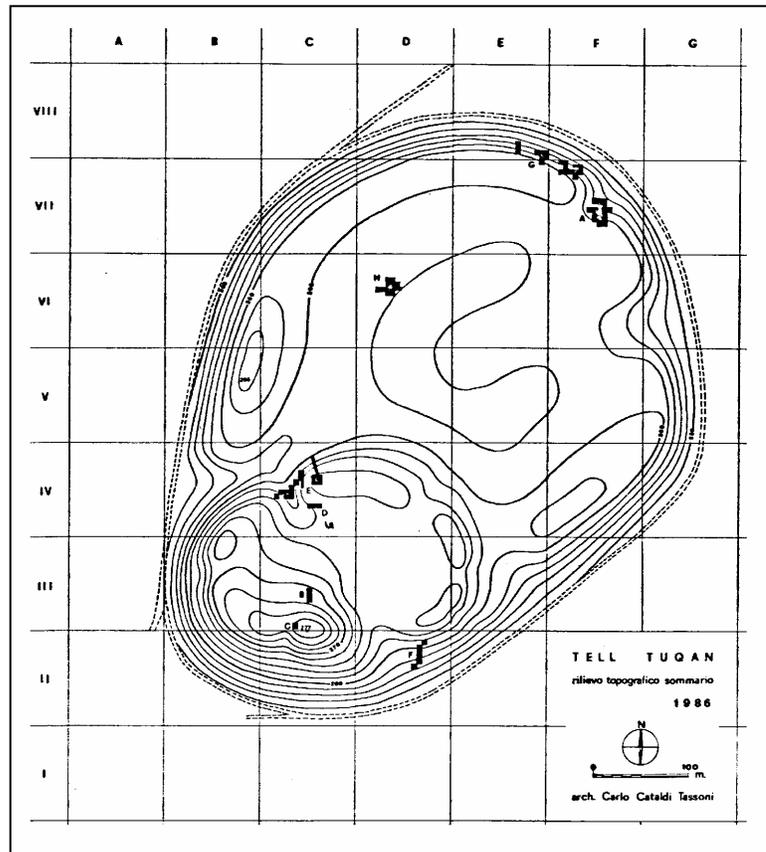
The site of Tell Tuqan is situated on the open plain 14.6 km to the ENE of Ebla (Tell Mardikh) and 45 km SSW of Aleppo. The site was settled from the start of EB IVB through the end of the MB when it was destroyed and the lower settlement was abandoned (Matthiae 1979:7–9). The upper town also appears to have been occupied during the LB and Iron Age. Tuqan's settlement peaked at approximately 16.5 ha during the MB (Figure 45).³⁴ The lower town itself was approximately 12.5 ha in area within the line of its **ramparts**, which are around 1,240 m long and rise about 10 m above the plain (Matthiae 1979:fig. 1). The upper town of 4 ha which sits 6 to 8 m above the lower town was surrounded by another 240 m of fortification wall.

EB IV (Phases 2A–C of Lower Town)

According to Matthiae, Tuqan's settlement in the EB IVB was the direct result of the destruction of Ebla (Mardikh IIB1). Unfortunately, the nature of the site's fortifications during the EB IV remains unclear and it is only during the MB that we first have any information concerning their construction. Nevertheless, the lower town was settled in this period (Phases 2A–C).

³⁴Compare with the gross figure of 27 ha reported by Matthiae (1979) or 30 ha reported by Guardata (1990:64).

Figure 45. Plan of Tell Tuqan (after Guardata 1990:fig. 1).

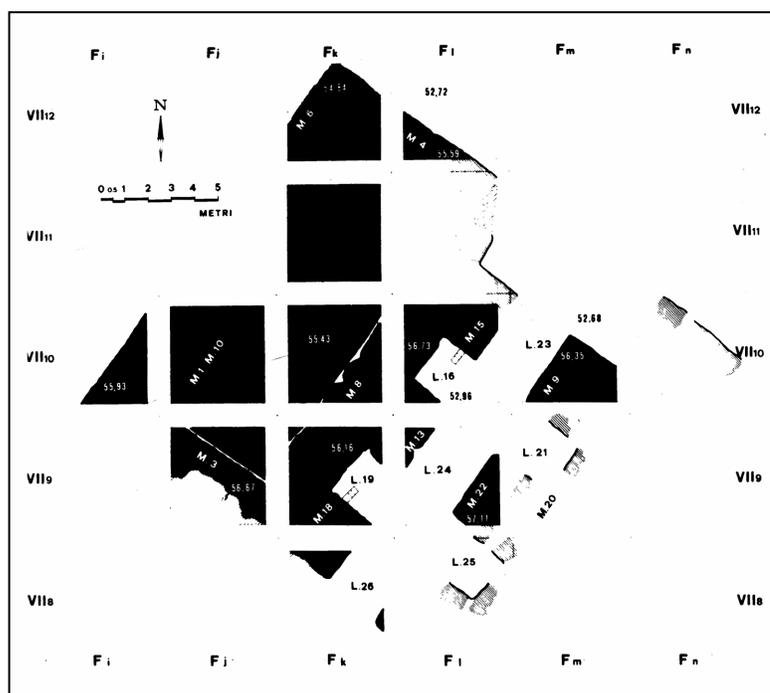


MB I (Phases 1B of Lower Town)

At the start of the MB I the entire settlement was probably enclosed by a fortification wall built atop the earliest ramparts which featured strongly fortified gates of the ‘triple-gate’ type at four key locations. The lower town featured at least three gates that may be identified with the major depressions in the site’s surrounding embankment. These are the w gate (or Ebla Gate) located on the w side adjacent to the NW side of the upper town (Grid B IV), the SE Gate also located adjacent to the upper town on its SE corner (Grid E III), and the NE Gate (or Aleppo Gate) located across from the upper town (Grid F VII/Area A). Of the lower town’s gates, only the NE Gate in Area A (Figure 46) has been excavated (in 1978 and 1981). This gate was a **six-pier gate** with a 14 to 15 m long and 2.6 m wide passage presumably giving access to a source of water outside the

site (Matthiae 1979:8; Guardata 1990:65). The gate structure was over 18 m deep. The three piers which are preserved at the ends of the gate (M.18, 9, and 15) measured 3.25 m wide while the center piers (M.13 and 22) measured 3.75 m wide (Matthiae 1979:8). The gate featured a mudbrick superstructure preserved to a height of 4.5 m, which was built with bricks measuring 38 x 38 x 12 cm, and faced with limestone blocks (Matthiae 1979:8).

Figure 46. Gate in Area A at Tuqan (after Guardata 1990:fig. 3).



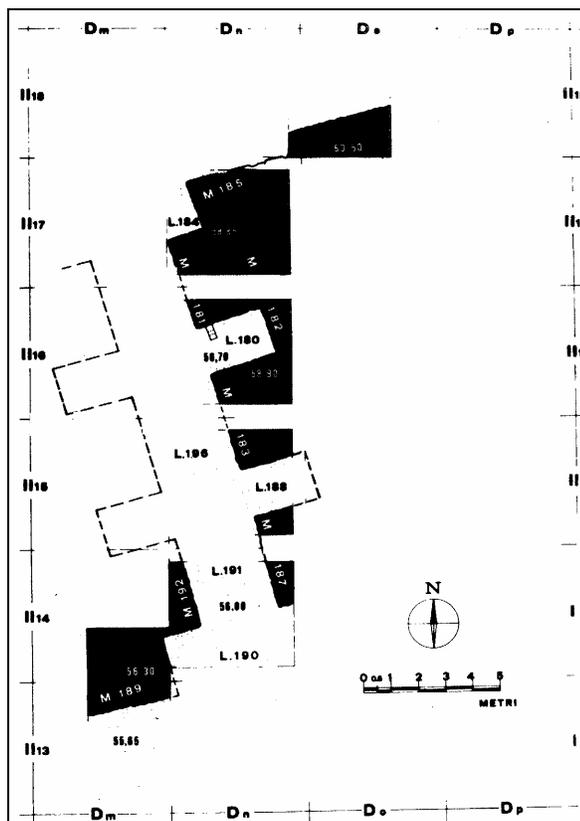
The upper town during this period was also enclosed by its own wall system that probably also included a rampart, though only its final stage has been clearly defined. The upper town's fortifications and related features have been excavated in Areas E (Grid C IV) and F (Grid D II). The final size of the rampart around the upper town at the end of the MB II was approximately 19.5 m wide in Area E, though it is believed that it grew to this width over several phases of building (Matthiae 1979:66). In Area E excavations also demonstrated that the surrounding embankment featured of a 4.5 m wide **mudbrick wall** (M.130) built on stone foundations which was preserved to a height of 5.4 m (Matthiae

1982a:316). A **rampart** 4.9 m high appears to have been built against the wall in at least two building phases with a slope of about 30° (ibid., 318). For whatever reason it appears that towers were not thought necessary during the MB I when the wall was first built.

MB II (Phases 1A of Lower Town)

At the start of the MB II the wall was destroyed but was subsequently rebuilt during the early MB II with towers (Matthiae 1982a:318). A rectangular **tower** (7.5 x 5.85 m) without a stone foundation was found to have been built on the exterior of a stretch of this wall located in square C IV13 during the MB II (ibid., 323).

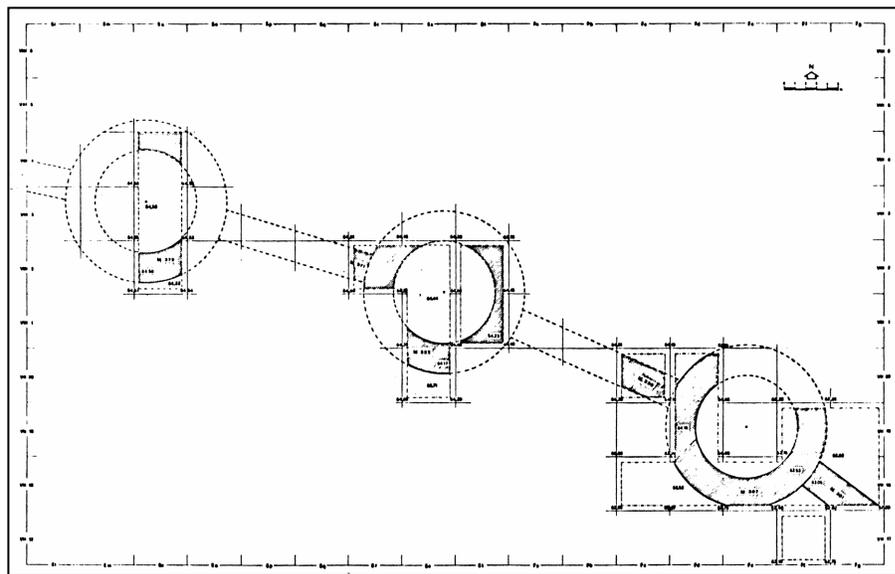
Figure 47. Gate in Area F at Tuqan (after Guardata 1990:fig. 3).



In the midst of the MB II (ca. 1600 B.C.) Tuqan appears to have experienced a destruction that may have precipitated a renovation of the site's fortification system (Matthiae 1982a:315). These changes appear to have included the renovation of the upper

town's rampart, the addition of towers to the exterior of the upper town's wall, the construction of at least one additional gate in the upper town, and the construction of a new wall with circular towers around the lower town. In Area F (Figure 47) on the SE side of the upper town a so-called **six-pier gate** was revealed with a 17.5 m deep and 14 m long passage (Matthiae 1982a:figs. 16f.; Guardata 1990:65). Examination of the structure revealed massive rough-hewn limestone masonry similar to that employed in the NE Gate in Area A along with a decorated flagstone paving (ibid., figs. 20f.). The passageway of the SE Gate was 2.7 m wide and the niches on the W between the piers were smaller than those on the E (Guardata 1994:14). Two of the door sockets for the two leaves of the inner door on the N end, and one of the two sockets for the S outer doors were found just inside the two sets of piers. It is evident that the gate was blocked at the end of the LB by fallen stones, yet continued in use until the end of the Iron II (ibid.). Another gate to the upper town may have been located in Grid D IV (Matthiae 1979:6).

Figure 48. Towers in Area A at Tuqan (after Guardata 1990:fig. 4b).



The wall of the lower town was also rebuilt during the MB II and circular mudbrick towers were added to it at even intervals along its length. The **wall**

(M.371/330/301) around the lower settlement was excavated in Area G to the NW of the gate in Area A. Along the 2 m wide wall three **circular towers** (Figure 48 above) were identified with diameters of 9.4 m each spaced 14.5 to 16 m apart (Guardata 1990:65f.). These towers were constructed of mudbrick (40 x 40 cm) with walls 2.8 m wide which lacked stone foundations. The town wall and towers have been dated to the MB II. That the site was destroyed during the course of the MB II was evident in the excavations of Areas A and H (Matthiae 1989–1990:337f.) and also Area D (Matthiae 1982a:315).

UGARIT (RAS SHAMRA)

Lat. Long.: 35°36'08.3" N, 35°47'01.6" E **UTM:** 36 N 0752182.3943409

References: (Schaeffer 1939; 1951; Lagarce 1984; Callot 1986; Yon 1992; 1997a).

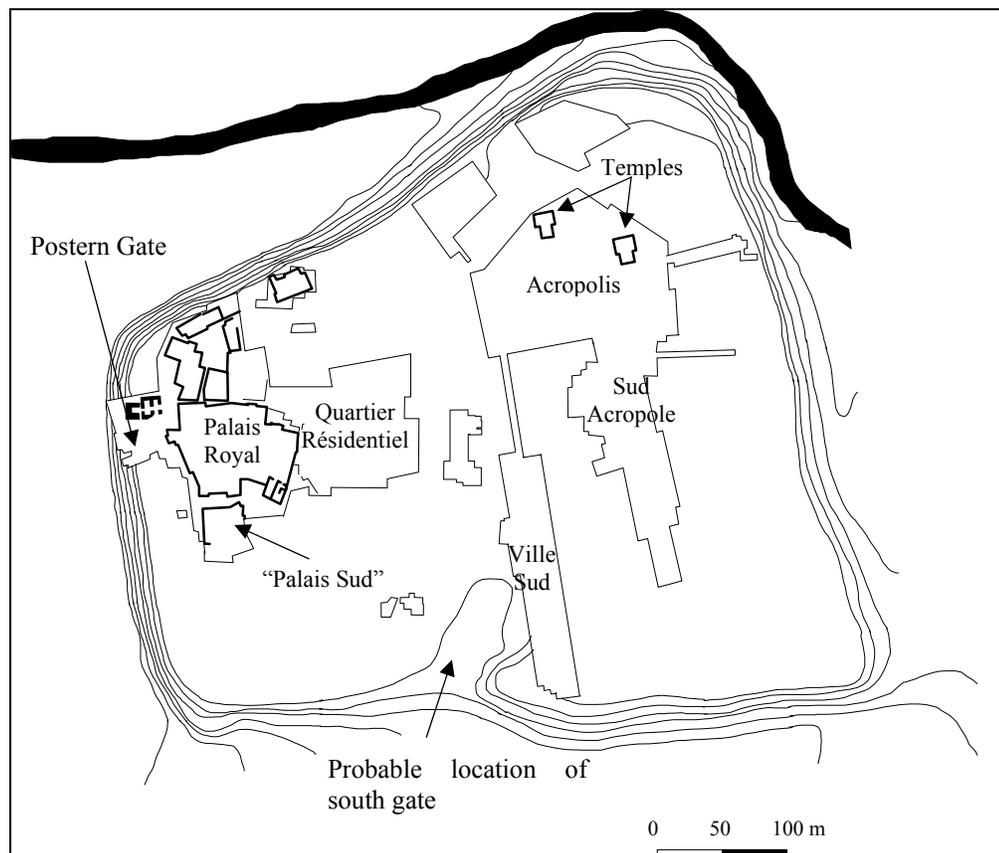
Plans: NW fortifications (Yon 1997a:fig. 15); Postern and bent-axis gates (Yon 1997a:fig. 18a); Gate (Yon 1997a:fig. 18b).

Sections: NA.

Photos: NW fortifications (Schaeffer 1939:pls. 42f.; Lagarce 1984:figs. 5, 8–17; Yon 1997a:fig. 16); Postern interior detail (Schaeffer 1939:fig. 13; 1951:pl. 4).

The site of Ugarit (Ras Shamra) is on the coast of the northern Levant 140 km SW of Aleppo and about 165 km N of Byblos. In the absence of definitive evidence concerning the MB fortifications at Ras Shamra and in light of the possibility that the earliest phase of its fortifications may date to the late MB II (Yon 1997a:41), it is worth examining the evidence for the LB fortifications of Ugarit as known from excavations since 1938. Exploration of the fortifications from 1938 to 1939 was limited to the NW corner of the site around the royal palace. Here C. Schaeffer exposed the well-preserved remains of a monumental gate as well as a postern gate. With the conclusions of a later study by J. Lagarce (1984), it is now possible to better understand the results of the original excavation, although many questions must remain unanswered until further excavation of the defenses in other areas can be conducted.

Figure 49. Plan of Ugarit (Ras Shamra). Reprinted, by permission, from D. Schloen (2001:fig. 18).



Late MB II/Early LB I

The construction of Ugarit's fortifications resembles many of the Bronze Age settlements along the Levantine coast insofar as stones were used in the construction of its glacis (cp. Byblos, Beirut). This is, of course, firstly a result of the availability of these materials in the region,³⁵ but secondly, also as a result of the importance of the site, at the head of the kingdom of Ugarit. The earliest evidence of such work belongs to a tower built of dressed stones (Lagarce 1984:162ff.), which would have stood directly overtop of the path leading into the monumental gate. It is square and measures 14 m on a side

³⁵ A quarry, which probably served as the source for most of the stone used in construction at Ugarit, has been located to the N of the site (Yon 1992:23).

(Schaeffer 1939:289). The tower may have dated to the late MB if not early LB I (Lagarce 1984:173).

LB I (15th–14th cent. B.C.)

The effort invested in Ugarit's LB fortifications is nowhere more evident than in a second phase of its fortifications which included a stone-built glacis, presumably constructed after the tower and vaulted postern gate (Lagarce 1984:162f., 173). An examination of the face of the glacis reveals, as Lagarce has noted, that larger blocks, often more than 1.4 m long, were used in the lower part of its construction while smaller blocks were used in the upper courses (1984:156f.). The slope of the glacis was determined to be 45° (Schaeffer 1939:289). The fine work put into working the faces of the stones used in the glacis attests to the number of skilled stone masons made available for work on the fortifications of the capital. Because the postern gate built into its face (see below) was probably contemporary with the glacis, it can also be tentatively dated to the fifteenth to fourteenth centuries B.C. (Yon 1997a:41; after Lagarce 1984:173). This structure was corbelled (cp. Akko) like the roofs of several tombs found below houses at Ugarit, and its ceiling was about 5 m high (Schaeffer 1939:290).

LB II (13th–12th cent. B.C.)

During the final phase in the development of the fortifications around the royal palace, dated to the thirteenth or early twelfth century, the postern was closed (see pls. V:1–2 in Schaeffer 1951) and buried (*ibid.*, pl. IV:4), and the gate leading into the NE quarter was modified (Lagarce 1984:167–173). The modifications included a change in approach with a ramp built to lead up from the S, passing through a small tower before turning right into the main gate—if the reconstruction presented by Yon is correct (1997a:fig. 18b). The plan of the monumental gate of this period included three, or possibly four, sets of piers (Lagarce 1984:171), but it was not regular in plan like typical six-pier gates. The gate was about 3 m wide at its narrowest point (*ibid.*, fig. 7). Aside

from the w gate, Ugarit probably also featured at least one other gate on the s located in the depression evident on contour plans of the site (Yon 1992:26). This is presumably where most merchandise was brought and access to the sea was obtained. The wall in this period was a **casemate** structure (Lagarce 1984:171).

Though estimates of the site's size suggest that Ugarit was about 20 ha during its final phase of occupation at the end of the LB, measurements from the top plans suggest that the site was actually around 22.11 ha above its slopes (see Yon 1992:23). But, as Yon has observed, much of the northern part of the site has been destroyed, and it is not possible to accurately determine how much of the area of the site was occupied by the wall during the MB or LB. Although the perimeter of the tell at the top is currently 2,225 m long, the wall and rampart around the site must have been longer since some of site has eroded since 1200 B.C. on the N by the Nahr Chbayyab (*ibid.*, 20). The site was also flanked on the s by the Nahr ed-Delbe. These two rivers no doubt aided the defense of Ugarit. At the end of the LB the site stood 20 m above the surrounding plain (*ibid.*, 23).

UMM EL-MARRA**Lat. Long.:** 36°08'02.6" N, 37°41'38.1" E**UTM:** 37 N 0382483.3999608**References:** (Tefnin 1979b; Warmenbol 1980; Curvers and Schwartz 1997; Schwartz, et al. 2000; Schwartz, et al. forthcoming).**Plans:** Site (Schwartz, et al. 2000:fig. 2).**Sections:** W Area A (Schwartz, et al. 2000:fig. 9).**Photos:** Area F (Tefnin 1983:pls. 4f.); W Area A (Schwartz, et al. 2000:fig. 10).

Umm el-Marra is located on the road to the Euphrates Valley 45 km ESE of Aleppo. During the MB (Periods III_d–III_a) the site was about 13.8 ha within the ramparts and it appears to have been the largest settlement in the Jabbul between Aleppo to the w and the Euphrates River (Curvers and Schwartz 1997:201ff.).³⁶

EB III

During the late EB III (ca. 2500 B.C.), after the site's initial settlement, a **rampart** appears to have been constructed around the site (Schwartz, et al. 2000:426). This may have given Umm el-Marra its original circumvallated shape. Although the exact date of the rampart remains uncertain (personal communication, Glenn Schwartz), it was composed of brown soil and alternating layers of ash deposited at a 45° angle. The only useful material for establishing the rampart's date comes from a pottery kiln dug into the rampart that contained EB wasters (Schwartz, et al. 2000:426).

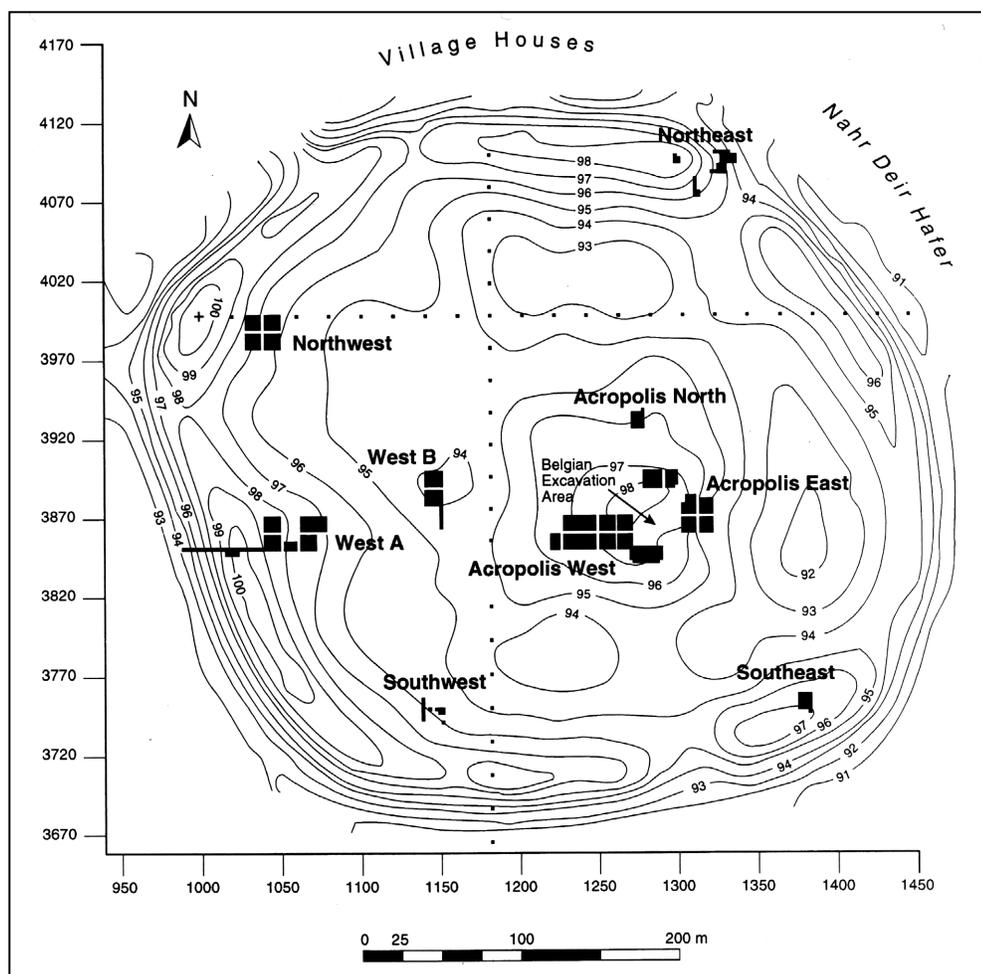
EB IVA–B (Periods V–IV)

Following the rampart's construction, a "red" **glacis** of reddish-brown earth, probably taken from outside the site creating the **fosse** found there, was built against its exterior surface (i.e., to the w) during the EB IV or early MB (Schwartz, et al. 2000:427).

³⁶Umm el-Marra has been reported to have been as much as 25 ha in size (Schwartz, et al. 2000:201), but measurements taken during my visit to the site revealed (as does a simple examination of the site's plan) that this cannot be an accurate estimate.

The front edge of this glacia featured “tongues” of clay protruding into the glacia (ibid., fig. 6). The glacia was then held in place by a **revetment wall** of boulders 1.4 m high and 1.6 m wide (ibid., 427). Not much later the “white” **glacia** composed of limestone chips and pebbles was added outside the earlier “red” glacia. Although Schwartz and Curvers suggest that the stone structure under the base of the “white” glacia is to be identified as another revetment wall (ibid.), its dimensions and position are quite different than the revetment wall of the “red” glacia quite possibly suggesting a different function. By contrast this wall measured 2.3 m high and 5.3 m wide and featured a flat surface on top (ibid., fig. 9), which was overlain by the w end of the “white” glacia.

Figure 50. Plan of Umm el-Marra. Reprinted, by permission, from G. Schwartz (Schwartz, et al. 2000:fig. 2).



While it remains only possible to date the sequence of fortifications after the EB rampart to the period from EB IV to the start of the MB (*ibid.*, 427), only further excavation will help to clear up details concerning the phasing of Umm el-Marra's fortifications. But given the absence of EB IVB sherds in either of these glacis it seems probable that their construction should be dated to the late EB IVA.

MB II (Period IIIC–A)

Following the MB I (Period IIID), during which no new fortifications were built, the site's fortifications underwent construction again during the MB II. On the highest point in the NW area just below the surface the remains of a mudbrick **wall** dated to the MB II and standing 1.4 meters high and about 1.5 to 2 m wide were revealed during the 1999–2000 season (Schwartz, et al. forthcoming).³⁷ This wall appears to have been built on top of the so-called “red glacis” of the EB IV with 4.5 to 6 mudbricks wide above a stone foundation. It also featured thick buttresses or possibly towers along its exterior face. In W Area A the remains of what have been identified as a 7 m wide MB II town wall had also been exposed, featuring alternating courses of flat lying gray bricks and vertically standing red bricks (Schwartz, et al. 2000:426, fig. 9).³⁸ It appears that this mudbrick wall may have been preceded by a stone wall, since excavations in W Area A revealed that the foundation of this mudbrick wall cut into an earlier stone wall (personal communication, G. Schwartz). If the MB II wall traced the top of the embankment around the settlement then it would have been approximately 1,350 m long.

Tefnin had previously speculated that at least three of the town's gates could be identified based on the topography of the site (Tefnin 1979b:72): (1) the NW Gate to

³⁷I would like to thank Glenn Schwartz for providing me with a preview of the relevant part of this forthcoming article for use in this study.

³⁸The 7 m of red mudbrick standing on end and overlying the gray bricks below were originally thought to have been the collapsed remains of the mudbrick wall (Curvers and Schwartz 1997:215).

Aleppo, (2) the NE Gate to the Euphrates, and (3) the S Gate to the Jabbul. The NE Gate, referred to as the “**Euphrates gate**”, was explored by Tefnin (1983) and remains the only gate excavated thus far. The gate’s structure was preserved to about 2 m in height with a passageway about 3 m wide and 7 m long (ibid., 143). More evidence of the EB IV and MB fortifications and one of the MB gates is also coming to light in the NE area of the present excavations (Schwartz, et al. 2000:429f.).

In addition to the settlement’s outer defensive wall and gates, the acropolis in the center of the site was also surrounded by a separate set of fortifications in this period (Schwartz, et al. forthcoming). Here a wall and gate have been excavated on the E and N sides of the Acropolis. The **citadel wall** appears to have been built of four rows of mudbricks to about 1.5 m wide with buttresses, which were about four bricks wide, on its interior face. At least two phases can be distinguished in this wall’s construction on the E side of the acropolis. On the N side of the acropolis the wall featured a stone foundation, evidence of perhaps a tower, and a clay **glacis** outside the wall. Schwartz has suggested that the acropolis wall was short-lived and functioned only during the early MB II and was afterwards built over. The **gate** was built on the N side of the acropolis into the Period IIIC–A wall, which was also revealed to its W. The gate was flanked by two towers, which were about 3.8 m wide and were protected with a stone facing. A stone-slab threshold lined the passage between these towers, which was between 1.2 and 1.4 m wide.

The site appears to have lacked a defensive wall during the LB (Schwartz, et al. 2000:426).

THE UNIVERSITY OF CHICAGO

THE ARCHITECTURE OF DEFENSE: FORTIFIED SETTLEMENTS OF THE
LEVANT DURING THE MIDDLE BRONZE AGE

VOLUME THREE

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE DIVISION OF THE HUMANITIES
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

DEPARTMENT OF NEAR EASTERN LANGUAGES AND CIVILIZATIONS

BY
AARON ALEXANDER BURKE

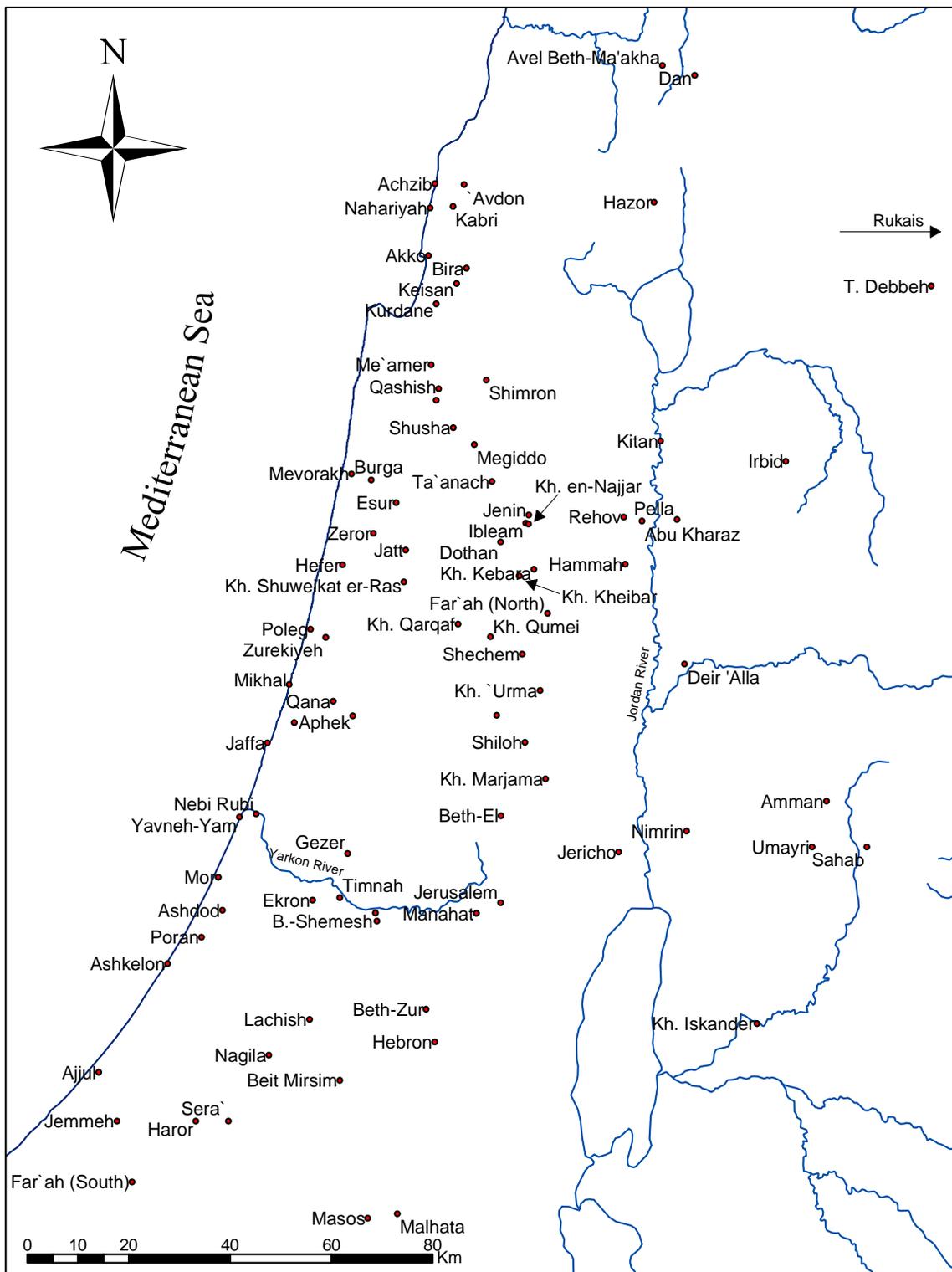
CHICAGO, ILLINOIS

JUNE 2004

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APPENDIX B:
FORTIFIED SETTLEMENTS IN THE LEVANT IN THE EB IV AND MB
(CONTINUED)

Figure 51. Sites in the southern Levant included in Appendix B.



2. SOUTHERN LEVANT: ISRAEL AND JORDAN

ABEL BETH-MA'AKHA*

MR 2046.2960

References: (Dayan (Nevo) 1963).

Plans: NA.

Sections: NA.

Photos: NA.

The 4.5 ha mound of Abel Beth-Ma'akha is located on a hill 80 m above the northern end of the Huleh Valley about half a km E of the Nahal 'Ijon (Kotter 1986:112ff.). Although Dayan conducted some initial soundings on the mound (1963), the excavated remains have not been published. The site has been included by Broshi and Gophna (1986) as one which featured a **rampart**.

ABU KHARAZ, TELL

MR 200623.07/206196.54

References: (Fischer 2000).

Plans: Site (Fischer 1997:fig. 1).

Sections: NA.

Photos: Area 2 (Fischer 1998:fig. 6).

Tell Abu Kharaz, located on the E side of the Jordan Valley just SW of Pella, was less than 12 ha in size during the late MB II (IIC) (Fischer 2000). During this period (Stratum 2a-c) the site appears to have been fortified by a 4.2 m wide **fortification wall**, of which its stone foundation survives on the W side of the site in Area 2 (Fischer 1998:215). On the inside of this wall casemate rooms were constructed (Fischer 2000:455) as well as perhaps a **square tower** with 1 m thick walls (Fischer 1998:215). The town wall itself was constructed on the foundations of the EB IB/II (ca. 3250–3000

B.C.) town wall as witnessed in Area 1. The EB wall, which measured 3 to 5 m wide and featured stone foundations 3 to 4 m high (p. 452), was a part of the earliest settlement of the site. It was built directly on bedrock and continued in use through the end of the EB II, ca. 2700 B.C. (p. 448). The MB II wall was later replaced by an early LB I casemate wall (p. 457).

ABU ZARAD, TELL (SHEIKH)*

MR 17195.16790

References: (Finkelstein 1988; 1993a).

Plans: NA.

Sections: NA.

Photos: Site (Finkelstein 1988:fig. 45).

Tell Abu Zarad is located on a hilltop in the hills of southern Samaria about 13 km SW of Shechem (for location see Finkelstein 1988:fig. 54). It has been identified as a fortified late MB II (IIC) settlement (1993a:1313). It was approximately 2 ha in size (1988:152).

ACHZIB

MR 1598.2727

References: (Prausnitz 1973; 1975; Oren 1975; Prausnitz and Mazar 1993).

Plans: Site (Prausnitz 1975:fig. 2).

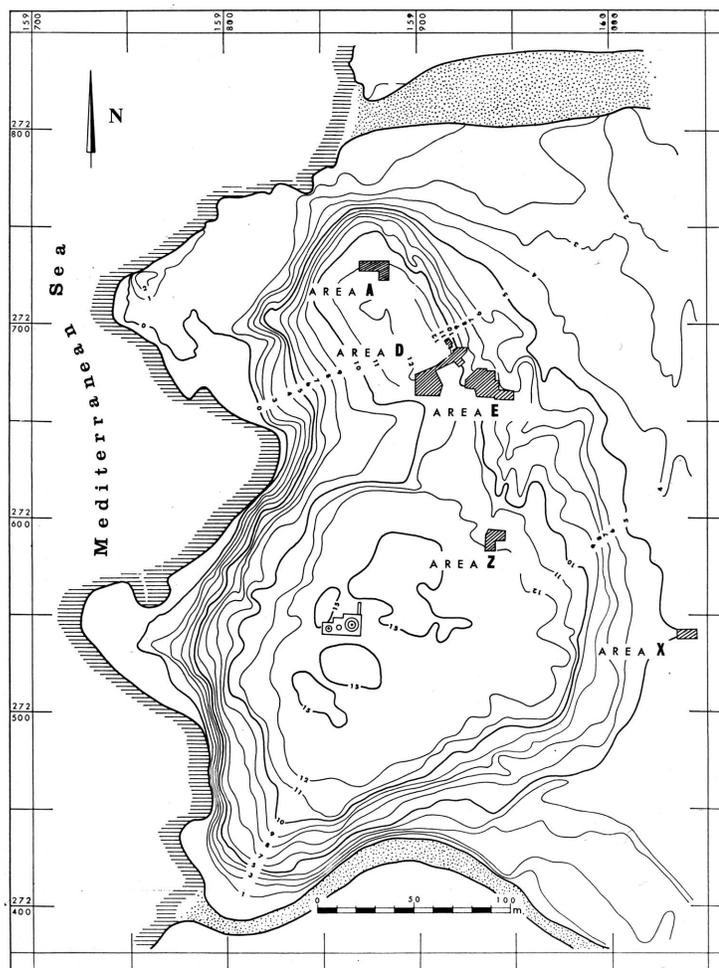
Sections: Area D (Prausnitz 1975:fig. 3).

Photos: Area D (Prausnitz 1975:pl. 24A–B).

The site of Achzib is located on the Mediterranean coast about 5 km N of Nahariya. While the site clearly featured some MB I (IIA) pottery and hence MB I settlement, the fortifications which were discovered date to the MB II (IIB) (Oren 1975). According to Prausnitz's assessment the site was very favorably because it was

surrounded by some key defensive features (Prausnitz 1975:202). On the w it was bounded by the Mediterranean, on the N by the Nahal Keziv, and on the E by a fosse which ran from the Nahal Keziv s to a bay of the Shahal River. This, therefore, in one sense made Achzib an island settlement. The MB site is identified as approximately 7 ha in size with an additional 5 ha area “consisting of anchorages” (ibid.).

Figure 52. Plan of Achzib (after Prausnitz 1975:fig. 2).



The MB fortifications were explored in Areas D, E, and X (Prausnitz 1975:207ff.). They were best preserved in Area D. Here Prausnitz was able to identify all the major elements of Achzib’s MB defensive system including the earthen rampart, the town wall, glacis, revetment, and fosse. The **earthen rampart** (referred to as a

“glacis”—B in fig. 3, *ibid.*) which formed the core of this defensive system was described by Prausnitz as a “sloping, tamped and smoothed earth wall” (*ibid.*, 208). Although it is difficult to discern the slope of this earthen core from the top portion that was excavated, it does appear to have been about 30° rising to a point more than 9 m ASL. It was no more than 18 m wide in Area D. The fill of the rampart was not homogeneous and appears to have consisted of several distinct sources of material, which Prausnitz suggested were taken from the digging of the fosse. From earliest to latest these included “red fill...dune-sand...brown soil...grey soil with ashes...dune-sand...hardened red-brown soil” (*ibid.*). The surface of the rampart appears to have been supplemented by a **glacis** (identified as “stone packing”—C, in fig. 3) made of a couple of courses of cobbles. The glacis transitioned into the **revetment wall** (F in fig. 3) which after 7 m assumed a nearly vertical slope and was 1 m thick on the inner slope of the fosse. The revetment wall and glacis appear to maintain the 30° slope of the underlying rampart.

The **fosse**, the bottom of which was not reached in Area D, may have been about 4 m deep and only about 2 to 3 m ASL at its base (Prausnitz 1975:207). The fosse was also identified in Area X where it was found filled with pottery dating to the late Iron Age and later. Its width remains unknown though it was probably 475 m long from N to S. While Prausnitz has speculated that springs in the vicinity of the site, which may have fed into the fosse, may have turned the fosse into a moat and the site into an island, without the excavation of the fosse this suggestion cannot be substantiated. Furthermore, this argument is weakened by the fact that the fosse was at least a couple of meters ASL and, therefore, would not have allowed the collection of any significant amount of water.

Atop the rampart Prausnitz (1975:207) identified the remains of the town’s mudbrick **fortification wall** (“brick core”—A in fig. 3, *ibid.*). Although he suggested that the earthen rampart was “heaped against” this wall, the published section betrays that this is not the case and that, in fact, the wall was built on the interior slope of the lower layers

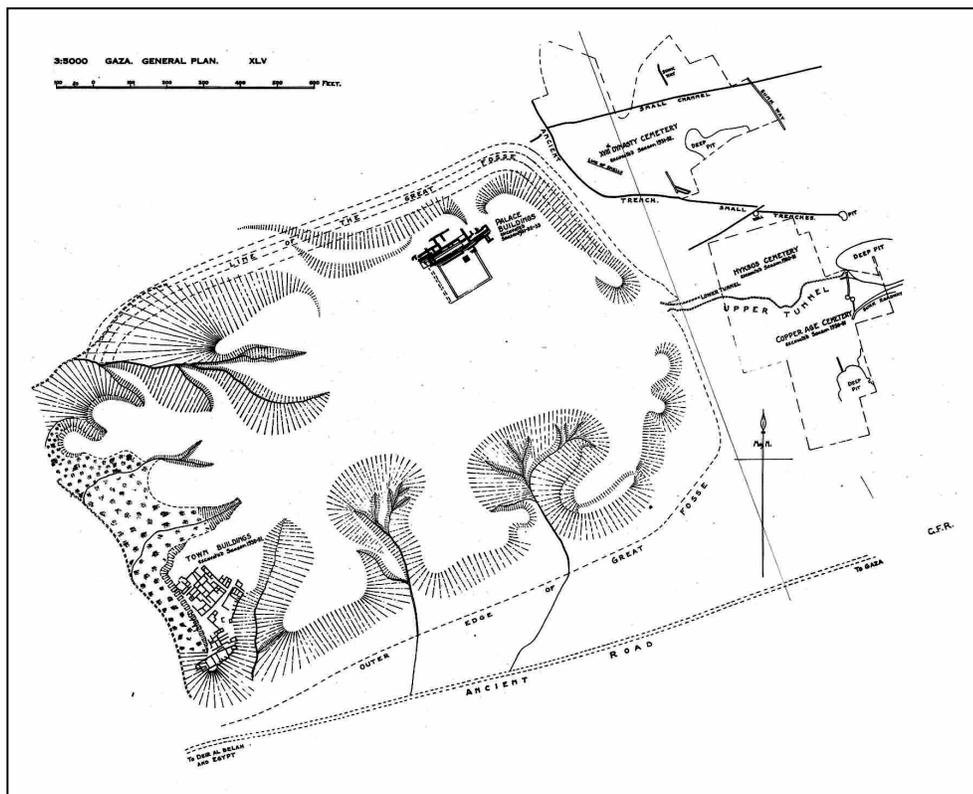
of the original rampart, the later layers being added after the wall was constructed and, therefore, met the wall's outer face. The distance between the edge of the revetment and the wall was about 12 m. Because Prausnitz did not excavate to a depth which revealed the lowest courses of the mudbrick wall, his suggestion that "the 'brick core' could not have been part of a very large wall" because its base was "too wide" and the foundations were set "too low" (1975:208) cannot be accepted. This 6 m wide mudbrick core, which should definitely be identified as the settlement's fortification wall, is of comparable width to the wall identified at Jericho (see entry below) and is situated in a similar manner within the rampart as were the walls of other sites. The entire width of the fortification system, without knowing the original width of the fosse, was approximately 20 m rising at least 10 m above the landscape (*ibid.*, 209). The curve of the fortifications around the E side of the site would have been approximately 475 m in length, and if the W side of the site featured at least a rampart and wall then this meant another 400 m in length to the defenses.

Soundings in Area E, where originally it was thought a gate might have been located, confirmed that the destruction of the settlement and its fortifications could be dated to the end of the MB II (IIC) (Prausnitz 1975:207). Based on the excavation of Area E the construction of the fortifications appear to have been a "quick execution" with the "building of the core and the erection of the earthen glacis" as a "simultaneous effort" (*ibid.*, 209). The ceramics support this conclusion, suggesting that the fortification was completed during the first half of the MB II (or IIB) (Oren 1975).

‘AJJUL, TELL EL- (ANC. SHARUHEN?)**MR** 0934.0976**References:** (Petrie 1931; 1932).**Plans:** Site (Petrie 1931:pl. 45).**Sections:** Fosse (Petrie 1932:pl. 45).**Photos:** Fosse (Petrie 1931:pl. 12).

Tell el-‘Ajjul is located about 25 km s of Ashkelon along the Mediterranean coast. Early excavation of Tell el-‘Ajjul by W. F. Petrie from 1930 to 1934 contributed to its importance in the discussion of MB fortifications (Petrie 1931; 1932; 1933; 1934). Unfortunately, ‘Ajjul’s full potential as a fortified site where a rampart, fosse, and walls were preserved cannot be fully exploited due to the excavation methodology of the early twentieth century (see comments by Parr 1968). Albright’s analysis of the stratigraphy and remains (1938a), and the posthumously published work of James R. Stewart (1974) on the stratigraphy of ‘Ajjul provide the most complete synthesis of what can be discerned from those reports. Recent work by Peter Fischer and Moain Sadeq has also sought to improve our understanding of the site, but thus far no excavation of the fortifications has been undertaken (Fischer and Sadeq 2000). While Petrie had originally identified ‘Ajjul as ancient Gaza, Kempinski has suggested that the site should be identified with Sharuhén mentioned in the *Autobiography of Ahmose* (*AEL* 2, pp. 12–14) and Joshua 19:6. His identification, which seems considerably more plausible than the identification of Tell el-Far‘ah South with Sharuhén, is based on several lines of evidence (see Kempinski 1974).

Figure 53. Plan of Tell el-‘Ajjul (after Petrie 1931:pl. 45).



From Petrie's excavation reports it is clear that the MB site was enclosed on three sides by a fosse 18 m wide and 6 m deep dug into the limestone (Figure 53 above).¹ The inclusion of Tomb 1166 in the E section drawing reveals that excavation of the fosse took place off of the NE corner of the site. The section is, therefore, a view of the SSE side of the cut. When the fosse was cut in antiquity it left a slope in the bedrock down the side of the mound, a flat bottom, and a vertical face on the distant side of the fosse. LB I tombs were cut into the vertical face provided by the fosse. Although Petrie does not provide the

¹There is a lack of consensus regarding the average width and depth of the fosse at 'Ajjul. It is uncertain why scholars have felt it necessary to doubt the figures provided by Petrie for the fosse, which is undoubtedly based on the assumption that there are so many other imperfections with his work that these figures must also be errant. Nevertheless, measurements range from 10.7–15 m wide and 3.7–10 m deep (see Yadin 15 m wide x 10 m deep 1963:67; and Tufnell observes a depth of only 6 m 1993:50), and these may, in fact, accurately reflect the various depths of the moat across its length. Scale ruler verification, however, of Petrie's figures provides a depth of 6 m to 7.5 m, a width at its base of 4.5 m, and a width of 18 m at the top (Petrie 1932:pl. 45).

exact length of the fosse, according to the plan of the site it would appear to have been about 1,220 m long (Petrie 1932:pl. 41). Petrie originally noted that the fosse was of the “North Syrian type”, similar to those at Homs and Emesa, and that its original quarrying would have provided most of the stone necessary for the foundations of buildings on the site (Petrie 1931:1ff.). The great length of the fosse is only interrupted on the NE side by a 7.62 m wide strip of bedrock that probably served as a causeway “edged with a balustrade of round-topped stones” leading out the gate toward Gaza. Although Kempinski has suggested that the fosse was filled with seawater (1974:150), this is unlikely to have improved the defensibility of the site and is, therefore, unnecessary to postulate. Furthermore, it would complicate exiting the site during peacetime leaving only the Gaza gate to serve the population of the 10 ha town. To this we might also add that LB I tombs would not have been added to the fosse if seawater was routinely present in the fosse. It is impossible to establish a date for the digging of the fosse, but it would seem to have been during MB II (IIB–C) since there is no extensive MB I (IIA) occupation of the site. Where the SW side of the mound was unprotected by the fosse, an estuary would have abutted the lowest part of the rampart.

Although only limited traces of a **fortification wall** of black brick were found by Petrie in the vicinity of the Palaces, Stewart has suggested that a mudbrick wall built on a stone foundation would most likely have rested on the inside of the perimeter created by the fosse (1974:11). This wall enclosed Palace I on the NE corner of the site during the MB, but was built over—indicating that it had fallen out of use—by Palace III, identified by Albright as an Egyptian fort dated to Dynasty XVIII. Unfortunately, neither brick sizes nor the thickness of the wall are mentioned in any of the reports and it is, therefore,

difficult to propose a height for the remains of this wall.² Peter Fischer's assertion, based on his current reexamination of the site, is that the rampart and fosse were constructed during the MB I (IIA). However, based upon the site's morphology and limited evidence for its occupation in this period, I would suggest that the ramparts were actually constructed at the start of the MB II (IIB).

No gates have been excavated on the site, aside from the one suggested on the NE side leading towards Gaza. However, another gate on the N side of the mound at the sunken area near the location of the palaces has been inferred by the presence of stone weights. These have been suggested by Petrie to have been related to maritime trade which utilized a gate near this area (1934:13).

While the observations made above are usually the full extent of the discussion related to the MB defense of Tell el-'Ajjul, two interesting features do present themselves as elements which may illuminate the nature of siege warfare for which these defenses had been constructed. These features are two tunnels, referred to as the Upper and Lower tunnels, which begin on the E face of the fosse on the NE side of the mound around the causeway which interrupts the fosse (Petrie 1931:11f.). They both run to the NE underneath the E cemetery. The so-called Upper tunnel measures over 150 m in length ranging from 1.35 to 1.85 m high and 0.84 to 1.35 m wide, while the Lower tunnel, substantially shorter, was only about 30.5 m in length.

Petrie had suggested that the tunnels were only used for LB I burials based on Tombs 168 and 194 and their pottery, which were discovered in the Upper tunnel (Petrie 1931:pl. 40). However, since only two chambers were added, and they were not located

²Herzog has suggested that there is no evidence for a wall anywhere on the site, and he disputes the identification of the wall near Palace I as a city wall since this wall does not continue to Area T on the S side of the mound (1997a:125). But Herzog's expectation that the wall must be preserved in both areas to have existed at all is not warranted.

at one end or the other of this tunnel—which might have indicated a progression of use, their excavation for this purpose seems unlikely. In both tombs the only published, datable pottery were two well-known Egyptian drop-shaped vessels of LB date (see Amiran 1970:pl. 58:1). Without firsthand examination of the vessels a more precise date is not possible, but the Upper tunnel seems to have gone out of use by LB II (Stewart 1974:11).

Although Petrie had also suggested that the tunnels were dug from both ends, this cannot be verified and we can only add that the Lower tunnel was clearly begun from the fosse on the N side of the causeway. The main argument against the interpretation of the tunnels as part of a mortuary complex is that only a couple modest tombs were dug into the walls of the Upper tunnel during the LB, which would not account for the considerable effort undertaken to excavate them. In an effort to understand the function of these tunnels, Tufnell has stated that they were “irrigation systems”, like Iranian *qanats*, suggesting that they predated the fosse (1993:50). This claim, however, is not substantiated and does not make sense of the location of the entrances of the tunnels or the course run by the Upper tunnel. It also does not explain from where or to where the water was to be conducted. Since one can neither determine that the fosse was filled with water nor that one end of these tunnels ever connected to a source of water, it seems impossible to assert that these tunnels were dug for the channeling of water.

In light of the lack of consensus regarding the function of these tunnels, I believe that it is quite possible that these tunnels represent an altogether different phenomenon. If, in fact, Tell el-‘Ajjul may be identified as Sharuhén, several lines of evidence lead to the suggestion that these tunnels may date to the end of the MB and may have served during the Egyptian siege attested in the *Autobiography of Ahmose* (*AEL* 2, pp. 12ff.).³

³ Apparently, according to Starkey (1934:169), Petrie had also once suggested that these tunnels represented “a secret means of exit”.

We begin with the almost certain identification of 'Ajjul as Sharuhen (Kempinski 1974), which has been previously asserted due to its size, geographical position, and material culture. The length of the siege, three years, suggests that no serious effort was made to enter the town during that time (see Shea 1979). Instead, it is most probable that the Egyptians hoped to starve the inhabitants out. It would seem, therefore, that these tunnels probably do not represent an Egyptian effort to enter the town. Further evidence of this comes from the fact that the Lower tunnel was clearly begun from the fosse and dug eastward terminating after only 30.5 m. Also, if this was where the attackers were to exit the tunnel they would most certainly have faced a slaughter in the fosse from archers on the wall above.

Therefore, considering that on the other end of this siege some effort had surely been made to secure supplies and assistance in the struggle against the Egyptians, these tunnels may be identified as a means of escape for the inhabitants of the settlement. Such an effort would no doubt have been aided by the fact that the surface of the area to the NE of the site was pocked with MB tombs that would probably have kept the Egyptian encampments beyond this area, as well as the obvious need to stay outside the range of the composite bow from the town wall (approx. 200 m). Additional support that these tunnels can be identified with attempts to release inhabitants is illustrated by the location of the tunnels. Both lead out the NE side of the site from the causeway towards the nearest major settlement of Gaza only 6 km away, and the road leading N through the coastal plain. Although it would have seemed prudent to have begun such an effort from inside the settlement, tunneling below the fosse, it must be remembered that the water table at 'Ajjul is quite high, as attested during excavations by Petrie, and this would have hampered any effort to dig so deep. The next favorable location for a tunnel would, therefore, have been outside the town walls but as close as possible to a gate leading from the town. This would correspond to the location of the Lower tunnel. Work here would

most likely have been done at night where several workers could slip out the gate and down to the outer face of the fosse to work on the excavation of the Lower tunnel.

Given the scenario I am suggesting it seems likely that the Lower tunnel was begun first. While its location in the fosse suggests that it was the easiest and most clandestine of locations for the original tunneling attempt, this was complicated by the realization that from this location the “Hyksos” cemetery could not be avoided. While this does not on the surface seem problematic, when it is realized that many entrances existed to these tomb chambers and that these entrances would have allowed multiple points of access to the tunnel from the surface along its course, this would have increased the likelihood of the tunnel being discovered by the Egyptians. For this reason a new tunnel, the Upper tunnel, would have been attempted in order to weave between the “Hyksos” cemetery to the N and the EB IV Cemetery 100–200 (“Copper Age” cemetery) to the S. The conspicuous location of the Upper tunnel’s entrance, directly off the causeway located outside the gate leading NE to Gaza suggests that its construction was not mindful of continuous, daily traffic through this gate, because there would have been no regular traffic during the Egyptian siege. Furthermore, evidence from the Upper tunnel attests to multiple places along its course evidently where “arrangement for blocking” were put in place during its use and ventilation shafts added (Stewart 1974:11); the shafts shown in the illustrations seem to have been on the W end of the tunnel (Petrie 1931:12 and pl. 12) which would make sense since these would have kept the source of air progressing with the diggers excavation eastward. These two pieces of evidence not only argue against the use of this tunnel for water management, since air is not needed to conduct water, and furthermore against its use for tombs, since the deceased do not breathe. Such efforts, which are not attested in other subterranean construction projects, must surely be an indication of prolonged periods of intense activity by the inhabitants of Tell el-‘Ajjul within this tunnel. And it is very likely that the blocking doors were

intended to hamper efforts by the Egyptians to trace the tunnel should they have discovered it. This interpretation, I believe, accounts for the entirety of the evidence available for these tunnels, the *terminus ante quem* date (LB I) for their construction, and the historical events that precipitated at Tell el-‘Ajjul at the end of the MB.

AKKO, TEL (TELL EL-FUKHAR)

MR 1585.2585

References: (M. Dothan 1976; M. Dothan and Raban 1980;1984; Raban 1991; M. Dothan 1993a).

Plans: Site (Raban 1991:fig. 10); Area F (M. Dothan and Raban 1980:38; Raban 1991:fig. 7).

Sections: Area B (M. Dothan 1976:fig. 5).

Photos: Aerial of Areas A and B (M. Dothan 1976:fig. 4); Area B (M. Dothan 1976:fig. 6; Raban 1991:fig. 3).

Akko is located on the N coast of Israel about 10 km S of Nahariya. While final publication of Tel Akko’s MB fortifications remains forthcoming, several preliminary examinations of these remains serve as a basis for a cautious analysis of its defenses in this period (M. Dothan 1976; M. Dothan and Raban 1980; 1984; Raban 1991). Remains of the fortifications were found in Areas A, B, F, H, K, and P (see Figure 54 below). While the excavators have concluded that the earliest rampart was constructed at the beginning of the MB I (IIA), the evidence suggests that three more ramparts were also constructed during the course of the MB through the late MB II (IIC), guaranteeing that at no time during the MB was Akko undefended.

The first two ramparts, excavated in Area B, date to the MB I (IIA) (M. Dothan 1993a:18). The **first rampart** was constructed of beaten *hamra*, covered by a **glacis**, and crowned by a 3.5 m thick “cyclopean” stone foundation preserved 2.5 m high and capped with a 2.5 m thick mudbrick **fortification wall** exposed for a length of 20 m. The exterior

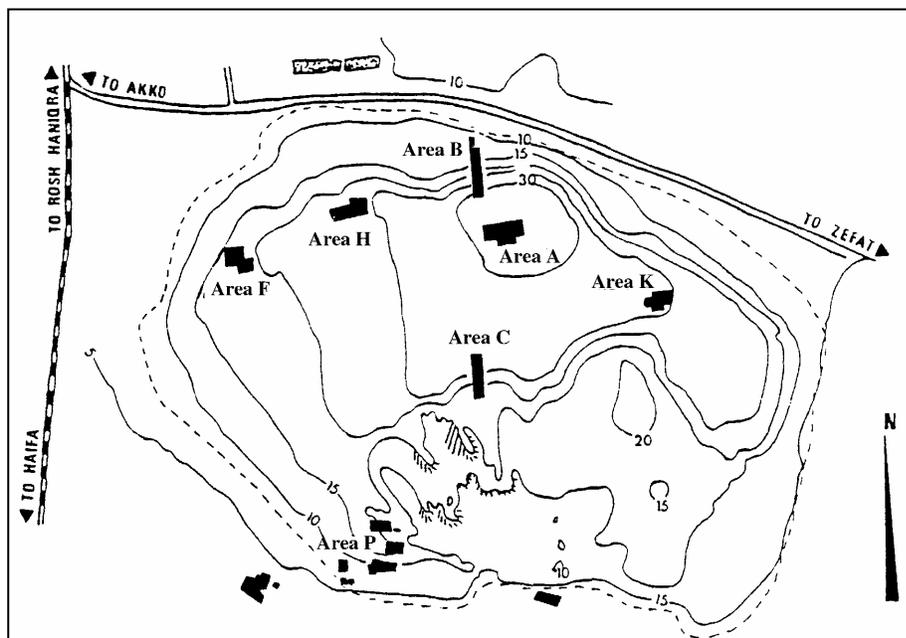
face of the mudbrick wall was plastered. This wall is described as having been “built in segments with recesses between them” and featured a **tower** on its E side. The interior of the rampart in Area AB was reinforced by at least one **retaining wall**. The earliest rampart exposed in Area B may correspond with the earliest rampart found in Area F upon which the “Sea Gate” was later constructed, though no evidence of this same stone or mudbrick wall was found in Area F. A **second rampart** discovered in Area B was constructed of *hamra*, clay, *kurkar* gravel, and sand with a stone staircase running from the top of this rampart to the top of a mudbrick wall which may be the wall of the acropolis or a fortress built on the summit (Raban 1991:20*f.). Based upon photographs of the ramparts in Area B (see photo in Raban 1991:fig. 3) the slope of this structure may be estimated to have been between 30° and 35°. Examination of the plan of Akko suggests that the original layout of the ramparts must have been elliptical with an estimated length of about 950 m.

The ‘**Sea Gate**’ in Area F on the NW side of the site was probably constructed upon the remains of the first rampart during the building of the second rampart (M. Dothan and Raban 1980; 1984). It is a two chamber, direct access pedestrian gate built of mudbrick and reinforced on its exterior by two stone walls projecting over 8 m along the route from the gate. The chambers of this mudbrick gateway, preserved to a height of 3 m, have been identified as part of a two-story guard house. Two phases of use have been identified for this complex. The stone walls projecting outward from the mudbrick gate narrow from 4 m where they join the mudbrick gate to 3.6 m at their NW end where with a small buttress they form an entrance less than 2 m wide. Four stone steps lead out of the town at this point. Plastered mudbrick benches were found on the inside of the W stone wall indicating that people loitered in this space (3 x 6 m). There is no indication that these stone walls were built later than the town wall and mudbrick gate since mud plaster was also smoothed over the seams between the structures. However, it is possible that

they should be considered later additions. Mud plaster was also found on a vertical projection of the w side of the mudbrick gate thought to have served as a point of attachment for a wooden door jamb. Additionally, a 40 cm x 15 cm space in the floor of the inner entrance of the mudbrick gate has been interpreted as the location of a wooden threshold. The use of mud plaster instead of lime (?) plaster has been cited as the reason for identifying both spaces of the gate structure as covered.

Although both Raban and Dothan have identified the mudbrick structure adjoining the gate on the SW as a tower (4 x 4 m), nothing about its construction distinguishes it from that of a mudbrick **fortification wall**, as I would identify it. Unfortunately, the width of the town wall adjoining the gate at this point is not known as it was damaged by later pitting, but it may have been about 4 m wide. All of these structures are dated to the MB I (IIA) since no MB II (IIB–C) sherds were found in their construction.⁴

Figure 54. Plan of Tel Akko (after Raban 1991:fig. 1).



⁴W. G. Dever has dated the construction of the 'Sea Gate' in Area F to the beginning of the MB II (IIB), an equally plausible alternative based on the ceramic evidence (1997:54).

At the end of the MB I (IIA) the gate in Area F was filled with sand as part of the construction of a new rampart. This **third rampart** seems to have been also identified to the N of Building A (see below) in Area B and in Area P on the S side of the site. In Area B inside this sand rampart a two-story mudbrick bastion (Building A) was built inside the town's mudbrick wall at the end of the MB I (IIA) in the third phase of the fortifications, but its main phase of use is assigned to the first half of MB II (IIB) (M. Dothan 1993a:18). While Building A is thought to have been originally two stories high, it was only preserved to a height of 3 m, and though its E end has not been excavated, its original dimensions are estimated to have been 15 x 15 m (Raban 1991:21). Remains of a sand rampart on the S side of the site probably correspond to the third rampart identified in Area B and Area F and assigned to the end of the MB I (IIA) (Raban 1991:29*). In Area B this rampart appears to have been faced with black mudbricks (M. Dothan 1976:see section, fig. 5), which should probably be identified as a separate **glacis**. Dothan has suggested that the site's proximity to swamps and the Na'aman River may have obviated a rampart on the S prior to the building of the third rampart. Evidence from Area P indicates that this area was enclosed through at least the final phase of the MB. Here a stone-built corbel-vaulted **postern gate** with stone slab floor was dated to the late MB II (IIC) by sherds collected from its floor. Dothan has identified this structure as being "apparently used for drainage" which was probably suggested by its interior dimensions (1.6 m high and 0.6 m wide) (M. Dothan 1993a:19f.), although these dimensions are sufficient for passage by people (cp. LB postern gate found at Ugarit).

Despite Akko's impressive MB defenses the last rampart and wall seem to have fallen into disrepair during the LB I when they were leveled for residential construction (Raban 1991:29*–31*). During the LB II another sand rampart without a wall was purportedly built (M. Dothan 1993a:21).

AMMAN (ANC. RABBATH-AMMON)**MR 237.151****References:** (Dornemann 1983; Zayadine, et al. 1989).**Plans:** Site (Dornemann 1983:fig. 4); Area III (fig. 5); Area A (Zayadine, et al. 1989:fig. 3).**Sections:** (Zayadine, et al. 1989:fig. 4).**Photos:** Area III (Dornemann 1983:figs. 8:1–4, 9:1f.).

The MB ramparts of Amman were discovered below the Roman wall in Area A in 1968 by the Department of Antiquities. R. Dornemann also made soundings of the **rampart** in Area III in 1969 (Dornemann 1983:19). Dornemann has suggested that the structure was a fort comparing it with Ta'anach, however, verification of such observations awaits final publication of these excavations.

Further exploration of the rampart in 1988 by Zayadine, Humbert and Najjar identified the rampart in Area A of the Lower Terrace to the E of the Hercules Temple (Zayadine, et al. 1989:359). The rampart here consisted of an earthen fill about 1.5 m thick covered with a 0.3 m thick layer of chipped flint. This fill contained sherds of Chalcolithic and EB II–III dates, indicating that the structure must be of EB III or later date. The rampart is retained by a **revetment wall** (2015) at its foot, 1.6 m wide with a preserved height of 1.4 m. The rampart appears to have been topped by a stone **wall** (2005) averaging 2 m in thickness and preserved to a height of 1.85 m that probably served as the foundation of the fortification wall. Between these walls and covering the rampart's surface a cobble (*huwwar*) **glacis** was added which contributed to its 40° slope. Ceramics taken from both walls date to the MB II (IIB–C). The full height or width of the rampart cannot be established.

No evidence has been provided which might indicate the presence of LB fortifications at Amman.

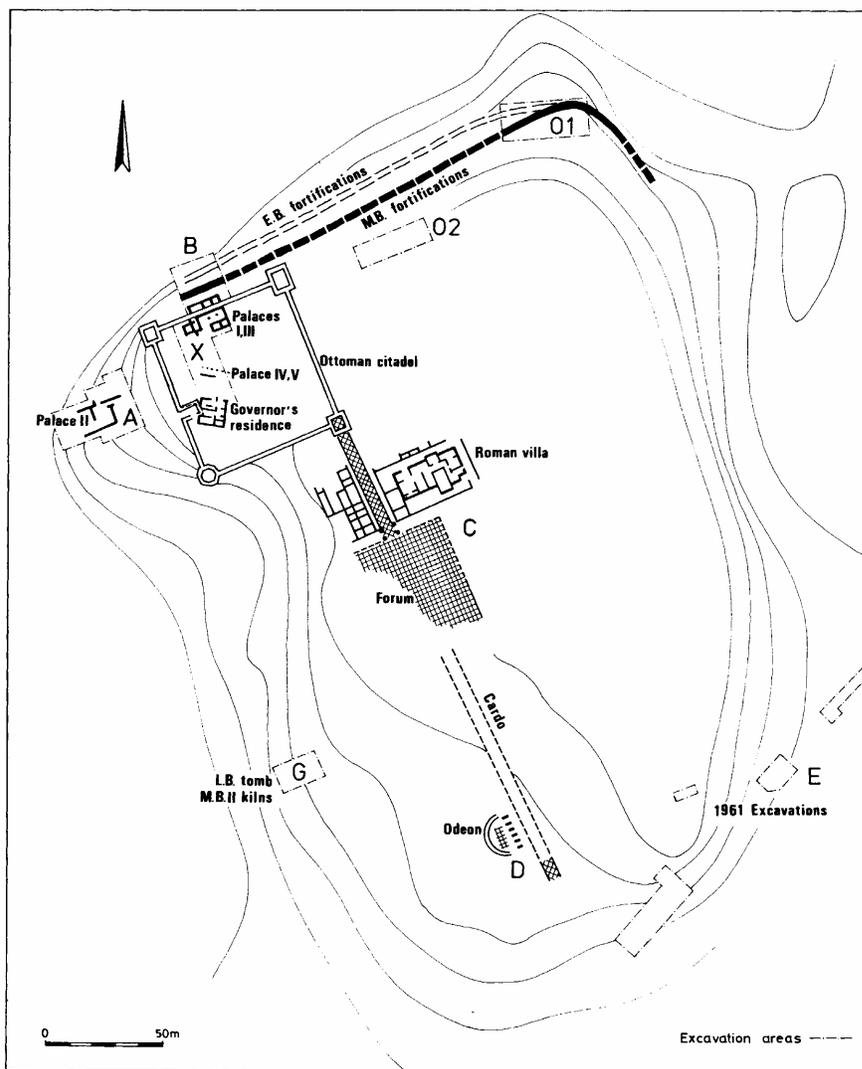
APHEK, TEL (TELL RAS EL-‘AIN)**MR** 1435.1678**References:** (Kochavi, et al. 2000; Gal and Kochavi 2000).**Plans:** Site (Kochavi, et al. 2000:fig. 1.5); Area B (Gal and Kochavi 2000:figs. 7.15, 7.26, 7.30, 7.39, 7.47).**Sections:** Area B (Gal and Kochavi 2000:fig. 7.47:1–3).**Photos:** Area B (Gal and Kochavi 2000:fig. 7.2, 16–18, 21).

Tel Aphek is situated in the Plain of Sharon w of the hill country on the N bank of the Yarkon River about 15 km E of Tel Gerisa (Figure 55 below). After an initial phase of unfortified occupation Aphek was fortified with a town wall. No other defensive features have been identified at the site. The final publication of the main excavations of Aphek from 1972 to 1976 facilitate an analysis of the MB I (IIA) fortification wall excavated in Area B at the w end of the N slope of the tell (Gal and Kochavi 2000). The use of this wall, found in Stratum B V, was limited to the MB I (IIA) period and it fell out of use in MB II (IIB–C).

In the first stage of fortification (Area B Stratum Vd) a town **fortification wall** (C250) 2.25 to 2.5 m wide was constructed with buttresses (346 and 381) located 15 m apart along its exterior face (Gal and Kochavi 2000:71ff.). A stone foundation of varying height laid in a trench was necessary to provide a level surface for the building of this wall. The wall was also supported on its exterior elevation by a small **earthen rampart** (see Figure 56 below), a part of which was exposed around the w buttress, with layers divided by thin plaster surfaces (ibid., 71f.). A drain (L1405) was put through the wall “no later than Phase Vb” (ibid., 73). The erosion of wall C250 led to the deposition of mudbrick detritus (L372) down the slope. According to Gal and Kochavi “the wall suffered repeatedly from landslides and other erosive factors and was regularly repaired” (ibid., 85). “Localized repair or rebuilding of the city wall” constitute a later phase of the

wall (C261), though its construction was identical to the original wall (Gal and Kochavi 2000:85).⁵

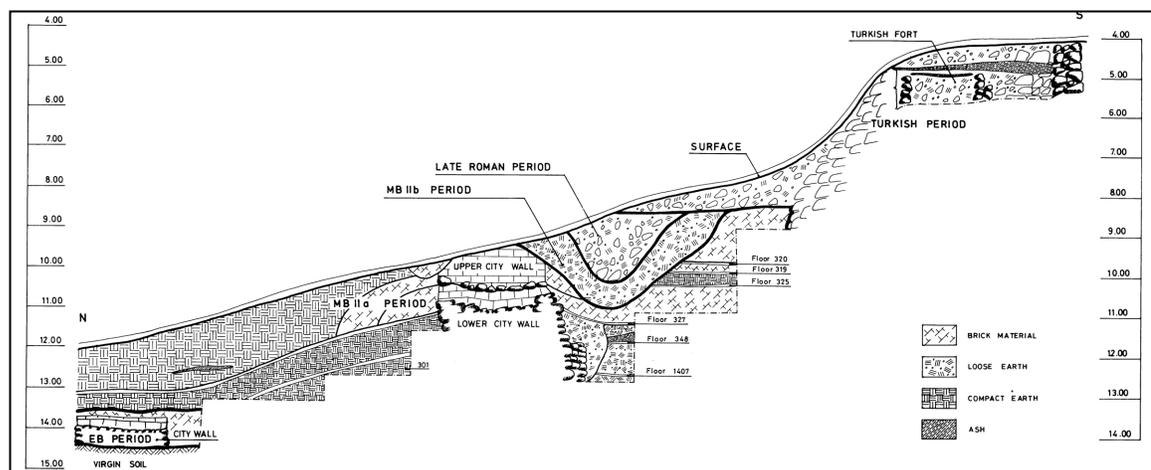
Figure 55. Plan of Aphek. Reprinted, by permission, from M. Kochavi et al. (2000:fig. 1.5).



⁵Yadin (1978) had argued against Kochavi's assessment that the wall remains found in Area B should be identified as the MB I (IIA) city wall. He noted that because no remains of any of the walls whether EB or MB had been found in Area A this threw doubt on the identification of a wall of such date in Area B. His argument relied heavily upon the understanding that MB fortified sites were nearly entirely limited to the MB II (IIB-C) when such structures were known to be common (see chapter one, section D.7). The only evident modification of Kochavi's conclusions based on Yadin's criticisms was the elimination of the projection of the defensive wall around MB I Aphek's palace in Area A (see fig. 1.5, Kochavi, et al. 2000).

The absence of the town wall in Area A makes it difficult to directly link the MB I (IIA) palace phases with the wall remains, but it seems that the earliest wall (C250) was built in the second phase of MB I (IIA) occupation when the palace was built in Area A. The later rebuilding of the wall (C261) was, therefore, built in the third phase or Area A's post-palace phase. The circumference of Aphek's MB I (IIA) fortifications was approximately 1,330 m enclosing a site of about 10 ha (Broshi and Gophna 1986).

Figure 56. East Section of MB I Fortifications at Aphek. Reprinted, by permission, from M. Kochavi et al. (2000:fig. 7.47:1).



ASHDOD, TEL

MR 1178.1295

References: (M. Dothan 1993b).

Plans: Site (M. Dothan 1982:plan 1); Area G (M. Dothan 1993b:plan 1), Schematic of Gate (plan 2).

Sections: Area G (M. Dothan 1993b:plan 1).

Photos: Area G (M. Dothan 1993b:pl. 1:1).

Ashdod is located just inland from the Mediterranean Sea about 15 km NNE from Ashkelon. M. Dothan has noted that MB fortifications of Ashdod are significant because they provide an example of a late foundation of a fortified MB town, namely at the end of the MB II (IIC) (M. Dothan 1973). The foundation of Ashdod, Stratum XXIII, represents

the earliest architecture and the first fortified settlement of the site. Two successive phases of MB occupation have also been identified, Strata XXII and XXI, but neither features any evidence of fortifications (M. Dothan 1993b). Since the gate (see below) remains the only part of the late MB II (IIC) fortifications thus far identified it is difficult to extrapolate either the course of its defenses or the size of the settlement in this period, but it is possible that the site only encompassed the W of the two hills which comprise the site of Ashdod today (see plan 1 in M. Dothan 1982). Based upon this suggestion and the fact that the fortifications are situated along the 45 m contour line, I suggest that the site was only around 5.3 ha or roughly no more than 230 m square, which can be compared to Broshi and Gophna's estimate of 8 ha (1986).

The fortifications of Ashdod consist of evidence of a gate on its northern side in Area G and the very limited remains of a rampart associated with this gate. The **gate** revealed in Area G was constructed during Phase B of Stratum XXIII on the N side of the site and can be identified with the four-pier type (M. Dothan 1993b:19). The structure, which measures 6.5 m along its passage and 8.2 m wide, was aligned to the NW. Within the gate the width of the chambers across the passageway measured 4.7 m, although between the piers the passage was only 2.9 m wide. The four piers were on average 1.65 m wide (along the passage). The gate and its piers were constructed directly on bedrock with mudbricks measuring 50 x 30 x 20 cm. The 80 cm projection of a mudbrick wall from the E tower of the gate (W4322) may be identified as the means by which the wall along the rampart was anchored to the gate. If this was the case, then the town **fortification wall** was over 2 m thick. During Stratum XXIIB the gate may have fallen into disrepair and then have been restored, as Dothan suggested (*ibid.*), but at most the evidence seems to indicate that the floor level simply rose with architectural changes to the gate.

Associated with the gate were the badly eroded and robbed-out remains of an **earthen rampart**. This rampart (Loci 4385, 4405, and 4414) was composed of soil and like the gate was built directly on bedrock. Because of the rampart's condition it is impossible to determine the slope of the rampart's surface, its full height, or its width. Its preserved height was only 0.4 to 0.9 m.

It is thought that the LB gates (Strata XIX to XIV) on the N side of the site were completely eroded and, therefore, nothing remains of these gates in this area (M. Dothan 1993b:9).

ASHKELON

MR 107.119

References: (Stager 1991a:esp. p. 30; Wolff 1991:507; 1993:106; Schloen 1997:221; Voss 2002).

Plans: Phase 14 (Voss 2002:fig. 1); Phase 13C (fig. 2); Phase 13B–A (fig. 3); Phase 12 (fig. 4); Phase 11 (fig. 5).

Sections: NA.

Photos: Site aerial (Stager 1991a:5; 1993:104); MB gate (Schloen 1997:fig. 1); Rampart (Stager 1991a:2).

The site of Ashkelon is located on the Mediterranean Sea 16 km N of Gaza.⁶ The site today consists of a N mound referred to as the 'North Tell,' the site's 1,900 m long semi-circular ramparts, and a mound almost centered within these ramparts, referred to as the 'South Tell' (Figure 57 below). Although the earliest occupation of the settlement during the third millennium remains uncertain, unequivocal evidence has been revealed for its occupation and its fortifications during the first half of the second millennium.

⁶I would like to thank Lawrence Stager for allowing me to use the records of the Leon Levy Expedition to Ashkelon for this catalogue entry.

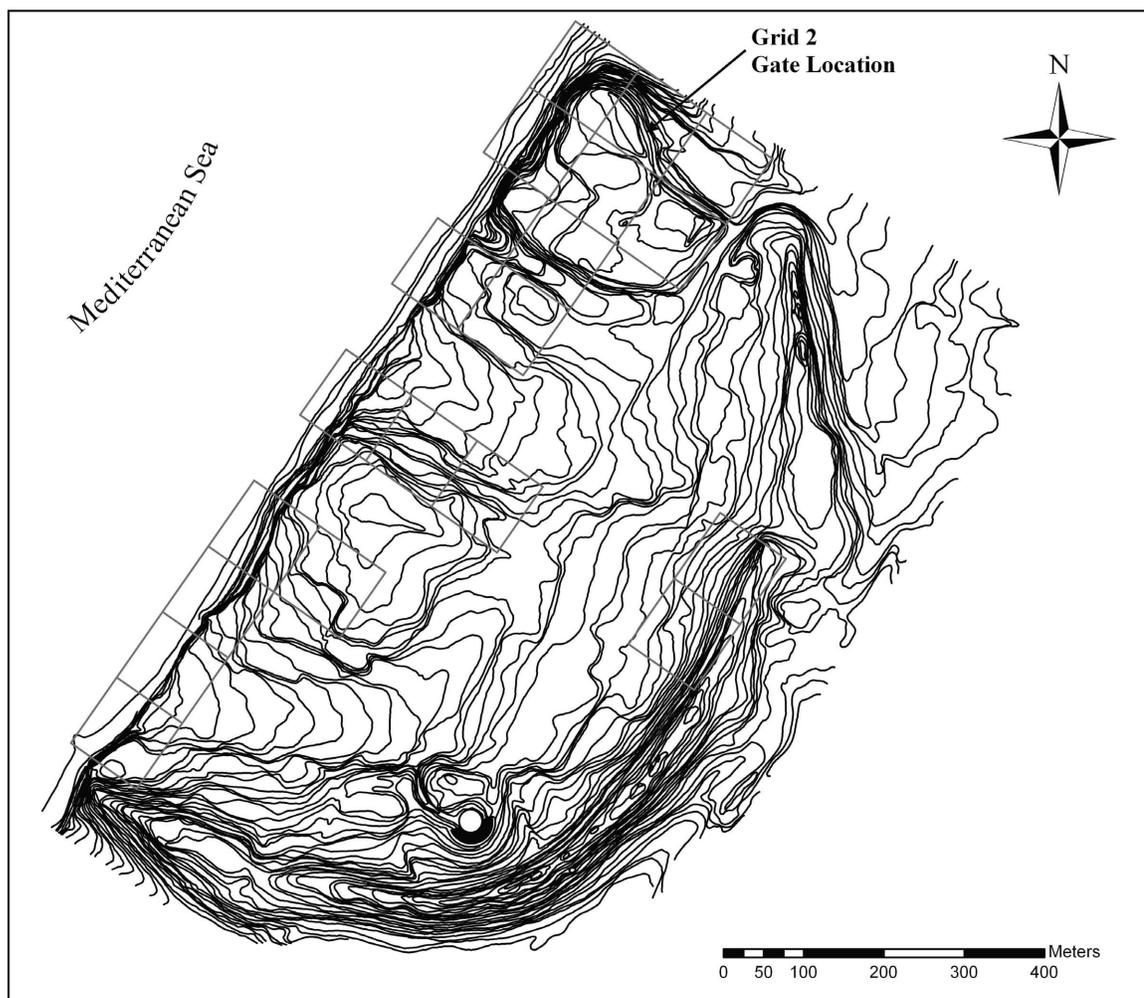
Table 25. Comparison of phases of the MB IIA and MB IIB periods in Egypt, Canaan, and Crete. Courtesy of Lawrence Stager, May 2004 (cp. fig. 22, Stager 2002).

	Year	Dynasty	Dab'a Avaris	Ashkelon Grid 2	Aphek	Crete
MB IIB	1650	↑ XV		10		
	1675		E	11		
	1700		F	Foot Gate		MM IIA
	1725				Ph. 4	
	1750	XIII	G	12 Gate 3		
MB IIA	1775		G4	13 Gate 2	Ph. 3	MM IIB
	1800			Egyptian Sealings		
	1825		H	14 Gate 1		
	1850			↓	Ph. 2	
	1875	XII		?		MM IIA
	1900				Ph. 1	
	1925					MM IB

The bulk of the evidence of Ashkelon's MB fortifications (Periods XXIV–XX) has come from extensive excavation in Grid 2 on the NE side of the 'North Tell' about 100 m SE from the shore. There the sequence of fortifications continuing through the Fatimid period have been extensively explored. Between 1990 and 1998 a series of MB ramparts, their glacis (Glacis #1 to #4), and related phases of the gate were exposed in this area. Trenches focused upon the gate, a section through part of the rampart to the N of the gate, and examination of the fosse outside the rampart. The various phases of the gate, rampart, and fosse have been attributed to Phases 14 through 10 in Grid 2 (see Table 25), which represent continuous MB occupation of this area from MB I (IIA) through the late

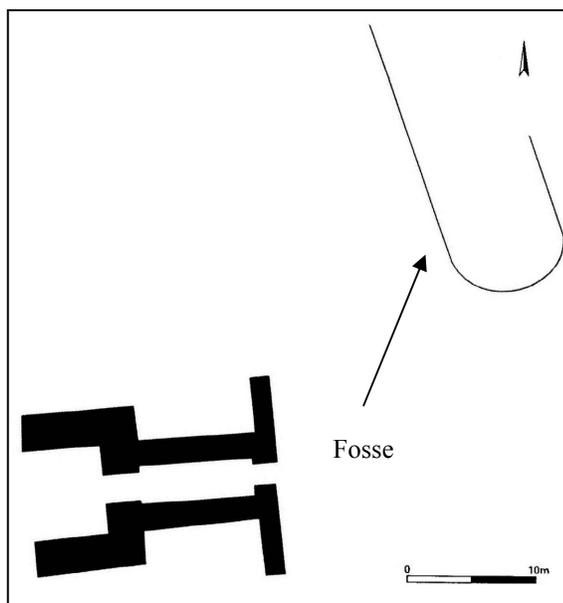
MB II (IIC). Excavation in Grid 2 of the MB fortifications consisted of squares covering an area of more than 2,500 m², which was bounded by the SW corner of square 84, the NW corner of square 46, the NE corner of square 50, and the SE corner of square 88.⁷ Fortunately, as a result of meticulous excavation of this area the development of the rampart and its accompanying gate can be reconstructed in considerable detail.

Figure 57. Plan of Tel Ashkelon. Courtesy of the Leon Levy Expedition.



⁷ Although my descriptions of the fortifications follow a true north orientation, directions provided by R. Voss (2002) refer to north in relation to the Ashkelon grid system which is rotated 35° clockwise off of true north.

Figure 58. Phase 14 fortifications at Ashkelon (after Voss 2002:fig. 1).



Period XXIV (early MB I/IIA), Phase 14 (Figure 58 above)

Phase 14 (late Dyn. XII) represents the earliest known phase of Ashkelon's fortifications (Voss 2002:379ff.). Although our picture of these fortifications is incomplete and we are uncertain of when this gate was actually constructed (owing to a desire to preserve the superstructure of the gate of phase 13C), it is still possible to remark upon three aspects of the fortifications of this period: the fosse (referred to as the "moat"), the rampart, and the gate. A **fosse** and a ramp across the fosse were excavated outside the gate in square 56 of grid 2. The fosse (F21), of which only 13 m of its entire 70 m length were excavated, was cut into the *kurkar* bedrock as a specific modification of a 20 m wide artificial gap that had been cut into the *kurkar* ridge which parallels the coast. The fosse drains towards the NW, towards the sea, and appears to have been about 5.5 m deep and may have been almost 9 m wide. The fosse terminates in a rounded end to the N of the approach road, formed by a ramp of residual bedrock which was aligned with the gate, thus forming a direct axis approach. There is no evidence of any drainage under this ramp and the continuation of fosse to the S of the approach ramp was not discovered,

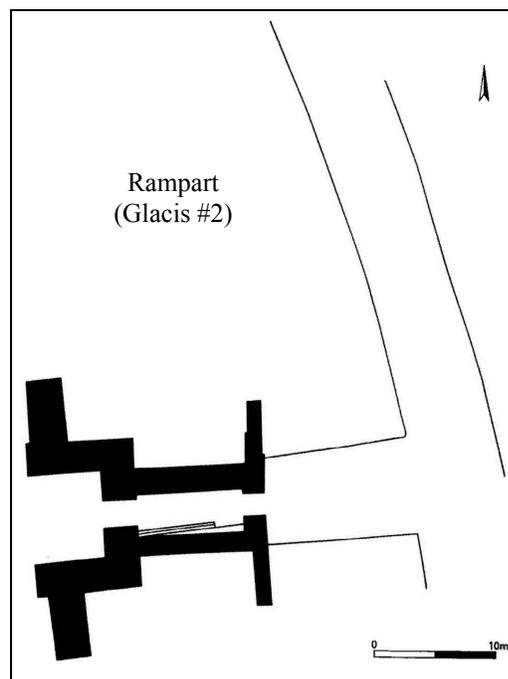
though it is thought to have continued in this direction, thus making the ramp's construction symmetrical. As at many other sites, the fosse is presumed to have been the source of much of the *kurkar* used in the construction of the “terraces, banked fills and glacis capping of the rampart” (Voss 2002:379).

The **gate** (Voss 2002:380f.), which was aligned to the E (a heading of approximately 81°) throughout its many phases, was 20 m long and 12 m wide in Phase 14. In its original state it featured a total of four mudbrick piers with stone foundations located at both ends; the exterior (E) piers (F187 and F186), of which only the lowest stone course was preserved, were approximately 1.82 m wide protruding 0.65 m, while the interior (W) piers (F113 and F124) were slightly wider, 2.8 m, but protruded less than 0.5 m. The narrowest point, between the E piers, was 2.3 m wide (ibid., 381), while the space between the W piers was about 2.5 m (ibid., 380).⁸ The gate's interior entrance opened onto a square space (7.1 x 7.1 m) with a beaten earth surface (F/L59) before leading into the town. This space was flanked by large mudbrick walls F71 on the N and F70 on the S, both of which were of comparable width to the W piers. Wall F198 and Wall F195 on the N and S sides, respectively, formed the walls of the gate's passage. Although the passage's ceiling was not preserved, it was presumably closed with a barrel vault of *kurkar* cobbles which began with a spring in their lowest courses (ibid., 381). The *kurkar* cobbles were coated with mud. The passage measured 3.6 m wide by 9 m long. Its floor (F/L192) and the gate's foundation walls were built upon a fill of ash and silt (L197, L196, and L193). Mudbricks used in this phase of the structure were consistent in size and measured 40 x 35 x 10 cm (Voss 2002:380).

⁸This passage width would seem to suggest that the gate could not have accommodated chariot traffic in this period (see chapter three, section A.6.e).

The **rampart** associated with the Phase 14 gate is referred to as Glacis #1 (Voss 2002:380). It was composed of sloped layers of *kurkar* rubble and sand. It may have covered the vaulted passageway of the gate E of the mudbrick gateway. The **glacis** that sealed the rampart was composed of mudbricks. If the rampart's center was aligned with the center of the gate's passage and its foot rested at the edge of the fosse then it was approximately 40 m wide.

Figure 59. Phase 13C fortifications of Ashkelon (after Voss 2002:fig. 2).



Period XXIII, Phase 13 (MB I/IIA)

The fortifications of Phase 13 (early Dyn. XIII) have been divided into three sub-phases (C–A) each of which is primarily distinguished by the construction of a new rampart (Glacis #2 to #4) and by minor alterations to the gate itself (Voss 2002:381ff.). The fosse of Phase 14 fell out of use when it was filled for the enlargement of the **rampart** (Glacis #2) by as much as 15 m out from the foot of the original glacis. It appears to have been intentionally filled with sand and debris at the start of Phase 13 (*ibid.*, 380). This “moat deposit” featured a number of items including Egyptian seals that

enable precise phasing of the fortifications associated with phases 14 and 13C (Stager 2002). No evidence of a new fosse associated with phase 13 or the following phases has come to light.

Phase 13C (Figure 59 above)

During Phase 13C the **gate** appears to have undergone renovation, though this did not drastically affect the overall layout of the gate or its dimensions. The most evident alteration was the use of ashlar masonry in the gate's construction for the bay walls (Voss 2002:381). Another alteration from the previous phase was the addition of two walls (F42 and F85) which ran parallel to the rampart and abutted the interior projecting walls. These mudbrick walls were approximately 3.1 m wide and were constructed on worked stone foundations abutting the interior wings of the gate (F41, F40), which were built atop the wings of the previous phase (F71, F70). Walls F42 and F85 projected about 5.3 m to the N and the S of the gate.

The façade of the gate was composed of N and S piers (F119 and F120). These piers, which were 1.86 m wide, were built of mudbricks (54 x 31 x 19 cm) on ashlar foundations and they projected about 65 cm from the sides of the gate to form a 2.3 m wide entrance to the passage. Gypsum plaster was found adhering to the surface of the ashlar along the edges of the piers, which were built of stone so as to endure wear and tear. The bay walls (F112 and F154) constructed of stone were also well preserved above the Phase 14 gate. In their complete state they formed a barrel vault over the passage (ibid., 381). Gypsum plaster was also used on the ashlar of the bay walls to protect the mud mortar between the stones from insect infestation. Stepped mudbrick buttresses reinforced the N and S bay walls of the Phase 14 gate, which served as the foundation and lowest courses for the Phase 13 gate. In addition to supporting the Phase 14 walls these buttresses also provided a curb to prevent damage to this part of the gate. But in doing so they restricted the effective width of the passage from 2.7 m to 2.1 m (ibid., 382).

The street surface (LF 127) associated with this gate runs contiguously from inside the rampart, through the passage, to the exterior of the gate at a slope of about 14°. It consisted in most places of beaten earth surfaces (L64 and L156), but within the gate's passage itself the street was lined with mudbricks, many of which were damaged in the center of the passage by the addition of a massive drain during Phase 12. That this floor remained in use throughout Phase 13 is illustrated by the mudbrick built drain of Phase 12 (F48) that was constructed almost directly on top of this floor, cutting through some of it and the occupational debris that had accumulated on the floor. This observation supports the fact that, despite the identification of three sub-phases of the Phase 13 gate, the Phase 13 gate was probably rather short lived. This is further corroborated by the fact that this mudbrick floor was as well preserved as it was, since extensive usage of the gate of this phase would probably have caused greater wear upon this floor.

Just inside the E piers small niches were cut into both bay walls. These are thought to have been used to brace the gate's doors with a crossbar when they needed to be secured. Evidence of the crossbar consisted of "charred wood" found in these carved niches. To facilitate the opening of the doors the vault's underside was set back about 1.4 m from the inner face of the piers.

Atop the W piers of the Phase 14 gate new piers were added during Phase 13C (F108 and F109). These walls were preserved up to 40 courses in places and were built with mudbricks measuring 45 x 33 x 12 cm (Voss 2002:382). It was against these piers that new walls (F42 and F85), mentioned above, were added.

This phase also featured the earliest evidence of a mudbrick **casemate wall** that ran along the top of the rampart. The segment that is preserved (F185) was only exposed on the N side of the gate and unfortunately it was not possible to obtain a broad exposure of this structure due to the fact that it remains buried below later ramparts.

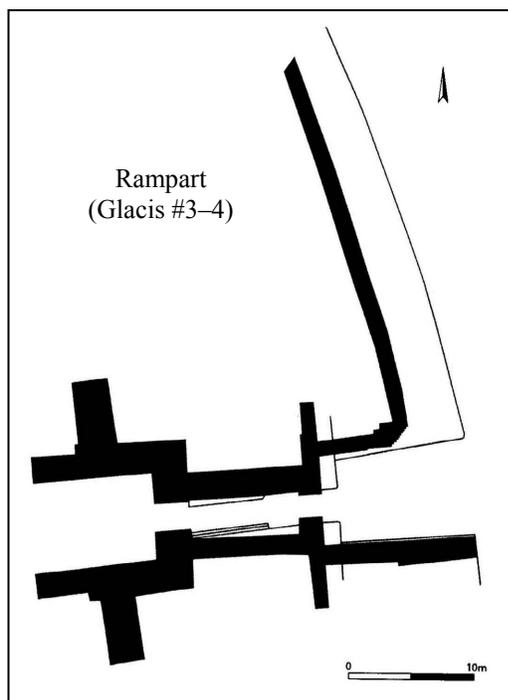
The construction of the Phase 13C rampart led to the Phase 14 fosse falling out of use (Voss 2002:380). The new **rampart** was composed of ash, earth, and crushed *kurkar* and provided the basic core of the rampart throughout Phase 13. The **glacis** of Phase 13C was identified to the N of the gate in square 63 (02.101.F142=02.63.F11). It was composed of *kurkar* cobbles that were sealed with a 5 cm thick layer of clay. A plastered drain made of cobbles (02.63.F12=02.101.F68) was also identified running along the surface of the glacis. This feature indicates that care was taken to guarantee that water draining along the face of the glacis did not undermine the rampart's construction. The revetted, outer face of this glacis to the N of the gate was detected in square 76 (F164). Here the revetment turned to the SW and formed the N corridor wall leading into the gate. The stone revetment wall of Phase 13C (F164) was only preserved one row wide and two courses high. A corresponding corridor wall on the S side of the outer area (F160) was also built upon the same beaten earth surface (LF156), which led into the gate in this phase and continued to function in phases B and A. In Phase 13B both of these stone revetment walls were replaced with mudbrick walls.

Phase 13B–A (Figure 60 below)

Phase 13B–A constituted drastic changes to the **gate** which had almost entirely collapsed. The reasons for this collapse are not known. The collapsed portions included the stone barrel vault, the W mudbrick arch, and the E stone arch (Voss 2002:382f.). Although the W mudbrick arch was rebuilt, the barrel vault was not. Instead the stones of the Phase 13C vault were used to reinforce the Phase 13C mudbrick buttresses. On the N side the buttress (F128) was constructed of mudbrick and mud mortar and preserved 13 courses high. On the S side of the passage a similar mudbrick buttress was added (F146). Neither of these buttresses ran the entire length of the passage. The stone buttresses were raised to the level of the spring line of the former arch, while the stone bay walls of the former gate were replaced with thinner mudbrick walls. The front arch, which was

previously constructed of ashlar, was replaced by a mudbrick arch built on the surviving stone voussoirs of the Phase 13C gate. It is believed that the gate featured a flat ceiling that spanned the width of the gate from the stone ledge on the S bay wall to the N wall.

Figure 60. Phase 13B–A fortifications of Ashkelon (after Voss 2002:fig. 3).



Outside the gate along the N side of the corridor approach a mudbrick **revetment wall** (F157), preserved eighteen courses high and three rows wide, abutted the N end of the gate's N pier (F119). Its E end featured a "rabbeted" corner where the wall turned N into a mudbrick **revetment wall** (F9) that ran along the base of the glacis. The bricks of this revetment wall measured 51 x 34 x 13 cm and the wall was preserved up to nine courses high and more than 1.3 m wide. The revetment and circumference wall continued in use through Phase 12 (MB II/IIB). A similar revetment wall was probably built on the S side of the gate's corridor, but appears to have been replaced by a **revetment wall** of slightly different construction (F115). This new revetment was built against the gate's S pier (F120) and was preserved up to twenty-seven courses high! Its mudbricks measured

48 x 33 x 12 cm (Voss 2002:383). These revetment walls were probably intended to hold back the newest expansion of the **rampart** (Glacis #3).

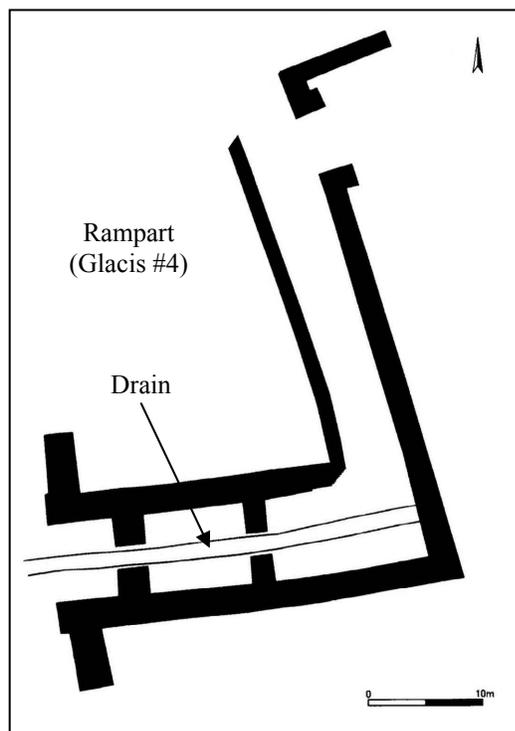
Following the addition of these revetment walls sloping mudbrick buttresses were also added to the exterior façade of the gate on both sides of the entryway (F151 and F152). These structures were built eighteen to nineteen courses high of mudbricks of comparable size (50 x 33 x 11 cm) as the N mudbrick revetment wall (F157) with which they were contemporary. But the fact that buttresses F151 and F152 were built against the gate and against the new revetment walls (F114 and F157) to their S and N, respectively, and were not built into them suggests that these buttresses must have been constructed after the addition of the revetment walls on both sides of the outer corridor, perhaps when structural weaknesses had been identified.

Inside the rampart to the W of the gate **revetment walls** were also built to retain the expanding rampart. Extending from the N pier (F42), which was built in Phase 13C, a mudbrick wall (F46) was built with bricks measuring 32 x 32 x 11 cm projecting W about 5 m. A similar wall (F75) projected about 5 m from the S pier (F70). These revetment walls would have served like those outside the gate (F157, F115) to hold back the additional layers of the rampart on its interior slope.

Following extensive additions and renovations in Phase 13B it appears that little was done to alter the overall plan of the gate during Phase 13A. But as in the previous phase the addition of a new **glacis** and **rampart** was roughly contemporary, if not responsible, for a set of modifications to the gate at that time. Glacis #4 associated with this phase (F4) grew to the point of extending beyond the revetment wall (F9) which had been built at the outside foot of the glacis of the previous phase. The new glacis and rampart (Glacis #4), as in earlier periods, were again constructed of a single course of *kurkar* cobbles laid above an earthen fill. Though the lower portion of this glacis was covered by the extension of structures outside the rampart in the following phases, the

rampart and glacis nevertheless continued in use from Phase 13A through Phase 11 at the end of the MB.

Figure 61. Phase 12 fortifications of Ashkelon (after Voss 2002:fig. 4).



Period XXII, Phase 12 (MB I-II/IIA-B) (Figure 61 above)

The fortifications of Phase 12 (late Dyn. XIII) represent the first significant departure from the original plan of the gate which had been established in the early part of the second millennium. The nature of the renovations suggests that the Phase 13A gate was, in my opinion, intentionally destroyed probably because the aged superstructure had weakened. The process of designing the new **gate** for Phase 12 was clearly well planned and intended to make the gate significantly larger (Voss 2002:383). Only the bay walls of the Phase 13A gate served as the foundation for the walls of the new gate. The remainder of the gate was buried except for some revetment walls. The new gate was completely built of mudbricks averaging 50 x 36 x 10 cm in size (ibid., 384).

The first step in these renovations involved the laying of a corbelled, mudbrick-built drain (F48) which stood six courses high, along the sloping floor of the gate's passageway of Phase 13A from inside the settlement to roughly to the line of the base of the rampart of the previous phase outside the gate (see Figure 61). It was about 34 m long and the average bricks used in its construction appear to have been about 47–48 x 33–34 x 10–13 cm in size. Following the laying of the drain more than 2 m of crushed sandstone fill (L6, L7, L8, L149, and L150) was added over the drain and over the floor of the Phase 13A gate in order to raise the foundation level to the tops of the preserved walls of the previous gate (*ibid.*, 383). Once this was complete the new walls of the gate were laid on both sides of the passageway. On the N side of the passageway a wall (F41) was laid over the exterior revetment wall (F157), N bay wall (F112), and the N wing wall (F41) of the previous phase; similarly on the S side of the passageway a mudbrick wall (F40) was laid over the exterior revetment wall (F115), S bay wall (F154), and the S wing wall (F40). The corridor walls were more than 29 m long on both sides of the gate. The new passageway, which appears to have been about 6.5 to 7 m wide, was much wider than the original. No evidence was found of any piers associated with this gate that would have constricted this gate, but it is possible that the later pedestrian gate of Phase 11 destroyed the remains of these piers when it was constructed. Furthermore, no evidence was revealed of any arches or roof associated with this gate.

While the new gate featured considerable modifications to the plan of the previous gate, some features were rebuilt along the lines of the earlier plan. **Revetment walls** inside the gate such as those on the interior end of the gate (e.g., F71), which ran parallel to the rampart from the exterior faces of the gate's corridor walls, were rebuilt along the lines of the earlier walls (F42 and F168). The **revetment wall** on the N side of the gate's exterior corridor with the rabbeted corner (F157) also remained in use during

this phase, although the corresponding revetment wall on the S side of the corridor was built over by the E extension the gate's S corridor wall (F40).

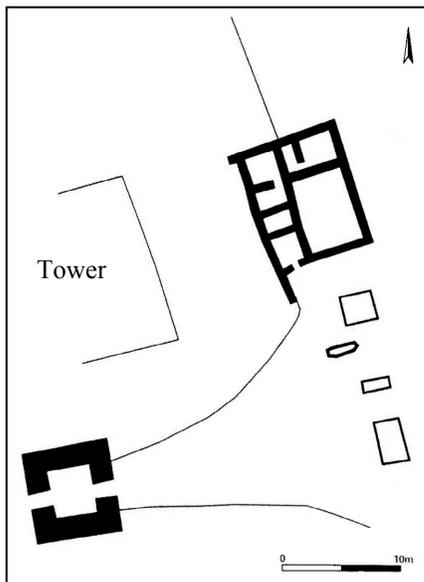
The gate's plan during Phase 12 was also modified, apparently in order to further restrict the approach to the gate. The direct axis approach of Phase 13 was adapted to include a 90° turn to the N upon leaving the gate which then ran for approximately 30 m and was flanked by walls on both sides (F9 and F97). Another 90° turn to the NE was necessary before exiting the site through a lower gate. This approach as at some other sites would have made it difficult for right-handed attackers trying to enter the town to use their shields. The lower gate featured only an opening in the outer wall of the corridor. The Phase 12 gate was contemporaneous with the rampart and glacis of the previous phase (Glacis #4). No remains of the wall associated with the fortifications in this period have been identified.

Period XXI, Phase 11 (MB II/IIB) (Figure 62 below)

The Phase 11 gate (early Dynasty XV) comprised the most radical modification of the gate's plan in the MB. In essence the gate appears to have experienced a functional shift from one of the settlement's major gateways to what has been termed a pedestrian gate, suggesting that the gate would not have been accessible to wheeled vehicles (Voss 2002:384). This change must have been preceded by a massive filling project requiring several meters of fill material in order to bury the Phase 12 gate before the building of the Phase 11 gate. The new **four-pier (pedestrian) gate** was built along the same axis as the Phase 12 gate, but the structure now only featured a 1.5 m wide passage, large enough only for individuals to use. The gate structure was almost perfectly square measuring about 7.3 m on a side with walls averaging 1.8 m thick, built of bricks on a stone foundation. Bricks used in its construction measure 35 to 40 cm square and average about 10 cm thick (cp. 50 x 36 x 10 cm, Voss 2002:384). The floor (02.85.LF103) of the gate consisted of laid mudbricks as well as beaten earth.

The approach to the gate functioned like a funnel leading into the gate. It was formed by cutting away parts of the earlier gate and the surface associated with it. A street made of ash (LF90 and LF117) was laid atop the former approach ramp. The revetment walls to the N and S (F30, F97) of the gate were built of small fieldstones.

Figure 62. Phase 11 fortifications of Ashkelon (after Voss 2002:fig. 5).



It appears that the rampart of the last part of Phase 13 (Glacis #4) continued in use through this phase. During this phase a **tower** (F31) was also added to the fortifications atop the rampart. Its base was roughly 14 m long by 8 m wide. The tower continued in use through Phases 10 and 9.

The best known structure discovered in association with the fortifications of this phase was the so-called calf shrine found outside the rampart to the left of the gate's approach. The building, which was built with its rear wall against the mudbrick wall at the base of the rampart (F9), consisted of a modest plan. In one of the rooms of this structure a ceramic shrine accompanied by a small silver calf was discovered.

Period XX, Grid 2 Phases 10–9 (late MB II/IIC)

During Phases 10 and 9 (late Dynasty XV) a final **rampart** was constructed. This rampart buried the Phase 11 gate and the calf sanctuary outside the gate (Voss 2002:384). The fortifications of Phase 10, which are not well preserved, represent the final phase of the MB fortifications in Grid 2. The **tower** which had been built in Phase 11 continued in use during this phase. It was supplemented by a **mudbrick wall** (F46) about 3.3 m wide that was exposed to its S above the remains of the Phase 11 gate. About 12.3 m of this wall was excavated.

‘AVDON

MR 1655.2725

References: (Prausnitz 1973; 1975).

Plans: NA.

Sections: NA.

Photos: NA.

Little can be said concerning the site of ‘Avdon, which is about 5.7 km E of Achzib. It was identified as a fortified settlement by M. Prausnitz following his 1964 survey and it was never excavated (Prausnitz 1973). This fortified settlement sits on top of a mountain 80 m above the surrounding wadis. Two systems of fortification surrounded the top of the site and its slopes. The fortification systems which included an enclosure **wall**, remains of a **tower**, and a **rampart** (?) were suited to the site’s topography. Though ceramics were collected on the site, none were collected from the tower and the rampart which are identified as MB II (IIB) structures. The area between the walls is 200 m long E-W and 130 m wide N-S, which is about 2.5 ha (ibid., 222). The site’s relationship to Achzib had been compared by Prausnitz with that of Tel Bira, which was an outlying settlement E of the larger settlement of Akko (1975:202).

BEIT MIRSIM, TELL**MR** 141.096**References:** (Albright 1938b; Eitan 1972; Yadin 1973).**Plans:** Site (Albright 1938b:pl. 46), SE (Albright 1938b:pls. 49, 54).**Sections:** SE (Albright 1938b:pl. 53).**Photos:** SE (Albright 1938b:pls. 6–8, 16).

Tell Beit Mirsim is a small site (ca. 3 ha) located about 40 km SE of Ashkelon and about 20 km SW of Hebron in the western foothills of the hill country. Archaeological excavations by William F. Albright first brought to light the remains of Tell Beit Mirsim's fortifications from 1926 to 1934. Due to the fact that this site was one of the first in the southern Levant to be extensively excavated, the data put forward by Albright has been variously interpreted over the years (Yadin 1973; Bienkowski 1989). It is, therefore, certain that even though it is necessary to include Tell Beit Mirsim in any catalogue of Levantine sites, any interpretation of its development must be based upon subsequent refinements in chronology and understanding of the archaeological sequence. Nevertheless, the site offers considerable data concerning its fortification during the MB.

MB I (IIA): Strata G-F (Figure 63 below)

Following its abandonment during the later half of the EB IV the site was resettled around the start of the MB I (IIA, Strata G-F). Albright's original observations regarding these strata included that this phase represented the earliest MB fortifications of the town (1938b:17). His relative phasing of the development of the fortifications was aided by several destruction levels which separated each stratum between H and F. The town **fortification wall** which was between 3.2 and 3.3 m wide was built on the ash remains of Stratum H and was exposed in the SE quarter of the site over a length of 80 m. It is interesting to note that even though the tell itself is oval in plan the wall appears to have been constructed of straight line segments. Buttresses 30 to 50 cm thick were

attributed to Stratum F. Albright identified two **towers** 23 m apart associated with this wall which measured 10 to 10.5 m long by 6 m wide and which probably projected about 1.5 m on both sides of the wall (*ibid.*, 18). If the wall's fieldstone foundation traced roughly the 490 m contour line then it would have been approximately 620 m in length, 13% of which was exposed. Albright also remarked that the masonry of the domestic architecture was basically identical to that used in the fortifications (*ibid.*, 23). No rampart or glacis was found to be in association with the wall in this period. Although according to Albright it was “not possible to reconstruct the **gateway**” on the E side of the site in this period (*ibid.*, 20), Herzog has done so (1986:40, fig. 37).

Figure 63. Tell Beit Mirsim phase F plan with fortifications. Reprinted, by permission, from Z. Herzog (1997a:fig. 4.3).



Eitan (1972) argued that the town wall Albright had identified as that of Stratum G, in fact, belonged to the later part of the MB I (IIA) at Beit Mirsim, namely Stratum F (late MB I (IIA)). Eitan's first reason for this was that walls of the houses of Stratum G did not align with the wall, which would have been necessary had the wall been constructed in the same period (*ibid.*, 19ff.). Furthermore, he underscored the difficulties

Albright admittedly faced in understanding how the town wall was to be placed in Stratum G (*ibid.*, 22). But Yadin's (1973) observations concerning the site seem to have been the final word on Tell Beit Mirsim's stratigraphy. His first observation was that the buildings ascribed to Stratum G featured foundations considerably lower than those of the town wall also ascribed to Stratum G. As Yadin noted, based upon evidence from other sites it was unlikely that buildings so close to the town wall would have been built below the level of the foundations of the town's wall. Second, he also argued that Eitan's argument about the "radial arrangement" of the houses with respect to the wall was correct, though this applied, as Yadin argued, mostly to Strata E and D (MB II (IIB–C)). Lending further strength to Yadin's argument, though not noted by him, was the fact that sherds of Stratum G-F wares were found in the "talus of ash filled earth", which Eitan (1972:21) had argued was an indication of the construction of the wall in Stratum F (instead of G), but which can also be used to argue that the wall was constructed at the start of Stratum E, as Yadin had understood it.

MB II (IIB–C): Strata E-D (Figure 64 and Figure 65 below)

The first **rampart** that was identified at Tell Beit Mirsim belonged to Stratum E (MB II/IIB) and was built against the town wall of Stratum G-F (Albright 1938b:27ff.). This rampart was described as constructed of chipped stone and earth using the sandwich technique and was probably later furnished with a stone **glacis** during Stratum D (*ibid.*, 29f., pl. 16). It is not possible to determine the slope, height, or width of the rampart since its section was not drawn. In addition to these elements a **gate**, which may have continued in use into the LB I, was also identified (*ibid.*, 30f.). But since only one pair of piers was found, the comparison suggested by Albright with gates at Qatna, Shechem, and Far'ah North is probably unwarranted. Still the piers measured 1.5 m long by 1.5 m wide with a space between them of about 3.25 m; the interior of the passage was 6.25 m wide (*ibid.*, 31).

Figure 64. Tell Beit Mirsim phase E plan with fortifications. Reprinted, by permission, from Z. Herzog (1997a:fig. 4.15).

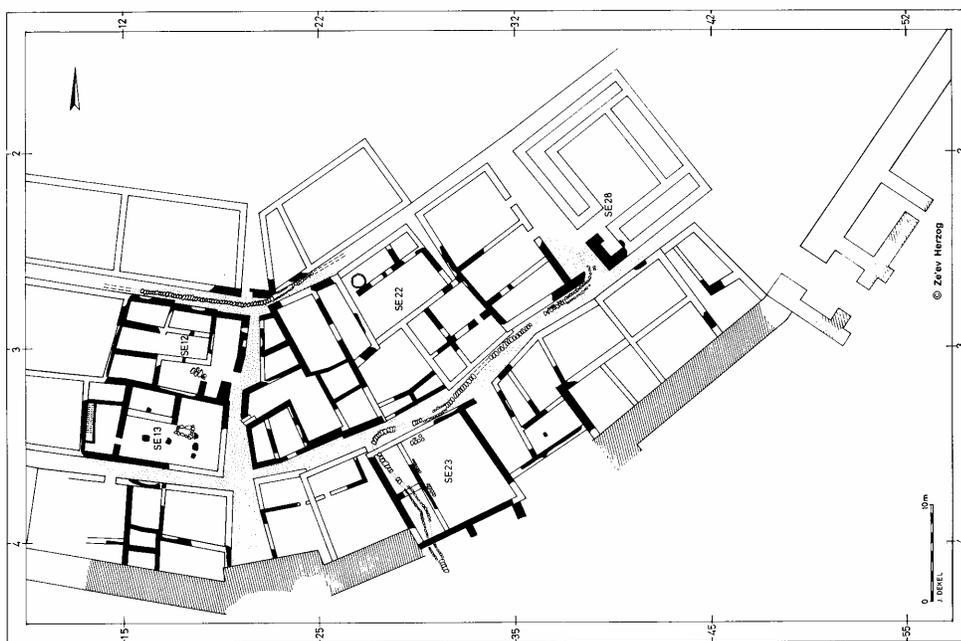


Figure 65. Tell Beit Mirsim phase D plan with fortifications. Reprinted, by permission, from Z. Herzog (1997a:fig. 4.16).



In the final appraisal of Tell Beit Mirsim's fortifications it is only safe to conclude that its earliest MB fortification wall was built during the transition between the MB I (IIA) and MB II (IIB). Only renewed excavation of the settlement and the application of our present understanding of the development of MB ceramics can ultimately resolve the matter.

BETH-EL (ANC. LUZ)

MR 17280.14815

References: (Kelso 1968; 1993:193).

Plans: Site (Kelso 1968:pl. 1); N Wall (pl. 91a); NW Gate (pl. 101); W Wall (pl. 102a); Abu Tabar W Wall (pl. 94a); W wall in "Farmer's house" (pl. 102b); Area III (pl. 11); S. Wall (pl. 103c).

Sections: N Wall (pls. 93a, 93c); Abu Tabar W Wall (pl. 94a); W wall in "Farmer's house" (pl. 102b); Area III (pl. 11); S. Wall (pl. 103c).

Photos: (Kelso 1968:pls. 13, 110, 112a); N Wall (pl. 96a, 97); NW Gate (pls. 104b–106a, 107b–108, 109b); W Wall (pls. 110f.); S Wall (pl. 112); Abu Tabar Wall (pl. 99b); Area III (pl. 13); S Wall (pl. 112).

Beth-El is located in the hill country approximately 17 km N of Jerusalem. The site's only geographic advantage was the abundance of water from local springs (Kelso 1968:10). Although the site of Beth-El was occupied during the MB I (IIA) after it had been abandoned during the end of the third millennium, the only definitive evidence for the site's fortification dates to the start of the MB II (IIB). Broshi and Gophna (1986) estimated the site to have been about 2 ha in size. No improved estimate of the site's size is possible since no published map features the site's contours and because most of the site was occupied by a modern village.

Early MB II (IIB–C)

A 3.5 m wide **wall** was constructed in the early MB II (IIB) (Kelso 1993:193). The wall was identified in soundings on the N, NW, W, and S parts of the site. On the N side of the site a 20.5 m stretch of the foundation of the town wall was built upon bedrock with “semi-dressed stones” and preserved to a height of 2.8 m (eight courses) measuring 3.38 m wide (Kelso 1968:10). The limestone blocks used in the construction of this wall were as much as 1.4 m long and averaged around 0.75 m in length. The wall’s construction is of the typical boulder and chink style. Although Kelso has suggested that the wall featured a slight batter (approximately 86° though actually bowing) this is not sufficient evidence to suggest that the mudbrick superstructure—which the structure no doubt featured—also had such a batter. At the W end of this wall the exterior face featured a protrusion which might be the remains of a square **tower** projecting from the wall, or a segment of the wall to the W offset from this segment.

The N wall was also accompanied by a clay **rampart** built on virgin soil (referred to as a glacis by Kelso 1968:11). The fill of the rampart contained sherds from all periods of occupation prior to the MB II (IIB) suggesting its contemporaneity with the wall. Unfortunately, the lack of detail in the section (and no photo of it, Kelso 1968:pl. 93c) makes it difficult to discern the exact function of each of the components of the fortifications N of the earthen rampart though they have been dated to the MB II (IIB–C).

The NW corner of the town **fortification wall** was also identified just adjacent to the NW Gate (see below). It is interesting to note that this corner was a nearly perpendicular turn in the wall and this point in the site’s defenses would have been particularly vulnerable. To the S of it an 11.5 m stretch of the W wall was identified (Kelso 1968:14f.). Limited exposure of the wall makes it impossible to provide its exact width at this point or to establish if any modifications were made inside the wall to adjust for its vulnerability here. At the S end of this stretch the wall turned to the SW just slightly, but

abruptly; the complete excavation of this 3.5 m long section of the wall revealed that the wall was 3.5 m wide, was preserved to a height of 1.75 m, and was built in a similar fashion as the N wall (*ibid.*, 15). The exact temporal and spatial relationship between these two wall segments was uncertain, but the S section of the wall was dated to the early MB II (IIB). More of the settlement's w fortification wall which dated to the early MB II (IIB) was identified in two areas to the w of the site. In the Abu Tabar⁹ area "on the w edge of the village and some distance down the hill from the west wall" in an 8 m long trench a part of this wall and a tower were identified (Kelso 1968:15). The **tower** was 5.75 m wide, though its length cannot be established, and its structure was preserved to a height of 3.5 m. Although it is not possible to establish the thickness of the town wall here, the tower's outer wall was 1.6 m wide and projected 1 m from the wall. Kelso has suggested that this tower was built in the late MB II (IIC) and served to fill a breach that was made earlier in the wall. The basis for his argument rests upon the fact that the "breached area not covered by the tower had been carelessly plugged", "the stones...were not interlocked", and "the patch was not dovetailed" (*ibid.*).

Kelso also identified a "glacis", or what should be identified as a **rampart**, consisting of "small loose stones" with a clay facing which is actually the rampart's **glacis**. Ceramics identify the tower as late MB II (IIC) (*ibid.*, 16). More of the town's w wall was identified in the so-called "farmer's house" (*ibid.*). The wall here also measured 3.5 m wide, was preserved to a height of 2.8 m, and featured a similar construction to the town wall near the NW Gate and N wall.

The s part of the town **fortification wall** of the MB II (IIB–C) settlement was also identified (Kelso 1968:17f.). This wall was preserved to a height of 4.3 m and was

⁹Unfortunately it does not seem possible to locate precisely the excavations in the Abu Tabar area, since they do not occur on the site plan (Kelso 1968:pl. 1) nor is the text description sufficient to locate it.

comparable in composition and construction to the walls on the N and W sides of the site. Evidence for a wall which made a right angle to the S town wall suggests that this was the location of either a tower or gate (ibid.). The thickness of the wall at this point could not be established, though Kelso speculated that it was similar to that of the W and N sections of the wall (ibid., 18). Evidence of a breach in the wall to the W of the excavated portion of the S wall was also revealed (ibid.).

Evidence of up to four gates for the site was also revealed by the Kyle Memorial Excavations. These included two gates that were excavated on the NE and NW sides of the site and suggested traces of gates through the settlement's W and S walls. The excavation of the **NE Gate**, which does not appear in plans, only consisted of a limited sounding of the W jamb, though the lowest course of the town wall was revealed to be abutting the gate (Kelso 1968:12). The **NW Gate** was also located and its dimensions more thoroughly explored (ibid., 13f.). The NW gate is of a unique plan in the Levant. It was clearly built as a separate structure against the N elevation at the W end of the N town wall. Its plan has been described as 'U-shaped'; it was entered from a set of steps rising 0.7 m on the E side of the gate, after passing through two piers the 3.5 m wide passageway proceeds W for 9.5 m before turning S, where it then ascends several steps rising 0.86 m and turned again to the E. The point of entry through the N wall of the town was not located. Its N elevation is 14.6 m across, the E elevation 9.7 m and the W elevation 9.2 m; its overall plan has been described as 'rhomboid'. Although not exposed its S elevation abutting the N wall must have been about 15.3 m long. The walls of the structure vary from 1.5 to 1.75 m in width and were preserved as much as 2 m high. Its entrance beyond the first three steps and between the two piers was 2.5 m wide. The floor was composed of 10 to 15 cm of *huwwar* limestone in places and only a few flagstones remained at the W end of the N corridor. The gate featured no guard rooms (ibid., 14). Based on the ceramic evidence the gate has been dated to the MB II (IIB–C), and Kelso has suggested

that it was contemporaneous with the construction of the N wall. But given that the gate could have been better integrated into the wall, if it was built at the same time, I would suggest that it must have been later than the building of the town wall. Nevertheless, the gate like the rest of the town's fortifications appears to have suffered destruction at the end of the MB II (IIC).

Late MB II (MB IIC)

Although certain segments of the town wall clearly dated to the early MB II (IIB) while continuing in use during the late MB II (IIC), other parts of the wall appear to have been of entirely later construction. One such stretch excavated in Area III dated to the late MB II (IIC) was found preserved to a height of 4 m (Kelso 1968:16). But as the 15 m section of the wall revealed, "the outer face had here been quarried away in Byzantine times" and "the wall continued in use after the town's fall to the Israelites" (*ibid.*). The construction of the wall was considered "superior" by Kelso as the squared 0.6 to 0.8 m blocks were well fitted together. Altogether the town wall appears to have averaged about 3.5 m thick during the MB II (IIB–C).

The MB II walls of Beth-El appear to have functioned at least as the foundation of the settlement's wall in many later periods including the LB, the late Iron Age (Babylonian period), and the Hellenistic period (Kelso 1968:11, 16).

BETH-SHEMESH (TELL RUMEILEH)**MR** 1477.1286

References: (Mackenzie 1911; 1913; Grant 1934:11 ff.; Grant and Wright 1938;1939; Bunimovitz and Lederman 2003).

Plans: Site (Mackenzie 1913:pl. 1; Bunimovitz and Lederman 2003:fig. 1); Strata V–IV (Grant 1931:pl. 30; 1939:fig. 1); S Gate (Mackenzie 1911:pl. 14; 1913:pls. 2f.).

Sections: S Gate (Mackenzie 1911:pl. 14; 1913:pl. 2); Wall on E side (Mackenzie 1911:pl. 9).

Photos: Site aerial (Grant 1931:pl. 2); Stratum V W wall and towers (Grant and Wright 1938:pls. 2:4, 2:6, 3:1, 4:1); Wall (Mackenzie 1911:fig. 27; 1913:figs. 5f.); NE Tower (Mackenzie 1911:fig. 26); W Tower (Grant and Wright 1938:pl. 2:5); SW Tower (Grant and Wright 1938:pl. 2:3); S Gate (Mackenzie 1911:fig. 28; 1913:pl. 15); Area R2D2 (Bunimovitz and Lederman 2003:fig. 2).

Beth-Shemesh is located 40 km ENE of Ashkelon and about 25 km WSW of Jerusalem. Sherds found in excavations at Beth-Shemesh suggest that the site was at least occupied during the EB IV and MB I (IIA), Stratum VI (Bunimovitz and Lederman 1993:250), though the fortifications of the site appear to have only been constructed during the MB II (IIB–C), Stratum V.¹⁰ The evidence of the fortifications included mostly the remains of the town wall, the NE and W Towers—all of which were revealed by Mackenzie—and the SW Tower and the S Gate both excavated by Grant. Unfortunately, because of Mackenzie’s method of tracing the wall around the site (see Mackenzie 1911:85f.), it has until recently been impossible to confirm that an earthen rampart had not been built against the wall since the remains of the wall do not appear to

¹⁰Mackenzie’s original identification of the Bronze Age settlement, referred to as the “Second City”, lumped what Grant later identified as Strata V (MB II) and IV (LB) into a single architectural plan (see Grant and Wright 1939:27).

have featured a batter (see below). But recent excavations by Shlomo Bunimovitz and Zvi Lederman in Area R2D2, where brick debris has been found resting just above the bedrock upon which the wall had been constructed, appear to confirm that no rampart existed at this site (2003:234).

The town **fortification wall** that was exposed around the entire site by Mackenzie was between 2.2 and 2.4 m wide (Grant and Wright 1939:20), though in places it appears to have been as much as 4 m wide (*ibid.*, fig. 2). It was built of large stones in the chink and boulder style directly upon bedrock. Although none of the superstructure was found intact, Grant surmised that it was originally built in mudbrick as suggested by the “masses of fallen brick” found below Strata III and II within the town wall (*ibid.*). Similar “burnt and fallen bricks” have been identified by Bunimovitz and Lederman (2003:234), thus confirming that it did carry a mudbrick superstructure. Grant also observed that the lower portions of the wall featured no apparent batter. On the SE corner of the site below the E wall of the Byzantine convent the E fortification wall was 2.25 m wide (Mackenzie 1911:85). This wall could be traced clockwise around this part of the site underneath the Byzantine building. Based on Mackenzie’s plan of the wall the entire length of the fortifications would have been about 610 m and would have enclosed an area of about 2.5 ha.

At least three towers (called bastions by Mackenzie) were identified along the wall (Grant and Wright 1939:20f.). One on the NE side of the site was traced by Mackenzie, another on the SW was excavated by Grant, and a **W tower** (18 x 11 m) was mentioned by Mackenzie but only identified and drawn by Grant’s expedition (Grant 1931:21f.; Grant and Wright 1939:21f.). Unfortunately, it is difficult to be certain of the dates of these towers, though they are likely to be contemporary with the MB II (IIB–C) building of the town wall, but at least the **SW tower** (11.3 x 7.3 m) may date to the early

LB (Bunimovitz and Lederman 1993:250). The **NE Tower** was found to be 9 m long projecting 5.95 m from the wall on its E end and 4 m on the W (Mackenzie 1911:86).

The S Gate, which was considered to be contemporary with the settlement's earliest defenses, was identified by Mackenzie (1911:89ff.; 1913:23ff.). If the dating of the gate is accepted, then it appears that this gate conformed to the prevalent **six-pier type** known during the MB. The piers projected about 60 cm into the passage and were 2.2 to 2.5 m wide, like the walls of the gate. Between the rectangular towers of both sides of the gate the passage appears to have been about 3 m wide and 14.3 m long. The S chamber on the W side of the gate also featured a guard room with an entrance off of the passage to the W.

Evidence that Beth-Shemesh was destroyed at the end of the MB (Stratum V) or early in the LB (Stratum IVa) was found in a number of different areas (Grant and Wright 1939:22ff., 29; Mackenzie 1911:91f.). This evidence consisted of breaches and patches identified along stretches of the town wall. Patches were traditionally narrower than the original wall, about 1.4 m wide in places.

BETH-ZUR (KHIRBET ET-TUBEIQA)

MR 1590.1108

References: (Sellers 1933; Sellers, et al. 1968; Funk 1968; 1993).

Plans: Site (Sellers 1933:pl. 1); Site with excavated areas (Sellers, et al. 1968:plan 1); SW (Sellers 1933:pl. 3); Field I (Sellers, et al. 1968:plan 2); Field III (ibid., plan 5).

Sections: SW (Sellers 1933:pl. 4); Field I (Sellers, et al. 1968:plans 3f.).

Photos: Field I (Sellers, et al. 1968:pls. 5a, 6).

The site of Beth-Zur is located 6 km N of Hebron and 26 km SW of Jerusalem in the hill country. The site is defensible from the natural hill upon which it was established 100 m above the surrounding valley to its N and 22 m above the same valley to its S (Funk 1993:259). The site's size, as can be extrapolated inside the MB wall, was between 0.8

and 1.5 ha during the MB (1968:4). While it appears to have been reoccupied during the mid-MB II (late IIB, 17th cent. B.C.), its fortifications were only first erected during the sixteenth century B.C. (1993:260).

The **fortification wall** of the site appears to have averaged 2.6 m in width with a foundation built from large stones on bedrock with smaller stones serving as chinking material between the larger ones; the construction of the wall (2.6 to 2.7 m wide) identified on the SW side of the site (Sellers 1933:26) serves as the only reliable identification of the original MB defensive wall. While Funk has suggested that Wall A in Field III could be identified as the continuation of the wall on the E side of the site, where it measured almost 3 m wide (see sections, plans 3f. in Sellers, et al. 1968), the almost perfectly straight stretch of the wall between Fields I and III does not in the least resemble the character of the curving wall with towers excavated by Sellers. Although this catalogue of sites attests to the intra-site variability exhibited within the fortification systems of sites throughout the Levant, I know of no parallels where fortification walls have featured both straight and curvilinear stretches. That this conclusion is quite likely is also evident from the fact that Funk and his colleagues had held the same view prior to their final publication of the results of excavation in Fields I and III (1968:5). The suggested MB date for Wall A can, therefore, only serve as a *terminus post quem* and it is quite possible that this orthogonal wall belongs to the Iron Age remains on the site or the Hellenistic citadel, if they are not all that is left of an MB temple or citadel located within the town wall. No brick remains were found atop the stone foundations (*ibid.*, n. 3).

Although it is nearly impossible to be certain, the wall was probably no more than 500 m long, forming an oval around the top of the hill. (An estimate for the space inside this oval would therefore favor a figure of 1.5 ha in settled area.) A **tower**, with dimensions of 5 x 10 m was exposed in conjunction with the MB wall on the SE side of

the site (Sellers 1933:26).¹¹ The identification of the casemate style construction in Fields I and III is moot (Funk 1968:6), if, in fact, the outer wall was not itself the defensive wall, as I have suggested above.

The final demise of the fortifications in a fiery destruction has been attributed to post-Hyksos military activity during the LB I (Sellers 1933:9). Nevertheless, these fortifications were “repaired and reused down into Hellenistic times” (Funk 1968:4).

BIRA, TEL

MR 166.256

References: (Prausnitz 1993b).

Plans: NA.

Sections: NA.

Photos: NA.

The 19.8 ha site of Tel Bira, which lies about 10 km ESE of Akko, included both an upper acropolis (6.1 ha) and lower town (13.7 ha) (Prausnitz 1993b:262). Although the date of the settlement’s fortifications within the MB is unclear due to the lack of publication of these remains, the lower town appears to have been fortified at some point prior to the end of the early MB II (IIB) with an outer **fortification wall** and **glacis**. However, apparently at the start of the 18th century B.C. the lower town, which may be identified as a commercial quarter, was abandoned and construction was begun on a “steep glacis” and accompanying fortification wall around the acropolis.

¹¹Note that in pl. 3 the outer face of the tower is identified as a Hellenistic buttress (Sellers 1933:26).

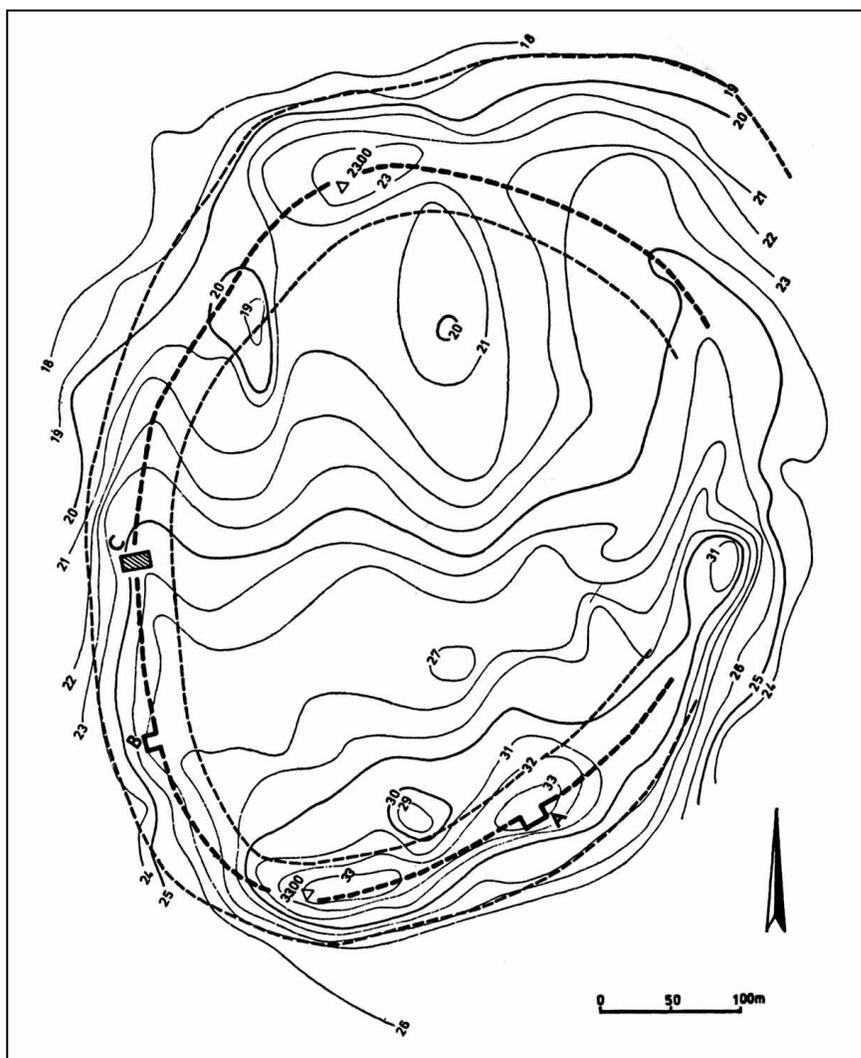
BURGA, TEL**MR** 1472.2143**References:** (Kochavi, et al. 1979).**Plans:** Site (Kochavi, et al. 1979:fig. 9)**Sections:** NA.**Photos:** NA.

Tel Burga is located just inland from the Mediterranean coast only a couple of kilometers to the SE of Tel Mevorakh. As a result of agricultural plowing, the visitor to Burga today can still see the remains of a large, dark mudbrick **fortification wall** that once crowned the edge of the mound above its slopes. This wall has been dated to the MB I (IIA) by pottery found during the course of a salvage excavation in 1966 in Area C on the W side of the mound which was not completed due to the start of the farming season. From this limited excavation it was established that the **rampart** was “protected from erosion by mudbrick retaining walls and a mantle [i.e., **glacis**] of rubble stones” under which were found EB IV sherds (Kochavi, et al. 1979:143). The length of this rampart around the site appears to have been about 1,500 m enclosing an inhabitable area of roughly 17.3 ha; the site has usually been identified as 25 ha in size (Figure 66 below).

The site rests an average of 7 m above the plain and was surrounded by a **fosse** the remains of which are now only a shallow ditch. Occupation within the enclosed mound was heaviest in the SW corner covering approximately 4 to 5 ha (no MB II [IIB–C] sherds have been found). The remains of two mudbrick **towers**, Tower A and B, associated with the MB I (IIA) wall were also identified on the S and W sides of the site respectively, though neither was excavated. Based upon comparative evidence from many MB and LB sites, I suggest that this sherd scatter pattern indicates the presence of the administrative/palace sector during the MB I (IIA) which occupied this corner of the site (on the windward side and at the point of the highest elevation on the site) and,

therefore, that these remains reflect the intensity of occupation and use here. With regards to the defenses of the MB I (IIA) occupation of the site it is important to note that Nahal Tanninim to the N of the site may once have abutted the N side of the site thus contributing to its defense as suggested by Kochavi (1979:n. 33).

Figure 66. Plan of Tel Burga. Reprinted, by permission, from M. Kochavi et al. (1979:fig. 9).



It seems probable that the location of at least two gates can be identified, located in the center of the walls on the E and W sides of the site (between the 25 m and 26 m contour lines), leading directly to the coastal plain and the fortress of Mevorakh to the W and the route inland along the Nahal Ada to the E.

DAN, TEL (ANC. LAISH)**MR 211.294****References:** (Biran 1980;1981;1984;1990;1993; Biran, et al. 1996; Biran 2000).**Plans:** Site (Biran, et al. 1996:plan 1), Area K (Biran 1984:fig. 1; Biran, et al. 1996:plan 10); Area T3 (Biran, et al. 1996:plan 7).**Sections:** Area AB (Biran, et al. 1996:plan 4), Area K (ibid., plan 10), Area K gate (Biran 1984:figs. 2–7); Area Y (Biran, et al. 1996:plan 9); Area T3 (plan 8); Area H (fig. 1.30).**Photos:** Site aerial (Biran, et al. 1996); Area A (fig. 1.4); Area B (fig. 1.19); Area T (fig. 1.46); Area T3 (fig. 1.52); Area Y (fig. 1.54, 1.56); Area K (figs. 1.57–59, 1.61).

Tel Dan, known as Laish during the MB, is located just to the SW of Mt. Hermon in the upper Huleh Valley (Figure 67 below). While archaeological remains from burials at Tel Dan attest to its settlement during the earliest phase of the MB, the contemporary MB fortifications revealed in different areas seem only to have been constructed at the end of this phase during the transition between MB I (IIA) and MB II (IIB–C), Stratum XI. Evidence for the rampart fortifications built during this phase of occupation have been found in Areas A-B, K, Y, and T, making Tel Dan one of the most thoroughly examined fortified MB settlements. In addition to the ramparts a six-pier gate was found in Area K. The estimate of Dan's size should, therefore, be reduced to 11.1 ha once the area occupied by the ramparts (4.9 ha) is subtracted from its gross size of 16 ha (see also Broshi and Gophna 1986:86).

Although Biran himself notes that the construction of the defenses was found to be different in each area of the excavation, in all areas the defenses seem to have employed some type of **core wall** built of medium and large fieldstones against which earth was piled for the construction of the rampart (Figure 68 below). On the S side of the site, a deep trench in Area AB revealed that a stone wall served as the core of the fortifications which seem to have been gradually built higher as layers of the rampart

were heaped against it (Biran 1993:324; 1994:59–63; Biran, et al. 1996:18–19). The stone-built core wall (Wall 1) measured 6.5 m thick and 10 m high. Although Biran has suggested that the core and rampart projected at a slope of approximately 42° to 45° , indicating that possibly an additional 6 m of the upper part of the core and rampart are now missing, this height for the rampart and core wall cannot be verified. In section (Figure 68 below) the core wall is shown leaning backwards which suggests that the core was never freestanding but was built simultaneously as the rampart's layers were piled against it. In 1996 more of the core, which was found to be 5 m wide, on the s side was also exposed (Biran 2000). The s core wall has now been traced along 222 m from the SE corner of the enclosure.

Figure 67. Plan of Tel Dan. Reprinted, by permission, from Biran, et al. (1996:plan 1).

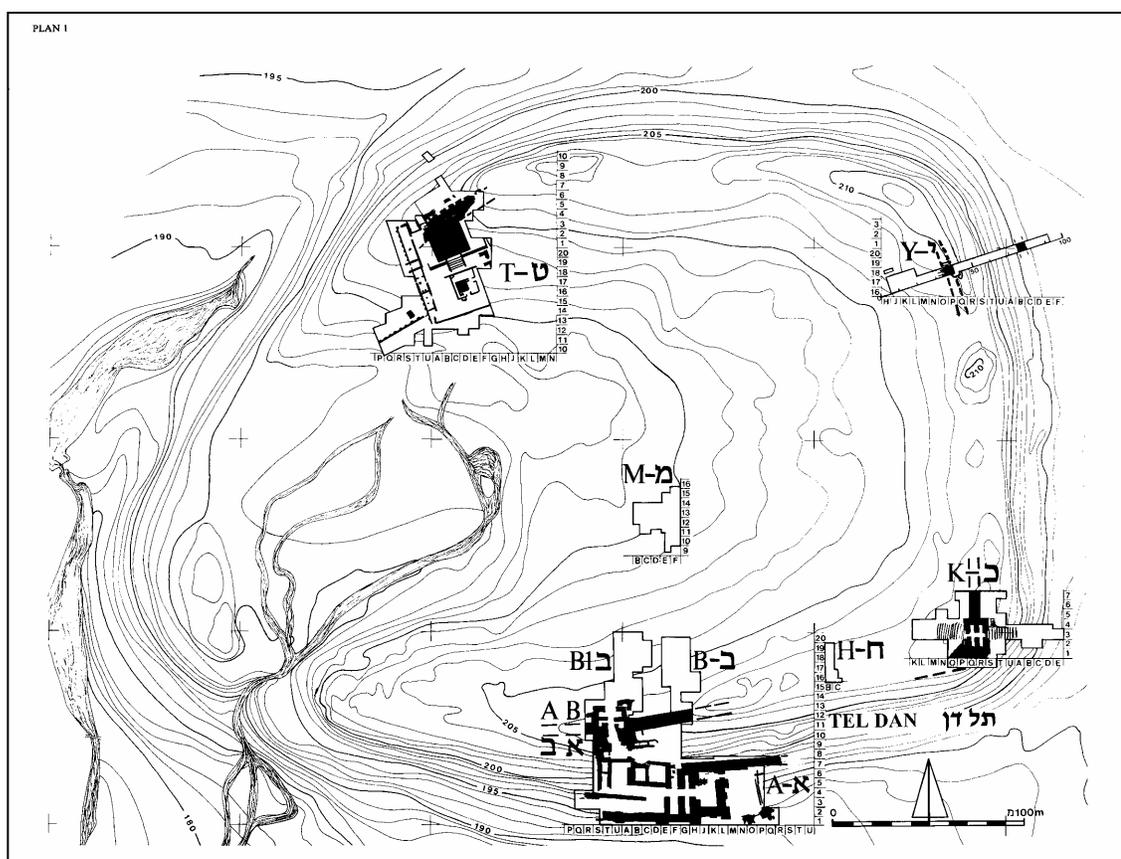
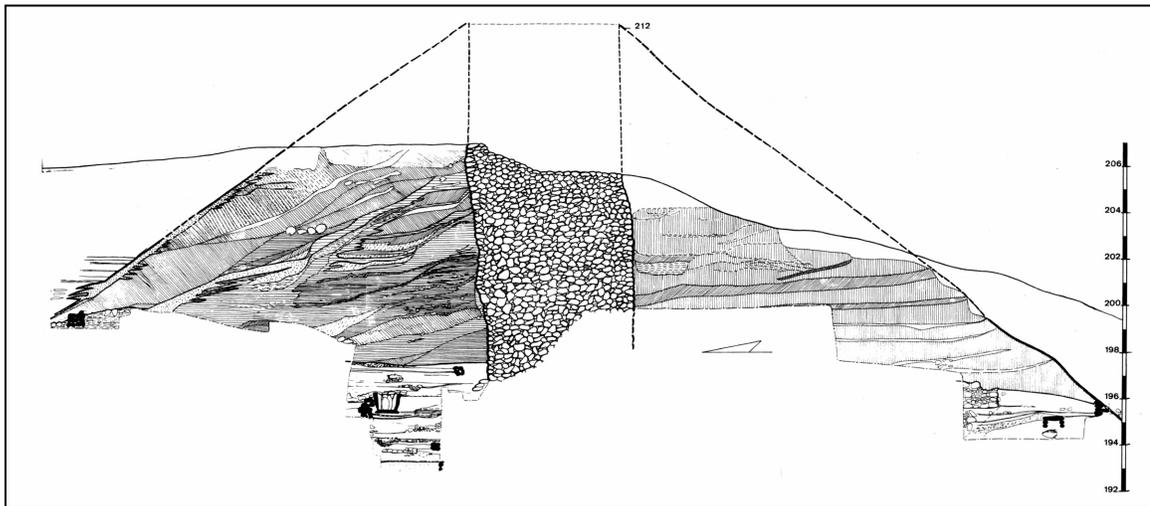


Figure 68. East section of southern rampart at Tel Dan in Area A-B. Reprinted, by permission, from A. Biran, et al. (1996:plan 4).



The **rampart** was composed of *hamra* and settlement debris which included mudbricks, bones, EB and MB I (IIA) pottery, and masonry (Biran, et al. 1996:19). The base of the rampart measured 60 m wide in Area AB. A **glacis** of crushed yellow travertine (CaCO_3) sealed both the interior and exterior surfaces of the rampart (Biran 1994:59–63). The date of the rampart was arrived at by the sherds found in its layers all MB I (IIA) or earlier and the fact that the rampart overlays MB I (IIA) burials (see Tomb 23).

In Area T on the NW side of the mound 23 m of a stone and EB mudbrick fortification wall with buttresses were exposed. These predate the MB I–II (IIA–B) construction of the rampart (Biran 1993:324; 1994:68–70; Biran, et al. 1996:51–53). The rampart was built against these structures at the end of MB I (IIA). The date of the construction of the 3.5 m wide fieldstone wall (W8897) and its buttresses (W8894, W8895, W8898, W8937, W8933, W9218), two of which along with the wall are topped by seven courses of mudbrick (W7917), presumably the superstructure of a mudbrick wall, is suggested to be EB III. This date is based on pottery recovered from the fill of the rampart and a quadruped figurine bearing sacks found on the surface of L9348, the

surface upon which the rampart was laid. The buttresses, each 3 m wide and spaced 2.3 m apart, and the wall are preserved to a height of 4 m. The excavation of the rampart in Area T revealed that measures were taken, such as the addition of stone fills (L9315) against the wall, to shore up the older wall before the fill of the rampart was added. When the **rampart** was constructed its layers reached the mudbrick courses on top of W8897 creating a slope of 20°, 13.75 m wide, and 5 m high. It does not seem that there was an interior slope to the rampart in this area, but only a stepped slope on the interior of W8897 designated W7901. Also, no remains of a mudbrick wall datable to the MB were revealed here on top of the rampart or earlier wall which now served as the core of the rampart. Though from plan 7 (“Post-Rampart” MB “Platform” phase), it seems that a fieldstone wall (700) may have been built for use atop the rampart here; a date for its use has not been published and we can only surmise that according to the excavator’s interpretation that it postdates the rampart. The only other MB structure in this area was a mudbrick platform (8931) faced with fieldstones measuring approximately 8 x 5 m which was found to the E of the rampart excavations. It is considered part of a “post-rampart” phase during the MB and it may have been the base of a tower.

In Area Y a previously existing but somewhat dilapidated fieldstone structure (W9001) dated to the MB I (IIA) or EB served as the core of the **rampart** on the site’s NE side (Biran 1993:324; 1994:63–67; Biran, et al. 1996:53–57). Its interior face was sloped, almost terraced, while its exterior face was nearly vertical. The core measures 8.5 m high by 13 m wide. After its construction a series of small fieldstone walls (W9408, W9400A, W9400B, W9403, W9407) averaging about 2.5 m apart were built parallel to the exterior of the rampart in order to serve as **retaining walls** for debris which was heaped between each retaining wall and the rampart’s growing surface. A new retaining wall was added each time the slope became too great against which the earth was being laid. The

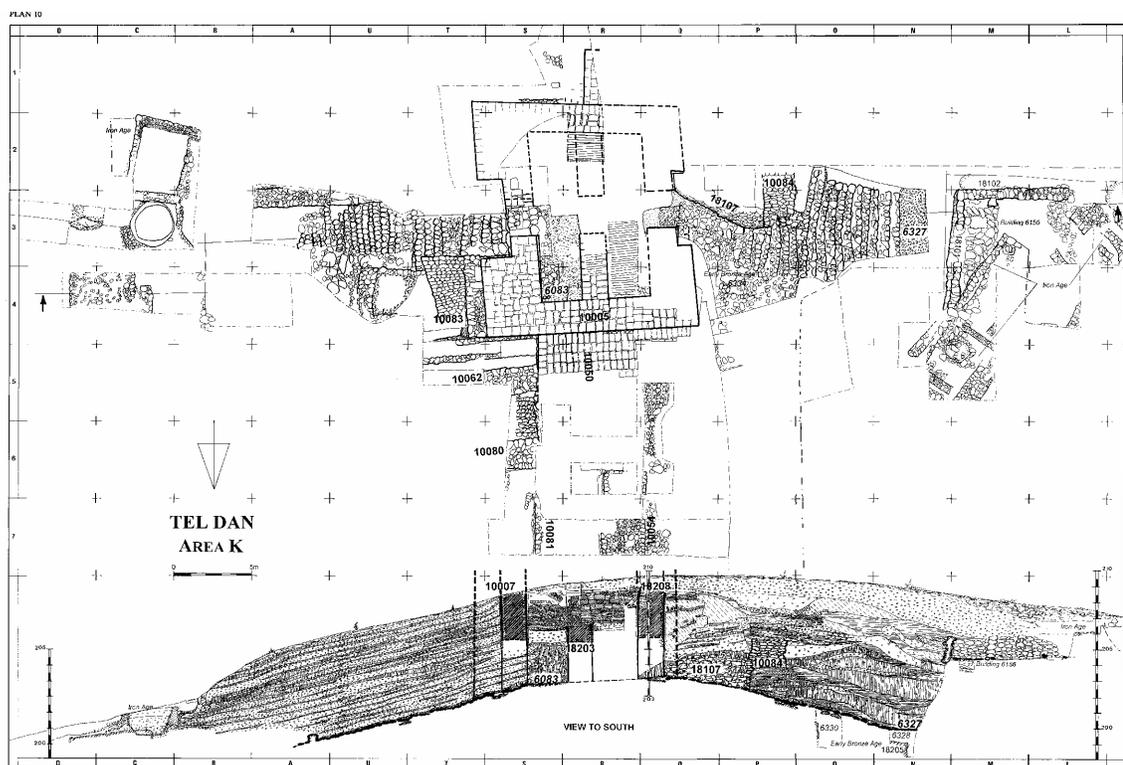
composition of the debris used in the rampart here appears to have been the same as that used in Area AB.

Although Biran has suggested that the foundation W9020 and its ten-course, mudbrick wall were built above the fieldstone core for the purpose of extending the height of the rampart, several arguments can be made against this interpretation. First, if the original builders wanted to extend the height of the rampart, the easiest way would have been to collect more fieldstones of which there is no shortage in this region. One would also expect that if it were an extension of the core wall that it would have rested directly upon it. Secondly, in Area K (see below) a 3 m wide mudbrick wall clearly accompanies the fieldstone core and is related to the construction of the triple arched gate. It seems, therefore, that the remains of the mudbrick wall measuring 3.5 m wide and only preserved to a height of 1.8 m were, in fact, the remains of the defensive wall or its foundation. This is in contrast to Area AB, where more than 6 m of the top of the rampart, probably including its mudbrick wall is thought by Biran to have eroded or to have been robbed for materials. It seems, therefore, that one cannot dismiss the wall atop the rampart here as merely an upward extension of the rampart's core wall. What we can observe, however, is that the wall did later experience subsidence due to the fact that its foundation rested above the level of the core wall (W9001), on fill like that used in the rampart. We cannot, though, determine whether this subsidence occurred during the life of the wall or only after its abandonment.

The construction of the **rampart** in Area K (Biran 1984:9; 1993:325–326; 1994:67–68; Biran, et al. 1996:58–61), was slightly different than in other areas, though it too used existing structures, which are probably dated to the EB, to attain an elevation of about 12 m above the surrounding plain. But the rampart here is only partially understood since the famous “triple arched gate” was encountered during excavation in this area and subsequent examination of the rampart has only revealed how the gate was

fitted into the rampart and little concerning the rampart's own construction per se (see Figure 69 below). What appears to be the original stone core (W10081) for the rampart, which was not extensively excavated (i.e., no step trench was dug), terminates about 9 m N of the gate. This core was crowned by a mudbrick **fortification wall** the remains of which are preserved eight courses high. In actuality this part of the fortification wall was so well preserved because it was buried, since it served as a terrace (see chapter three, section A.4.a) Another fieldstone wall (W10054) was built parallel to it and against its W, or interior, face. Before the gate was connected to the rampart, a 2.8 m long by 7 m wide mudbrick, extension wall (W10050) was built onto the N side of the gate on a stone foundation. To the N of this two parallel fieldstone **retaining walls** (W10062 and W10080) were built to support a packed earth fill between the stone core (W10081) and the mudbrick extension of the gate (W10050).

Figure 69. Plan of gate in Area K at Tel Dan. Reprinted, by permission, from A. Biran, et al. (1996:plan 10).



As indicated above, the most amazing discovery in Area K was what has become known as the “triple arched gate”. It is so-called because three mudbrick “basket” arches (also known as barrel vaults) were incorporated into the construction of the length of this pedestrian gate (Biran 1980; 1981; 1984). This mudbrick structure, which should be designated simply as a **six-pier gate**, measures 15.45 m across its façade, 7 m high (forty-seven courses of mudbrick), and 10.5 m deep. Each arch consists of three courses of mudbrick which formed a half circle with a radius of 1.25 m. Although its construction did not feature the use of a mudbrick “keystone”, on the E elevation seventeen courses were preserved above the arch, and fourteen on the W elevation. The passageway through the gate measured 13.5 m long, 2.5 m wide, and 3 m high. Plaster was used on the surface of the exterior of the gate, its floor, and interior. The E wall of the gate complex was estimated to be 3.5 m thick while the W, interior wall of the gate was estimated to be only 2.8 m thick. Its entrance lies on an E-W line, and though it was not aligned with the center of the E side of the site, it was probably the only gate on that side of the town.¹² Although Biran asserts that the gate has been preserved to its full height, he acknowledges that its superstructure may originally have been two stories tall (1984:12). While their remains were not found, cedar beams were probably used to roof the gate. No evidence for doors has been found. A “recess at the base of the mud-brick wall inside the eastern entrance of the gate” may have been used for a doorway, but this is uncertain.

The gate was set into the ramparts with mudbrick **retaining walls** covered by basalt fieldstone walls (such as W10083, eighteen courses high) intended to retain the rampart and protect the gate. The gate’s construction has been dated with ceramics to the same period as the rampart’s construction, during the transition from MB I (IIA) to MB II (IIB). It seems to have fallen out of use sometime shortly after its construction during MB

¹²A. Kempinski’s reconstruction agrees with this interpretation (1992a: fig. 4).

II when it was intentionally filled in to prevent its collapse, hence its excellent preservation. That it may have already experienced structural problems before its use is evident from the fact that its E elevation leans outward and that a fieldstone revetment wall (W18107) had been built against its SW pier inside the town. This late revetment wall pointing to the NW would have constricted passage through this already narrow space, at least causing the gate area to be used only by passersby. That the gate was structurally unstable can also be concluded from the fact that the gate did not feature towers and, therefore, the unusually narrow and very long piers on both sides of the gate's deep chambers were alone expected to bear the usual load of most of the gate's superstructure (see Table 6 on p. 137). Because basalt steps up to 27 cm high and 40 cm wide led up to the gate on both sides, and the fact that the gate's width was barely 2.5 m wide, it is unlikely that it was intended for wheeled vehicles to use. On the interior twenty such steps led to a pebble street (L6327) 3.25 m below the floor of the gate and twenty more steps were found on the exterior leading down 3.5 m to the plain.

The excavation of the defenses in each of these areas reveals that different strategies were employed for the completion of the rampart, which superficially appeared to have been the product of a homogeneous construction technique. However, this realization stands in contrast with Biran's suggestion that one million cubic meters of earth were required for the construction of the ramparts, since this figure was based only on the maximal estimate of the dimensions of the rampart as they have been reconstructed for Area AB (Biran 1994:71). When Biran's own observation about the differences in rampart construction around the site are factored into new calculations, it is clear that the previous figure requires considerable revision.

By using the topographic plan published for the site and the section drawings to determine the dimensions of the rampart in each excavation area it is possible to provide a more refined calculation of the overall volume of the rampart at Tel Dan (see Table 26

below). We begin by first estimating how much of the rampart featured the proportions revealed in each of the excavated areas (i.e., AB, K, and Y).¹³ This then leaves the 815 m of the rampart's length to be divided among the three other areas of the rampart which were excavated.

Table 26. Calculation of the volume of Tel Dan's ramparts as they consist of stone core walls vs. earthen fills.

Area	R. <i>h</i> (m)	R. <i>w</i> (m)	R. <i>l</i> (m)	Core <i>w</i> (m)	Vol. (m ³) core	Vol. (m ³) earth
AB ^a	10	45	300	6.5	19,500	48,000
K ^b	8	81	200	6.25	10,000	54,800
Y ^c	11	60	315	16	36,036	67,914
TOTAL			815		65,536	170,714

^aBiran's original height of 16 m in Area AB (see Figure 68) suggests too much erosion and robbing of the rampart. 60 m for the width of the rampart is an absolute maximum based on Area AB; it is probably not accurate for this area given the slope of 43° to 45°.

^bIt is difficult to estimate the rampart's width in Area K; this is certainly a maximal figure determined by its 14° slope.

^cBecause the stone core is not square in section but was terraced on its inner side it is necessary to reduce its volume estimate by about 35%.

As Table 26 above illustrates, these figures yield astonishingly different results which are actually only about 24% (236,250 m³) of the total volume suggested by Biran (1990:65, n. 17) for the entire structure! Furthermore, 28% of the rampart actually consisted of core walls constructed of fieldstones and boulders that could have been quite easily gathered from the surrounding plain. The remainder of the structure (72%)

¹³Area T has been excluded from these calculations for two reasons. First, no rampart was suggested by Biran to have been present on the w side of the site and an examination of the topography does not allow for one, though we may guess that there was a wall on the w. Second, Area T cannot serve as a basis for calculating the rampart's composition anyways since its core was probably built during the EB with very little effort expended during the MB I (IIA)–MB II (IIB) transition to build a rampart against the remains of this wall.

consisted of 170,714 m³ of earth, much of which consisted of occupational debris filled with EB and MB I (IIA) sherds.

DEBBEH, TELL*

MR 2272.98

References: (Braemer 1984; Weiss 1991; Braemer 1993).

Plans: Site (Braemer 1984:fig. 17).

Sections: NA.

Photos: Site (Braemer 1984:figs. 35f.).

Tell Debbeh (919 m ASL) is located a little less than 80 km to the SSE of Damascus and approximately 50 km E of Tell Ashtara in the Hauran of southern Syria along the wadi A. Dahab (see fig. 2 in Braemer 1984). Survey of the region by F. Braemer has confirmed that the oval site, which is about 4 ha in size, featured a **fortification wall** (1984:242ff.). This feature had been identified in the early twentieth century as well as a ramp and **gate**, with a passage 4 m wide and 14 m long, which leads into the site from its NE side both of which should probably be dated to the MB (*ibid.*, 244).

DEIR 'ALLA, TELL

MR 209.178

References: (Van der Kooij and Ibrahim 1989).

Plans: Site (Van der Kooij and Ibrahim 1989:fig. 17); Area E (fig. 96).

Sections: NA.

Photos: Site aerial (Van der Kooij and Ibrahim 1989:fig. 14).

Tell Deir 'Alla is located 27 km to s of Pella in the Jordan Valley. A mudbrick wall at the base of the SE part of the site in Area E has been identified as the remains of the 1 m wide town **fortification wall**; it was preserved to a height of 2.5 m (Van der

Kooij and Ibrahim 1989:75f.). This wall was built of mudbricks measuring 60 x 40 x 11 cm upon a single course of fieldstones for a foundation (*ibid.*, 76). It is assigned to Phase IV and dated to the late MB II (IIC) based on the presence of Tell el-Yehudiyeh ware. If it roughly followed the along the -220 m contour line the fortifications would have been about 530 m long. Although the excavators have suggested that some heaped clay against the s side of this wall may have constituted a **glacis**, further excavation is needed to corroborate this identification.

DOTHAN, TEL

MR 1727.2021

References: (Free 1958; Ussishkin 1993a; Zertal 1993; Cooley and Pratico 1997).

Plans: Area K (Free 1958:fig. 3).

Sections: NA.

Photos: NA.

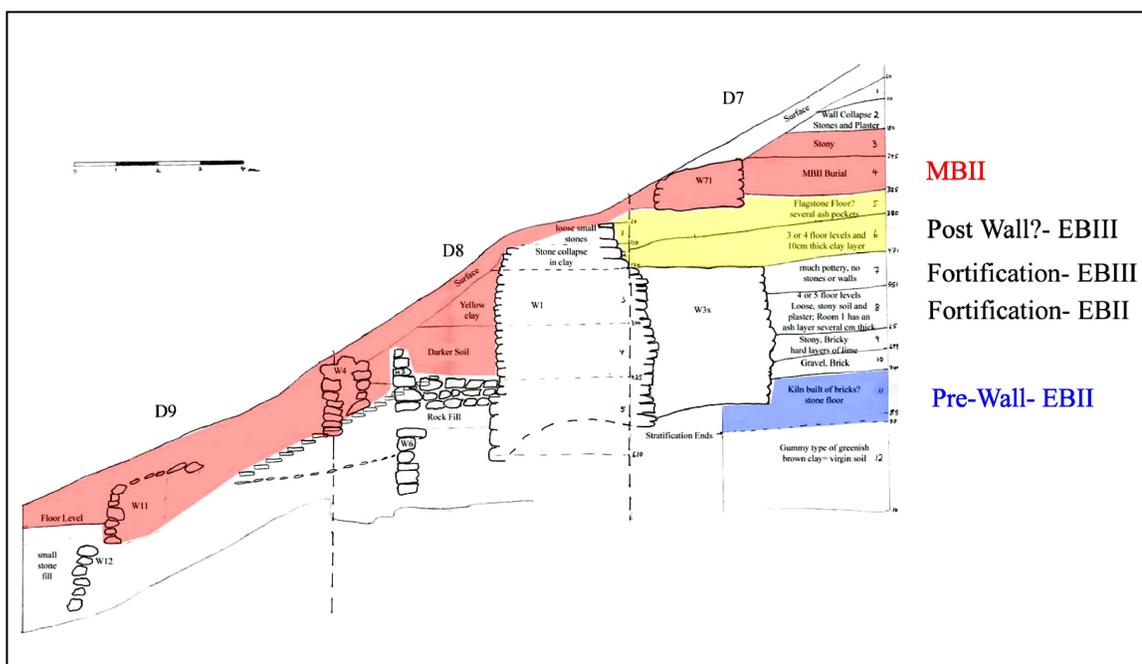
The fortifications of MB Dothan, a tell with a summit of 4 ha, included a fortification wall and an **earthen rampart** found in Area K (Zertal 1993:1312; Ussishkin 1993a; Cooley and Pratico 1997). Joseph P. Free, the site's excavator, reported that "following the Middle Bronze Age Wall 2 to the N in sub-areas K-11 and K-12, we discovered that it developed into a complex of rooms, dating originally from Middle Bronze with possible re-use and rebuilding in Late Bronze times" (1958:17). Wall 2 was preserved to a height of approximately 2 m and MB storage jars were discovered just inside the wall (*ibid.*, 14). Given this context it is possible that the MB defenses of Dothan consisted of little more than a **casemate-type wall** built around the settlement, though the exact MB phase of this wall remains uncertain.

Sections of the fortifications of the EB, MB and LB were also revealed in Area L on the w side of the mound (Cooley and Pratico 1997) and Area D (see Figure 70 below). These sections appear to reveal that the MB fortifications of Dothan were built using the

EB fortifications as a core wall or girdle above which the MB fortifications were constructed.

According to Broshi and Gophna the site's gross area was 5 ha (Broshi and Gophna 1986).

Figure 70. Section of EB and MB fortifications at Tell Dothan in Area D. Courtesy of D. Master.



EKRON (TEL MIQNE)

MR 1356.1315

References: (Gittlen 1992; T. Dothan and Gitin 1993).

Plans: Site (Gittlen 1992:51*).

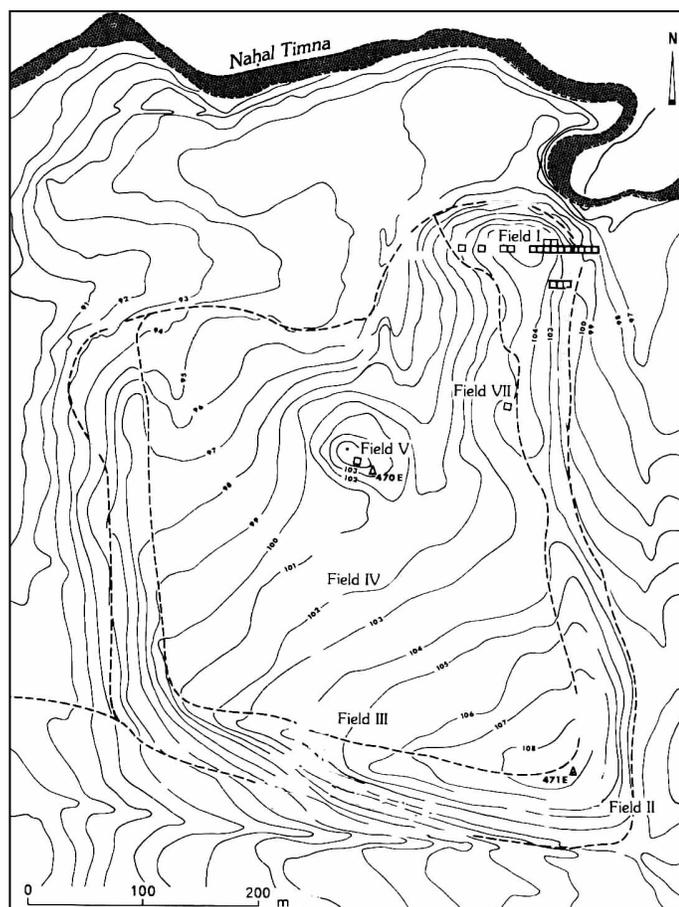
Sections: NA.

Photos: Site aerial (T. Dothan and Gitin 1993:1051).

Although the publications of the remains of Ekron's MB II (IIB–C) levels (Stratum XI) are forthcoming, the site according to T. Dothan and S. Gitin “apparently was shaped by the fortifications that encompassed both the upper and lower cities in the

Middle Bronze Age” (1997:30). MB sherds were also recovered from every field excavated. From an aerial photograph of Ekron it is possible to see the very straight line of the eastern rampart and fosse in the fields just to the E of the site and just beyond the E extent the trenches in Field I (T. Dothan and Gitin 1993:1051). If these lines are, in fact, those of the MB **rampart** and the **fosse** then they were approximate 2,200 m long and enclosed a space of about 22.2 ha, which does not of course include the area occupied by the ramparts.¹⁴ The settlement contracted during the LB to occupy only the 4 ha acropolis on the NE side of the site nearest to the water source (Gittlen 1992:51*).

Figure 71. Plan of Ekron (after T. Dothan and Gitin 1993:1052).



¹⁴This estimate is conservative for the size of MB Ekron since B. Gittlen has suggested that the MB settlement “covered most of the 80 acre tell” (1992:52). The variable here is the lower town which during Iron I was 16.2 ha but which increased to 26.3 ha during Iron II (T. Dothan and Gitin 1997:30).

ESUR, TEL (TELL ASAWIR)**MR** 1521.2098**References:** (M. Dothan 1993c).**Plans:** NA.**Sections:** NA.**Photos:** NA.

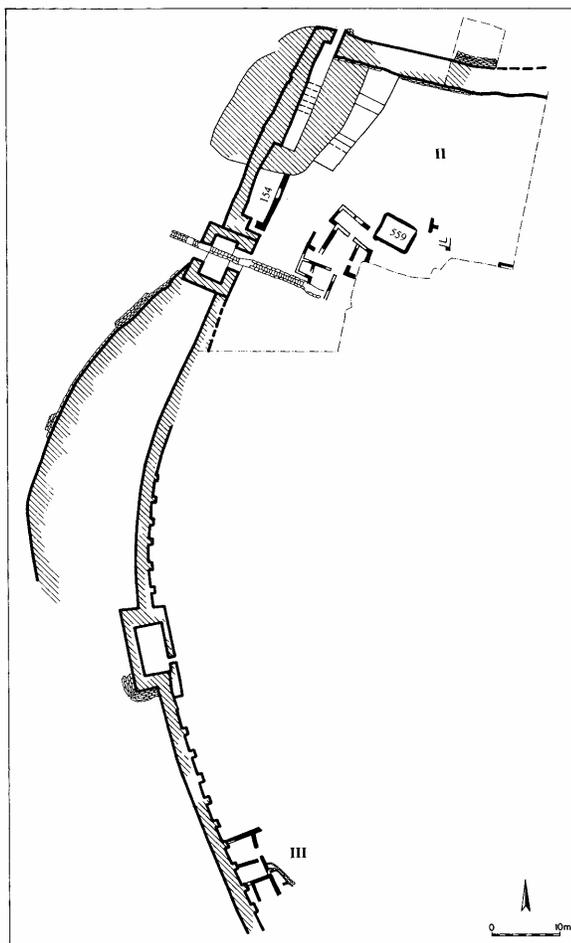
Gophna and Beck have identified the site as one fortified with a **rampart** (see map p. 47, 1981). However, all that can be said about the site is that Tel Esur is located at the s end of the Megiddo Pass (Nahal 'Iron) and was approximately 3 ha in size during the MB (IIA–IIC) rising 7 to 11 m above the plain.

FAR‘AH (NORTH), TELL EL-**MR** 1823.1822**References:** (de Vaux 1962:237 ff.; Mallet 1973; 1988; Dever 1990b).**Plans:** Site (Mallet 1988:plan 2); Area II (Mallet 1988:plan 27); Area III (Mallet 1973:pls. 8, 10); Area IV (Mallet 1988:plans 3–5, 9, 10f., 14, 27).**Sections:** Area II (Mallet 1988:plans 37, 39f.); Area IV: Trench 7 (Mallet 1988:plans 18), Trench 8 (plans 20–22), Trench 143 (plan 19), Trench 778 (plans 23f.).**Photos:** Site aerial with fortifications (Mallet 1988:pls. 1:2, 2:1, 4f.); Area II (Mallet 1988:pls. 6–9:2, 10f., 19:1, 57); Area IV (Mallet 1988:pls. 9:2, 11:1, 12–17, 18:2–22, 24–27, 29–31, 36:2, 41–48:1, 48:3, 49:1, 51–53, 56:2, 62, 85:1); W wall (Mallet 1973:pl. II); W glacis (Mallet 1973:pl. III:1).

Tell el-Far‘ah North was located about 9 km NE of Shechem. Following an abandonment during the second half of the third millennium, the site was reoccupied during the MB I–II (IIA–B) as an “open village” (Period VA) in the hill country (de Miroschedji 1993:437). This settlement was followed by another unfortified phase

(Period VB) dated to the early MB II (IIB) which was in turn followed by a fortified settlement of the late MB II (IIC) designated Period VC (Stratum B3) (*ibid.*, 438). The area enclosed by the late MB II (IIC) fortifications of Far‘ah North was smaller than the area enclosed by the EB II fortifications, some 3.9 ha (approximately 260 x 150 m).

Figure 72. Plan of MB fortifications of Tell el-Far‘ah North. Reprinted, by permission, from Z. Herzog (1997a:fig. 4.19).



The late MB II (IIC) fortifications of the site consisted of a wall, gate, towers, and rampart. The **fortification wall** (mur 1) revealed in Areas II, III, and IV (on the w side of the site) was 2.2 m wide with large stone foundations and was preserved to a maximum height of 2.3 m (Mallet 1988:43f.). The N part of the MB II wall (Area II), of which a stretch of about 32 m was traced, was built more than 4 m wide on the ruins of the second

EB II wall which had been built of stone. From its E end the N wall then turned towards the ESE which meant that much of the NE area of the EB town was not included within the MB settlement's wall. At the W end of the N wall it made an abrupt almost 90° turn to the S. Here the W wall to the N of the gate was built 2 to 3 m wide atop the mudbrick ruins of the EB II wall (mur III). The W wall continued S of the gate where after 29 m stone buttresses were discovered along 23 m of its interior face N of the tower (see below) spaced 2 to 2.5 m apart (Mallet 1988:46f.). These buttresses measured 0.5 to 0.8 m deep and were 1 to 1.4 m wide. More of these buttresses were also found along the 39 m long interior face of the wall (here 2 m wide) S of the tower with spaces between them of up to 2.8 m. In all about 150 m of perhaps a total of 820 m of the settlement's wall were exposed.

A **four-pier gate** (locus 152) was built just N of the earlier EB II gate upon the remains of an EB tower, which served as its foundation (Mallet 1973:29f.; 1988:44). The gate's stone foundation was seamlessly bonded to the wall running S from it with this wall also forming the SE pier of the gate. The connection between the gate and the wall to the N has been lost. The gate is a direct axis, two chamber, four-pier gate measuring 9.5 m wide and 7.5 m deep with an interior chamber measuring 6 m long and 3.5 m wide. The structure protruded 5 m from the line of the wall and featured walls and piers 1.5 to 1.8 m thick. The narrowest point was between the gate's outer piers and measured 2.5 m wide. Below the floor of the passage was a large drainage channel built of stone and exposed for about 22 m (cp. drain under Ashkelon's late MB II gate).

A rectangular **tower** (loci 301–303) was identified 50 m to the S of the gate along the SW stretch of the town wall (Mallet 1988:47ff.). Its dimensions were 12.7 m by 7 m and it was divided into two rooms both of which featured entrances. Its walls were about 2 m thick, comparable to the thickness of the town wall in this part of the town. A cobble

glacis was shown to have been constructed for the protection of the S corner of the tower, but its extent is limited and it may have dated to the LB.

Although Mallet has suggested that the two ramparts which he identified (referred to by him as ‘glacis’) constituted separate phases (Phases B2–B3/4) in the construction of the site’s defenses (Mallet 1988:50ff.), there is little reason to believe that the wall itself ever functioned with only one these elements. The addition of the lowest layers of an **earthen rampart** (Mallet’s “glacis de terre noire”) composed of black earth on the W slopes of the site appears to have been only the first constructional phase of this structure (ibid., 38). As seen in the section of Trench 8 (ibid., plan 22) this 8 m wide and half meter thick deposit began about 4.5 m out from the base of the wall where it was retained by two stepped walls opposite the town wall. This was overlain by a layer of cobbles and the addition of red earth, Mallet’s “glacis de terre rouge” of Phase B3–4, whose exterior slope was retained by a stone **revetment wall** (mur 4) up to 2.8 m high and more than 60 m long. This upper portion of the rampart also rested at the base of the town wall, though in some areas this connection has been clearly lost (Mallet 1988:51ff.).¹⁵ The average slope of the surfaces of the preserved layers of the rampart appears to be around 24°, though the original rampart surface is likely to have been as much as 30°.

The steep slope up from the Wadi el-Daleib on the S side of the site appears to have been a sufficiently difficult ascent so as not to necessitate any defensive additions or modifications other than the town wall. Outside of the wall N of the gate a part of a 6 m section of a stone **glacis** (locus 122) no less than 3 m high was exposed (Mallet 1988:50f., 77ff.). This glacis rested against the foot of the wall and must have run the entire length of the N wall.

¹⁵ Although Mallet has identified what he called a fosse cut into the second rampart (“glacis de terre noire” (1988:54f.)), I find no basis for identifying anything that functioned as a fosse within the sections he has provided.

**FAR‘AH (SOUTH), TELL EL-
MR 100.076**

References: (Petrie and Tufnell 1930; MacDonald, et al. 1932; Gophna 1993a).

Plans: Site (Petrie and Tufnell 1930:pl. 51); New site plan (Lehmann and Schneider 2000:fig. 1); S Gate (MacDonald, et al. 1932:pl. 77).

Sections: W side, N section (Petrie and Tufnell 1930:pl. 13 top); N side, W section (pl. 13 bottom).

Photos: Site aerial (Petrie and Tufnell 1930:pl. 3); gully on N side (pl. 52:2).

Although Tell el-Far‘ah South features several elements of MB fortification systems, like Tell el-‘Ajjul, the site suffers from the early date of its excavation (1928–1929) which limits the conclusions that can be drawn. Nevertheless, several aspects of the MB II (IIB–C) defenses of Far‘ah South can be remarked upon. The site’s position, located along the W bank of the Nahal Besor 22 km S of Gaza, afforded it considerable defense on its E side (Petrie and Tufnell 1930:15), as well as the fact that ravines leading into the wadi adjacent to the N and S sides of the site also served a similar purpose and may, as Petrie suggested, have been excavated in antiquity to enhance this defense (*ibid.*, 16). It is difficult, though, to determine to what extent the meandering of the wadi removed what might have been a considerable part of the E side of the site. The remaining parts of the site were clearly defended by typical elements of MB fortifications which included a fosse, rampart, glacis, and wall.

The **fosse**, excavated on the W side of the site, measured 24.4 m wide between its upper edges (Petrie and Tufnell 1930:16). The outer bank of the fosse featured a slope of about 40°. Based on Petrie’s plan the fosse does not appear to have been more than 180 m long. At the bottom of the fosse was a 1.2 m wide ditch and 6 m deep with a vertical face 2.3 m high serving as a natural revetment at the foot of the rampart (*ibid.*). The **earthen rampart** which was heaped up behind this revetment and above the original

ground level was 6.3 m high and 11.6 m wide with a slope of 33°; from the top of the rampart to the edge of the revetment along its surface was 18.9 m. The top of the rampart appears to have been leveled for the town wall which is thought to have crowned the rampart here, though it has not been preserved in the excavated area. On the N side of the site the rampart featured a slightly different construction; here it was 8 m high having been built in at least two discernible phases of marl construction upon basal sand (Petrie and Tufnell 1930:17, pl. 13 bot.). The inner slope of the rampart appears to be about 30° while that of the outer slope which was over 30 m long was approximately 40°. If the lines of the rampart in the drawn section are projected then the N rampart appears to have been about 30 m wide; this may have been the rampart's actual width since the interior of the rampart on the W side was not exposed. The top of the N rampart featured a leveled base about 5.5 m wide upon which a **casemate wall** was constructed. The construction of this wall appears to have consisted of two brick walls, the inner of which was more than 1.5 m wide while the outer wall was 0.5 m wide. The entire thickness of this wall appears to have been more than 3.6 m. The wall around the N, W, and S sides of the site was at least 290 meters long, and depending upon how much larger the E side was prior to erosion the fortifications on that side may have been at least another 200 m in length. Overall the rampart's top was situated between 6 and 8 m above the level of the surrounding plain.

At least one gate of the MB II settlement on the S side can be identified, though Petrie had suggested that another was located on the NW side of the site. The **S Gate** for which the identification is certain was aligned, undoubtedly, with the route to the SW from Far'ah South on the coastal road to Egypt (MacDonald, et al. 1932:29f. and fig. 77). Although only the W half of the gate was entirely preserved, it appears to conform to the traditional **six-pier gate** for which four chambers were preserved in the W tower. Each of the 2.2 to 3.8 m wide piers was situated about 3 m apart with a passage between the piers

about 3.6 m wide and 18 m long. The façade of the tower was about 24 m as measured along its N elevation. The gate was built of mudbricks and was built directly on sand (ibid.). On the gate's W side remnants of the roughly 2.5 m wide town **fortification wall** abutting the gate were exposed. That a single wall of a varied thickness from the walls of the casemate on the N rampart (see above) was used in this part of the site may suggest, as at other sites, the intra-site variability in fortification construction. The gate projected a little more than 4 m from the town wall. The interior threshold of the gate was paved with boulders and cobbles. The gate's mudbrick construction is dated to the MB II (IIB–C) with renovations dated to the LB I.

An examination of the plan of the site (Petrie and Tufnell 1930:pl. 51) with specific attention given to the orientation of the S Gate in relation to the site's remaining inhabitable area it is evident that much of the E half of the site has been destroyed by the meandering of the wadi. If the site was roughly circular with a diameter of 200 m, then the inhabitable area within the MB walls would have been limited to about 3.1 ha (cp. 6 ha, Broshi and Gophna 1986).

GERISA, TEL (TELL JERISHE)

MR 1320.1665

References: (Geva 1982; Herzog 1984a; 1984b; 1990; 1991; 1997a; 1997c).

Plans: Site (Herzog 1984a:29); SE (fig. 3).

Sections: SE (Geva 1982:figs. 12, 13, 15–22).

Photos: SE (Geva 1982:pls. 7–10).

The mound of Gerisa is located about 6 km NE of Jaffa and 15 km W of Aphek. Although S. Geva's publication of E. L. Sukenik's excavations on the SE side of Gerisa would serve as the primary basis for a detailed analysis of the MB fortifications that were first excavated during several seasons between 1936 and 1951 (Geva 1982:10–18), these reports must now be interpreted in light of more recent excavations conducted by Z.

Herzog. These excavations in Field A on the SSE side of Gerisa since 1981 have sought to clarify the sequence of the site's MB fortifications (Herzog 1984a; 1984b; 1990; 1991). Herzog's excavations have exposed much of the surface of the mound (2.6 ha) and revealed that the earliest phase of MB I (IIA) settlement was unfortified, like the EB III settlement, but was followed by two fortification systems dated to the MB I (IIA) and one to the MB II (IIB) period (Herzog 1991:51), rather than just one system as Sukenik had originally suggested (see conclusions, Geva 1982:14ff.).¹⁶ Nevertheless, until the final publication of Herzog's excavations, where the results of his work are tied into previous findings at the site, any understanding of the history of the fortifications can only be considered tentative.

MB I (IIA)

Following a MB I (IIA) phase of unfortified settlement, which was also detected in previous excavations (Geva 1982:14), Gerisa was first fortified during the MB I (IIA) with a 1.7 m wide mudbrick **fortification wall**, which was constructed along the edge of the mound (ca. 130 m ASL) (Herzog 1991:51). Against the exterior of this wall a **glacis** was added which was composed of *hamra* and small stones covered with a layer of crushed *kurkar* sandstone. The settlement associated with this wall seems to have experienced a conflagration since collapsed mudbrick and destruction debris had accumulated against its inner face during an early phase of its use. Levels associated with this glacis do not appear to have been encountered by former excavations at the site.

During the next phase of the MB I (IIA) settlement a **second fortification wall** (2.2 m wide in Field A) was rebuilt above the remains of the earlier wall and built almost one meter within the perimeter of the earlier wall (Herzog 1990:61). This phase also

¹⁶Oddly enough, the three phases identified by the most recent expedition could be seen quite clearly in Geva's section of Area IX B from Sukenik's 1936 excavation season (Geva 1982: fig. 18).

featured the building of a **second glacis** which covered the slope with several courses of mudbrick (approximately thirteen in Field A) which were then covered with a layer of crushed *kurkar* sandstone. This glacis corresponds with the glacis identified in Sukenik's excavations, which was also constructed of mudbricks though with far fewer courses; they appear to range from one course (Area IX) to as many as six courses (Area D) (see Geva sections). Brick sizes used in this glacis varied from 35 x 35 cm to 40 x 50–55 cm (Geva 1982:15). Geva described this glacis as built to interlock with the contemporary town wall, which was reportedly 1.8 m wide (*ibid.*, 15), though sections suggest that it was 4.6 m wide in Area D (*ibid.*, fig. 12) and about 2.7 m wide in Area IX (*ibid.*, fig. 17). The slope of this glacis was 20° in Field A according to Herzog (1990:61) but about 25° in Sukenik's section (Geva 1982:figs. 12f., 16, 20). Each of the two MB I (IIA) town walls were associated with at least two floors (Herzog 1997a:113).

Early MB II (IIB)

At some point the fortification wall was replaced by a **third fortification wall** built during the MB II (IIB) of mudbricks 3 m wide, which was itself accompanied by the building of a **third glacis** over the earlier glacis (Herzog 1997c:395).

There is evidence to suggest that the town wall continued in use during the LB I when small domestic structures were built against it, though later in the LB the site seems to have been unfortified (Herzog 1997c:395).

GEZER**MR** 1425.1407

References: (Macalister 1912; Rowe 1935; Dever, et al. 1970; Bullard 1970; Kempinski 1972; Dever 1973a; 1973b; 1974b; Seger 1975; Bunimovitz 1983).

Plans: Site (Dever, et al. 1970:plan 1), Composite of MB II (IIB) town (Herzog 1997b:fig. 4.20); “Inner and Central Walls” (Macalister 1912:III, fig. 51); S Gate (Macalister 1912:I, fig. 125); w “Migdol” tower (Rowe 1935:General Plan); Field I: Tower 5017 (Dever, et al. 1970:plan 8).

Sections: “Central Wall” (Macalister 1912:fig. 119); Field I (Dever, et al. 1970:plan 2).

Photos: “Inner Wall” (Macalister 1912, I:figs. 118, 120–4, 131, II:fig. 121); w “Migdol” tower (Rowe 1935:pls. 1, 5–6); Field I: Tower 5017 (Dever, et al. 1970:4b, 6a-b).

The site of Gezer is situated on the route from the coastal road E into the hill country about 42 km to the NE of Ashkelon. Gezer was approximately 7 ha in size within the line of the late MB II (IIC) wall (Herzog 1997b:156). The fortifications of Gezer in the MB appear to date entirely to the later part of the MB II (IIC), Strata 11a–10a in Field I (see Figure 73 below). Excavations by the Hebrew Union College (HUC) expedition in Field I in the SW part of the site, in addition to previous excavations by R. A. S. Macalister and A. Rowe revealed the remains of these fortifications which included a town wall, rampart and glacis, towers, a bastion, and the S gate. The late MB II (IIC) date assigned to these remains was established by the HUC expedition and, therefore, the inclusion of the results of this earlier expedition follows the general redating of these remains in the light of later observations. The correlations in the various features of Gezer’s MB defenses and the areas excavated by the different expeditions are summarized in Table 27.

Table 27. Correlation of Stratigraphy and MB Fortifications at Gezer. Adapted from fig. 2 in Gezer IV (Dever 1986).

Period	Stratum (HUC)	Macalister	Rowe	Field I	Field IV
MB I (IIA)	XXII				
Early MB II (IIB)	XXI			Str. 10	
MB II (IIB–C)	XX			Str. 9	
Late MB II (IIC)	XIX	“Inner Wall” (town wall), 5 towers	Tower 1005?	Str. 8A–B Tower 5017	Str. 6
Late MB II (IIC)/LB IA	XVIII	“Central Wall” (revetment)		Str. 7A–B Glacis 8012	Str. 5A–B Wall, S Gate, Glacis

Stratum XIX (Late MB II/IIC)

Substantial evidence of the late MB II fortification wall, to which Tower 5017 is thought to have been connected (see below), and the wall’s towers have been brought to light through excavation at Gezer by various expeditions. The town wall, referred to as the “Inner Wall”, was first exposed by Macalister (1912:236ff.) and was one of two other town walls which he exposed, which included the “Central Wall” and “Outer Wall”. Although the “Outer Wall” was recognized to be of post-MB date, Macalister had originally suggested that the “Central Wall”, which he identified as “a rude earth bank, lined inside and outside with a stone facing”, preceded the construction of the “Inner Wall” (ibid., 236). However, as the HUC excavations revealed during their work in Field I (see below) that part of the so-called “Central Wall” was actually a **revetment wall** (see Stratum XVIII below) for the “rude earth bank” or **earthen rampart** (cp. Glacis 8012, discussed below), which followed the construction of the “Inner Wall” with which Tower 5017 was associated. The “Inner Wall”, which he exposed around much of the site (see Macalister’s “First Semitic Period” 1912:III, pl. 2), therefore, was to be identified with the actual **fortification wall** of the MB II (IIB–C) settlement. The wall was recorded by Macalister to be roughly 4 m wide with towers spaced about 27 m apart with dimensions of roughly 12.5 m long by 7.3 m wide (ibid., 238). The town wall’s foundation was

constructed of many courses of “hammer-dressed stones” ranging from very moderate size to some of the largest stones used in any construction at the site (Macalister 1912:238f.). The complete length of this wall would have been approximately 1,160 m around the entire site. Close examination by the HUC expedition of an original photo taken by Macalister’s expedition (1912:vol. 2, fig. 121) of a tower on the “Inner Wall” revealed that much of its mudbrick superstructure was found preserved. This also supports Dever’s interpretation, as he noted (see 1970:19, n. 3), that Tower 5017 once featured a mudbrick superstructure.

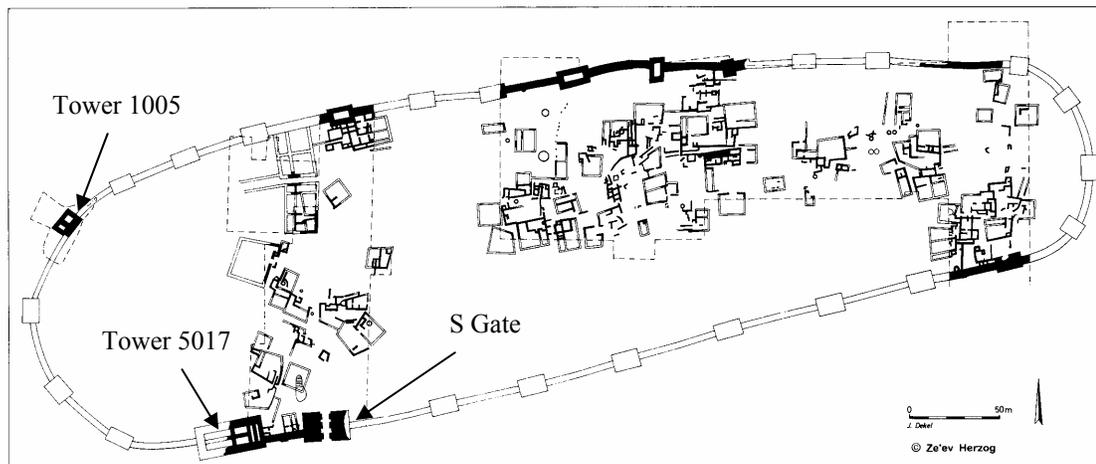
Table 28. Dimensions of towers of Gezer Stratum XIX (from Dever 1986:plan 1).

Tower	Length (m)	Width (m)
N Tower 1	12	8
N Tower 2	16	8
N Tower 3	8	12
N Tower 4	6	8
SE Tower	13	6
Tower 1005	13	8

Five complete **towers** (Table 28) and a part of another **tower** associated with the town wall were exposed by Macalister’s expedition (Macalister 1912:III, pl. 3). A seventh **tower** appears to have been exposed by Rowe on the N end of the W side of the site, though he claimed that the wall built along the structure’s E side, which was 2.35 m wide, was not the town wall but that it was located “much further to the west” (1935:28). It is likely that Rowe was referring to Macalister’s “Outer Wall” which was dated to the Iron Age and was located further W. Reconstructions of the plan of the site’s MB fortifications since *Gezer I* (Dever, et al. 1970:plan 1) have favored an identification of this structure as a tower on the town wall (see also Herzog 1997b:fig. 4.20). The tower (no. 1005) was 13 m long by 8 m wide with walls ranging in thickness from 1.8 to 2.3 m (Rowe 1935:28). Its foundations in contrast to those of the town wall in other areas or Tower 5017 (see below) appear to have been rather shallow, perhaps only one or two

courses of large stones (see Rowe 1935:pls. 1, 5–6), and no evidence of its mudbrick superstructure has survived.

Figure 73. Late MB II fortifications of Gezer. Reprinted, by permission, from Z. Herzog (1997a:fig. 4.20).



Portions of Tower 5017 were exposed during the first season of the HUC expedition 1964–65 (Dever, et al. 1970:18ff.). Although the building has been referred to as a tower, it is more appropriate to refer to the structure as a **bastion**, in light of similar structures revealed in the excavation of Ebla’s MB II fortifications. The entire fortress was not excavated but projections of its dimensions suggest that it was 15.6 m wide and more than 22 m long (Dever, et al. 1970:18).¹⁷ Macalister had originally associated this structure with the “Inner Wall,” and Dever had once assumed that the structure was a “localized thickening of the wall” just to the w of the S Gate (ibid., 19). The foundation of this fortress was built primarily of large stones (avg. 1 m long by 0.75–0.9 m wide) with smaller stones between them and stood about 4.25 m high; the mudbrick superstructure has been presumably robbed out (see also ibid., n. 3 and town wall above).

¹⁷Z. Herzog has suggested that the bastion was up to 30 m long (1997a:156), a suggestion in keeping with the ratio of 2:1 (length to width) of other MB towers (see chapter 4, section A.5.a). His illustration suggests that it was up to 40 m long (see fig. 4.20, 1997a)

The stones of the exterior (S) elevation of the building were dressed, while those used on the interior (N) elevation were not because, as the identification of a foundation trench in the section illustrated (cf. *ibid.*, plan 2, p. 41), this face would never have been exposed. The earliest surface associated with this fortress was attributed to Field I's Stratum 8b (*ibid.*, 19), and the latest pottery in the foundation trench associated with this building was dated to the late MB II (IIC) (*ibid.*, 42). In light of this evidence Kempinski's attempt (1972) to redate this structure to the MB I (IIA) cannot be accepted (see also Dever 1973b).

Stratum XVIII (Late MB II/IIC-LB IA)

In addition to the evidence of the town wall and towers associated with it both Macalister and the HUC expedition brought to light evidence of an **earthen rampart** (Glacis 8012) built against the MB II (IIB) wall during the late MB II (IIC)-LB IA (Dever, et al. 1970:42ff.). As Dever has convincingly argued, the glacis revealed in Field I was supported in a later stage by a **revetment wall** (9011) at its base (*ibid.*, 42), which Macalister had also identified but had referred to as the "Central Wall" not realizing that it was constructed after and against the "Inner Wall" (see Macalister 1912:I, p. 236, esp. fig. 120 where the rampart can be seen sloping down from the "Inner" wall to the "Central" wall). However, Dever's suggestion that Macalister removed the glacis between the "Inner Wall" and "Outer Wall" being "unaware of what it was" ignores that he did consider the "rude earth bank" to be a part of the construction of the "Central Wall". Furthermore, Dever assumes that the glacis had been constructed around the entire site as it appeared in Field I, however, Macalister had already observed that it was "by no means uniform throughout its length" (*ibid.*). This lack of uniformity in construction was quite characteristic of the fortifications at other MB sites (e.g., Dan, Tel Haror, and Jericho). Nevertheless, as the section (Dever, et al. 1970:plan 2) of the excavation of the glacis (8012) in Field I by the HUC expedition revealed, the rampart was 6.5 m high and

10 m wide (see Figure 6 on p. 107).¹⁸ The section also reveals the very highly developed technique (“sandwich” method) which was employed in which alternating “dikes” of crushed chalk and concave layers of debris were heaped to achieve a 45° slope for the rampart. These layers of the rampart were sealed by a **glacis** of “impermeable chalk paste” (ibid., 43). According to R. Bullard it was necessary “to go to the base of the local Shephelah” to obtain the unweathered chalk used in the construction of the glacis (1970:119). At a later date the revetment wall (9011) was constructed out of stones (sixteen courses visible in section) 4.5 m high and 3 m wide (Dever, et al. 1970:43).

According to Dever the evidence for the rampart (Glacis 8012) and later revetment wall (9011), suggest that the rampart and its glacis should be dated to the late MB II (IIC) while the revetment wall dated to the LB IA when another glacis (8009/9007) was added behind this wall and above the original glacis (Dever, et al. 1970:44). Dever’s interpretation of the relative sequence of these features and the assignment of Wall 9011 to a period following the construction of the rampart 8012 appears to be corroborated by the section drawing (see plan 2 in Dever, et al. 1970). However, Dever’s suggestion that a mudbrick structure was built atop Wall 9011 (ibid., 44) in this period, which supported the final glacis, cannot be verified and Macalister made no reference to any evidence for such a wall in his discussion of the “Central Wall”. Nevertheless, 9011 appears to have continued in use through the Iron Age and it became the foundation for the construction of the “Outer Wall” (Dever 1974a:35ff.).

Although Macalister attempted to identify two gates associated with the MB wall, one on the NE (see Macalister 1912:III, pl. 51) and another on the W end of the S side

¹⁸Note that although Dever was cautious not to offer figures concerning the size of the rampart, based upon evidence from other sites it would seem that the rampart probably continued at the same slope up to the foundation of the wall (Tower 5017) which was probably originally a couple of meters higher. Furthermore the rampart’s dimensions, if not its make-up seem consistent between Dever’s Field I and Macalister’s exposure (cp. Macalister 1912:I, fig. 120).

(*ibid.*, I, fig. 125), his identification of the NE Gate has not been accepted. The S Gate, on the other hand, which was preserved to a height of 4.3 m, was a **six-pier gate** built between two mudbrick towers with dimensions of 8.7 (E-W) x 12.9 (N-S) m and 8.5 x 12.9 m (*ibid.*, 241). The gate's façade measured 24 m across and it was 12.9 m deep. Bricks used in the gate's construction averaged 38 x 29 x 10 cm. Macalister also detected lime plaster coating on many of the bricks. Because the gate was not set "at right angles to the wall" the E tower projected slightly further from the wall. The passage between the towers, which descended slightly from within the town, was composed of "roughly laid" fieldstones and was 12.9 m long and 2.75 m wide. Three pairs of orthostats were added to the two sides of the passageway to create the six piers of the six-pier gate. The orthostats on one side of the gate were spaced approximately 1.97 m apart (*ibid.*, 242). These orthostats were incredibly large with an average thickness between 57 and 60 cm; the length of those on the W side from S to N measured 2.7 m, 2.5 m, and 2.2 m, while those on the E from S to N 2.58 m, 2.65, and 2 m.

The date of the destruction of the site's fortifications, either at the end of the MB II (IIC) or during the LB I, has been a matter of debate. Nevertheless, there is evidence that the site may have been destroyed in a fire as suggested by the cracking of the orthostats in the town gate (Macalister 1912:242).

GIV'AT SHARETT

MR 1483.1274

References: (Bahat 1993).

Plans: (*ibid.*, 254).

Sections: NA.

Photos: (*ibid.*, 254).

The MB II (IIB–C) village of Giv'at Sharett is located about 1.6 km to the SE of Beth-Shemesh. Like the contemporary village at Manahat, Giv'at Sharett was probably

only defended by the **rear walls** of the houses that made up the settlement, as Bahat has suggested (1993:254). Although it is true that such defenses were probably inadequate against an organized army, the site's proximity to Beth-Shemesh probably meant that its inhabitants would have sought refuge there during a true crisis.

HAMMAH, TELL EL-

MR 1973.1977

References: (Cahill, et al. 1988; Cahill and Tarler 1993).

Plans: NA.

Sections: NA.

Photos: Site aerial (Cahill and Tarler 1993).

Tell Hammah is located 16 km s of Beth-Shean. A mudbrick **fortification wall** measuring 2.8 m wide featuring an offset 0.4 m wide and 1.75 m in length was revealed during the 1988 season in a trench (20 x 3 m) in Square H6 on the SE side of this small mound (2.2 ha) (Cahill, et al. 1988:194). A **rampart** comprised of alternating layers of earth mixed with stones and earth mixed with stone chips has been identified on the exterior of and against the wall in Squares H6, G6, and F6. Since none of the pottery found in the glacis was later than the MB the date of the structure is secure. Nevertheless, a more precise date is not possible. The MB rampart appears to have been founded on bedrock around –120 m ASL where the earliest layers of chipped stone were deposited. If the fortification line followed the –115 m contour line then the intramural area during the MB was approximately 1.3 ha according to the excavators (Cahill, et al. 1988:194; Cahill and Tarler 1993:562).¹⁹

¹⁹There is some confusion about the contour line that the fortifications followed. Cahill has in one place reported it to be –115 m ASL (1993:562), but elsewhere she has reported that it was –155 m ASL (Cahill, et al. 1988:194, see also ESI 9:2, p. 135). Although –155 m is more frequently reported it is difficult to believe that such a small site featured a 35 m high rampart! For this reason it would seem that the figure of –115 m, which yields a 5 m high rampart, is in fact the correct figure.

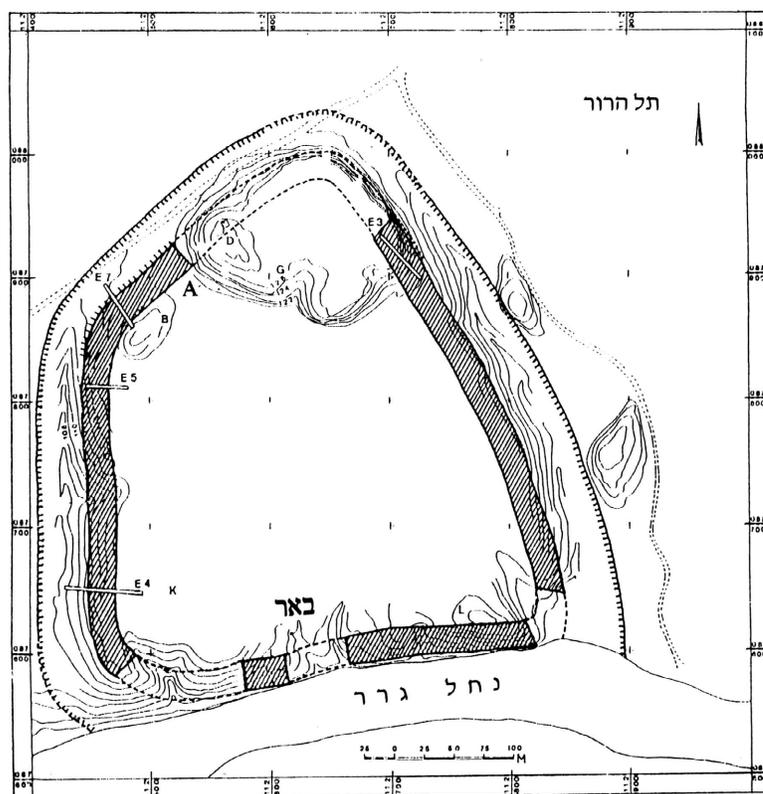
HAROR, TEL (TELL ABU HUREIRA)**MR** 11257.08795**References:** (Oren and Morrison 1986; Oren 1993a;1996;1997b).**Plans:** Site (Oren and Morrison 1986:fig. 2).**Sections:** E3 (Oren 1996:fig. 8); E4 (fig. 4); E5 (fig. 5); E7 (fig. 6).**Photos:** Site aerial (Oren 1997b:fig. 8.2).

Tel Haror is located along the Nahal Gerar 23 km SE of Tell el-‘Ajjul and 31.6 km to the SSE of Ashkelon. The site was first settled at the start of the MB II (IIB) and grew to approximately 16.2 ha in size. During the sixth season of excavation it was confirmed that the site had obtained its full size during the MB II (IIB) when its ramparts were constructed (Oren, et al. 1991:73). Haror consisted of an upper town or citadel and a lower town that was surrounded by a fosse and earthen ramparts, which extended from the upper town to the s and w. On the s side Haror was also protected by the Nahal Gerar. The rampart and fosse were explored in several areas: Trench E 3 on the NE side of the acropolis, Trenches E 4 and E 5 at the S and N ends, respectively, of the W rampart, and Trench E 7 at the W end of the N rampart.

The lower town was surrounded by 1,115 m long **earthen ramparts** which averaged 20 m wide and 7 to 8 m high and formed a trapezoidal shaped enclosure at the base of the upper town (Oren 1996:22; 1997a:474). While these dimensions are an average based on the areas where the rampart has been excavated, the actual dimensions of the ramparts were slightly different in each location (see Table 29 below). The ramparts were built without a core wall and they were consolidated by using alternating layers of different materials including *kurkar* gravel and sand, and earth and loess. These materials were all found within the rampart in the reverse sequence in which they occur in the region’s geological sequence, suggesting that they were excavated primarily from the fosse and deposited directly outside of the fosse to build up the rampart (*ibid.*, 17).

Where *kurkar* was included in the rampart's construction, whether crushed or in large pieces, it appears to have been taken from the excavation of the fosse immediately outside the rampart (*ibid.*, 22). Some evidence suggests that the ramparts were also covered by a **glacis** of flat *kurkar* stones and mud plaster. On the N side of the site it is appears that a **revetment wall** of *kurkar* stones was also built to keep the rampart from eroding (Oren 1993a:582).

Figure 74. Plan of Tel Haror with MB II rampart. Reprinted, by permission, from E. Oren (1996:fig. 1).



From the average dimensions of the ramparts it is possible to suggest that the combined volume of earth and stone incorporated into the construction of the ramparts around the lower town, which were about 1,115 m long, was approximately 80,175 m³ (see Table 29 below), which can be compared with Oren and Yekutieli's estimate of 150,000 m³ for a rampart 1,300 m long (Oren 1996:23). Even if we include the 185 m of

rampart probably remaining around the N and E sides of the upper town averaging 6 m high and 20 m wide (see E7, *ibid.*, 19) for another 11,100 m³, in order to obtain a total length of 1,300 m, we still fall considerably short of the estimate provided by the excavators. Even doubling the length of the upper town's fortifications, which were probably present based on the section of Trench E 7, results in a figure (102,375 m³) that is still well below the excavators' estimate.

Table 29. Dimensions of Haror's earthen rampart based on Oren (1996). Fortifications of upper town not included.

Area	Height (m)	Width (m)	Length (m)	Volume (m ³)
E Rampart ^a	22	7	335	23,450
E 4 (W Rampart)	22	7	300	23,100
E 5 (W Rampart)	30	8	—	—
E 7 (N Rampart)	16	6	115	5,520
S Rampart [†]	22	7	365	28,105
<i>Total</i>			480	33,625

^aNot excavated. Dimensions are based on an average of those provided for the fortifications in each of the excavated sections (E 3, 4, 5, and 7).

Erosion may have claimed the original mudbrick town wall since no evidence of it was found in the areas excavated, though Oren and Yekutieli have recently suggested that it may never have been crowned by a wall (Oren 1996). Mining of the ramparts for building materials in the late Iron Age may also have contributed to the absence of evidence for the town's fortification wall. Nevertheless, given the reconstructions of the ramparts' sections (Oren 1996:figs. 4–6, 8), which illustrate how much of the upper portions of these ramparts is missing, it is reasonable to assume that the events responsible for removing these portions of the ramparts were also responsible for the eradication of traces of the crowning wall in the areas excavated. Evidence from the SE part of the site suggests that during the course of the MB II (IIB–C) the rampart was abandoned and a new mudbrick fortification wall was built at the base of the rampart while numerous pits were cut into the rampart's surface (Oren 1993a:582).

Outside of the rampart a **fosse** was excavated around the three sides of the site (N, W, and E) while the Nahal Gerar flanked the fourth side. The fosse was mostly explored in trench E7 on the N side of the site where it appears to have been about 4 m deep and 12 to 15 m wide (Oren 1996). As noted above, the fosse has been considered the primary source for the material used in the construction of the rampart.

HAZOR (TELL EL-QEDAH)

MR 2032.2691

References: (Yadin, et al. 1958;1960; Yadin, et al. 1961; Yadin 1972b; 1975; 1989; Dunayevsky and Kempinski 1990; Ussishkin 1992; A. Mazar 1997a; Covello-Paran 1999; forthcoming).

Plans: Site (Yadin, et al. 1958:pl. 2; Ben-Tor and Bonfil 1997:plan V.30); Area A (Yadin, et al. 1989:plan 2); Area C (Yadin, et al. 1958:plan 179); Area G (Yadin, et al. 1989:plan 30); Area H (Yadin, et al. 1989:plan 41); Area K (Yadin, et al. 1989:plans 42f., 45); Area P (A. Mazar 1997a:plans V.1–5, 7).

Sections: Area C (Yadin, et al. 1958:plan 179); Area G (Yadin, et al. 1989:plan 36, sections A-A, B-B, E-E, F-F); Area H (Yadin, et al. 1989:plan 41); Area K (Yadin, et al. 1989:plan 44); Area P: Section A-A¹ (A. Mazar 1997a:Section V.1) and Section B-B¹ (ibid., V.8); E Lower town Section A-A (Yadin 1972b:fig. 11).

Photos: Site (Yadin, et al. 1958:pl. 1); Area C (Yadin, et al. 1958:pls. 26:5–6); Area G (Yadin, et al. 1961:pls. 78–80, 94:2–96); Area H (Yadin, et al. 1961:pls. 103:8,); Area K (Yadin, et al. 1961:pls. 130–145); Area P (A. Mazar 1997a:photos V.1–11, 13–27).

The site of Hazor (*Ha-zu-ra* in the Mari texts), which is located in the Huleh Valley about 27 km SSE of Tel Dan, is at its highest point about 235 m ASL. Occupation of the site during the MB, which appears to have begun no earlier than late MB I (IIA) or early MB II (IIB) (Ben-Tor and Bonfil 1997:198) included both the upper town and lower town covering a gross area of about 74 ha (Yadin, et al. 1958:2). At the start of

excavations the tell's surface was 6.1 ha (10.6 ha at the base, *ibid.*, 1). Final reports for the excavation of Hazor's MB defenses serve as the primary basis for an analysis of the site's fortifications (Yadin, et al. 1958; 1960; 1961; 1989; Ben-Tor and Bonfil 1997). Additionally, Yadin published general overviews of the results of the excavations where other interesting details can also be found regarding Hazor's fortifications (Yadin 1972b:esp. 51–65, 106–109, and 112–128; 1975:129–141). Elements of the fortifications of Hazor dated to the MB have been explored on the tell and around the lower settlement in Areas C, G, H, K, and P. Since the construction of the fortifications in each of the excavated areas was not identical, the results of the excavations will be treated by area rather than stratigraphically or chronologically. Although the archaeological facts pertaining to these areas are clear from the excavations, it is clear that varying interpretations of the excavated features have also been advanced (see principally comments in Vol. 3–4, Yadin, et al. 1989:xvii ff.). Differences of opinion are noted when they are relevant to the summaries provided here.

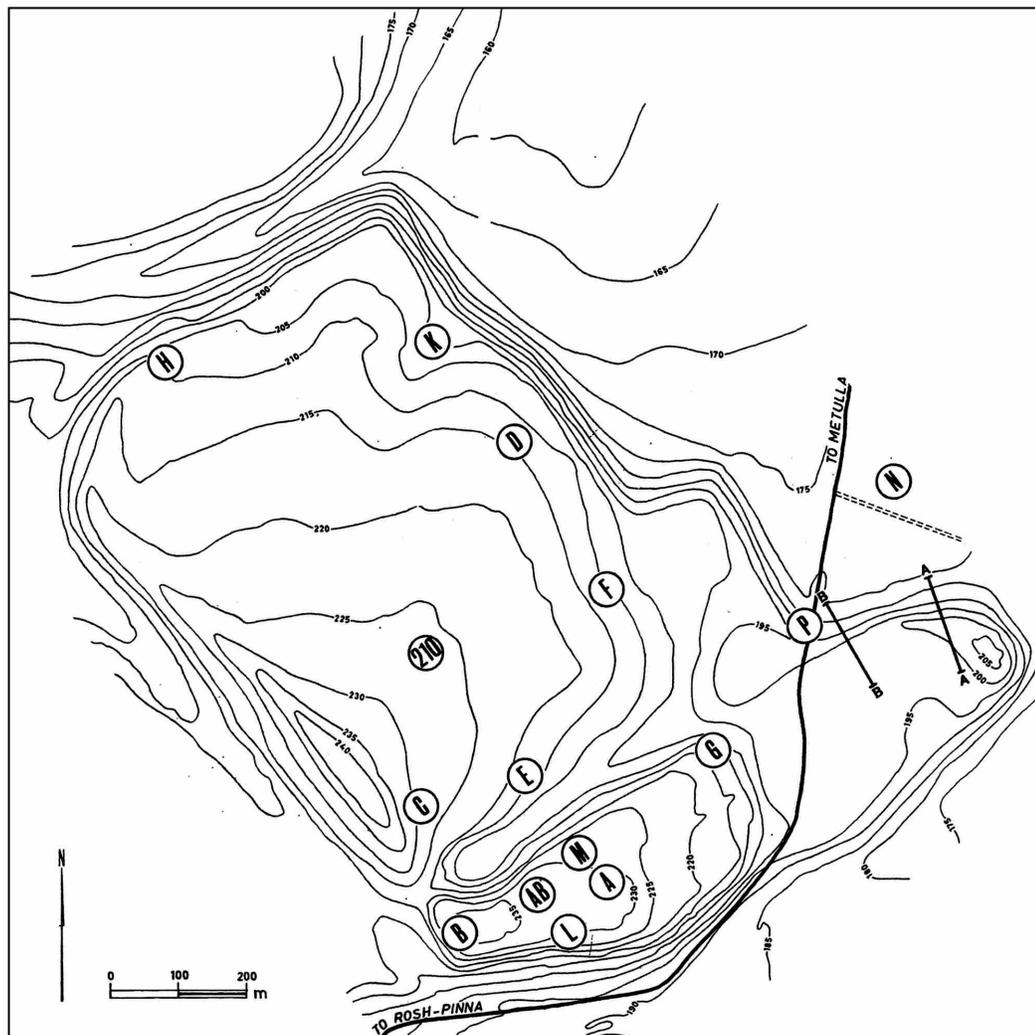
Table 30. Stratigraphic correlations between the upper and lower towns at Hazor.

Period	Upper Town	Lower Town	Area P
Early MB II (IIB)	Stratum XVII	Stratum 4	Phase D
Late MB II (IIC)	Stratum XVI	Stratum 3	Phase C
LB I	Stratum XV	Stratum 2	Phase C?–B?
LB IIA	Stratum XIV	Stratum 1b	Phase B
LB IIB	Stratum VIII	Stratum 1a	Phase A

Although the results of the excavations of the fortifications of the lower town are best known, excavations of the tell also revealed portions of upper town's MB defenses. Correlations between the stratigraphy of the upper and lower towns are provided in Table

30. Since the earliest MB occupation at Hazor may have been limited to the upper town, we will begin with these remains.²⁰

Figure 75. Plan of Hazor (after Yadin 1972b:fig. 3).



Upper Town

Area A. Although Yadin suggested that a large building (389) excavated in Area A and attributed to Stratum XVII was part of the “inner wall of the Upper City” during

²⁰The suggestions that the tell of Hazor was settled during the MB I (IIA) has been based upon the finds of MB I-II (IIA-B) pottery on the tell (Yadin 1972b:121f.) and an MB I (IIA) tomb in Area L excavated in 1971 (Ben-Tor 1997a:2f.).

the MB IIB–C (1972b:114) and, likewise, that “the mudbrick wall uncovered in Area A” was to be identified with the MB II (IIB–C) defenses of the tell (1989:169), it is not certain how this suggestion came about. While a large structure (building 369) was published as part of Yadin’s original report (1989:6ff.), no details are provided which suggest, first, that the structure should be identified as part of the upper town’s fortifications, or second, that this building marks the edge of the upper town during the MB.

Area G. In Area G portions of the fortifications of the upper town were exposed (Yadin, et al. 1989:165ff.). Excavations here suggest that the tell’s level during its earliest MB settlement (late MB I/IIA to early MB II/IIB) averaged 212 m ASL (ibid., 166). During the MB a stone **glacis** (10570) was built around the tell and in Area G it can be seen to bend around the tell’s NE corner sealing its N and E slopes (ibid., 168). Its height was approximately 4 m and its base was built on a level anywhere from 204 to 208 m ASL, but the **wall** built atop this glacis was at about the same elevation throughout, ca. 209.8 m (ibid., 169). The slope of this glacis was 68°. The glacis of the upper town was complimented by a small **fosse** which ran around its base.²¹ Ceramics from later occupation in the fosse confirm that both the fosse and the glacis are to be attributed to the site’s MB occupation, but it was not possible to determine whether or not the glacis belonged to Stratum XVII or XVI of the upper town. Ussishkin’s arguments (1992:276ff.) for dating these structures to the Iron Age are not convincing.

Lower Town

Area C. The **earthen rampart** on the w side of the lower town was first explored in Area C during the first season of excavation at Hazor (Yadin, et al. 1958:71ff.).

²¹ Although Yadin used the terms both fosse and moat to refer to this feature (see editor’s note, Yadin, et al. 1989:169), following the conventions throughout this work, this feature should be identified as a fosse.

Unfortunately, its excavation cannot be considered complete since the trench did not bisect the entire rampart and it was not possible to provide a section of its fill layers. Nevertheless, Yadin considered the rampart to have been constructed from the debris taken from the construction of the fosse just to the w of the rampart (ibid., 2). The rampart's dimensions which are roughly 90 m wide and 15 m high with an exterior slope of 18°, vary depending on the amount of material taken from the fosse directly outside the rampart, which consisted of earth and stones (ibid., 75). With a length of about 700 m the rampart's volume would be about 472,500 m³.

Evidence that the rampart was reinforced after its construction by parallel and perpendicular walls built on its inner slopes was also revealed. The inner slope of the rampart, which features a slope of 16°, appears to have been covered with a **glacis** of cobbles, which may have served to prevent erosion of the rampart within the settlement; it was in most places only one cobble thick, but in another place it measured as much as 3 m thick (Square F5). If a wall was constructed at the top of this feature then its level taking erosion into consideration would have been no less than 243.58 m ASL (ibid., 2). The rampart continued in use through the final phase of settlement in the lower town during the LB II (ibid., 92). Yadin has suggested that one of the four gates was located at the s end of the w rampart, between the rampart in Area C and the upper town (Yadin, et al. 1958:2). But this area has not yet been explored.

Although no excavation trench was placed across the **fosse** on the w side of the site outside of the rampart, Yadin's examination of this feature found it to be approximately 600 m long N to S, 40 m wide at the base and 80 m wide at the top with an average depth of 15 m (Yadin, et al. 1958:2). These dimensions yield a volume of about 540,000 m³.

Area H. Additional evidence for the town's rampart was revealed in Area H to the E of the temple excavated on the N side of the lower town (Yadin, et al. 1989:212ff.).

The **rampart** (2193), which was determined to be a continuation of the w rampart, was built atop an underlying natural slope of 12° with a slope of 25°. It was about 8.5 m high with a base about 55 m wide. The summit of the rampart was around 210 m ASL (ibid., 214). The inner slope of the rampart was about 32°. If this rampart was roughly of the same dimensions along the 600 m stretch on the N side of the site, this rampart would have been about 140,250 m³.

Area K. In Area K on the NE side of the lower town a **six-pier gate** was excavated by Moshe Dothan, the principle excavator after its location was originally identified by Garstang from the depression in the site's contours (Yadin 1972b:58ff.; 1989:276ff.). Only the S half of the gate was excavated to avoid its complete exposure (1972b:59). The gate conformed to the six-pier plan like the gate in Area P, however, unlike the gate in Area P it exhibited considerable modification during the main phases of its use. Its earliest phase of use coincided with the earliest MB occupation of the lower town (Stratum 4, MB II/IIB) when it had been built on virgin soil. Unfortunately, only a small portion of this gate was exposed below the later gates and, therefore, its plan appears less complete. Nevertheless, the gate consisted of two solid, square mudbrick towers 9 m square which were built on basalt fieldstone foundations up to 1.4 m high (Yadin, et al. 1989:277).²² The position of the gate was much further towards the settlement than were successive gates, which may be suggestive of the population pressure upon the settlement over the course of the MB which required later renovation of the wall to provide additional living space within the settlement. Although Yadin had reconstructed three piers projecting on the interior of the gate's passage between the towers (1972b:fig. 12, p. 59), no such piers were detected during excavations. The gate's towers were abutted by

²²Dimensions could not be obtained due to the conditions of the mudbrick superstructure (Yadin, et al. 1989:279).

the town **fortification wall** to the N and S which consisted of a casemate construction with 1.7 m wide outer walls (W.5530 and W.5529) flanking a 1.7 m wide space; if the space between the walls were filled the wall's entire width would have been approximately 5 m (1989:279). The destruction of the gate of Stratum 4 led to this gate's abandonment and the building of the Stratum 3 gate (*ibid.*, 280).

The Stratum 3 (late MB II/IIC) gate of Area K involved a considerable departure from the plan of the earlier gate, which now truly followed the **six-pier gate** design, in addition to a shift in the lower town's **fortification wall** almost 13 m away from the settlement (Yadin, et al. 1989:280ff.). The projected size of the entire gate complex is 20.3 m wide by 16.5 m deep with towers 6.5 m wide by 16.5 m long (*cp. ibid.*, 281). The exterior wall of the tower (W.5501) on the E side was the widest of the tower's walls and measured 2.8 m wide while the remaining three walls (5505, 5511, 5506) of the tower averaged 2 m wide. These walls were preserved to a height of 3 m, the lowest 1.5 m of which appears to have served as the foundation for the gate. Along these walls the remains of mudbricks confirm that the superstructure was indeed built of mudbrick. Like the gate in Area P (see below), the towers of the Stratum 3 gate in Area K also featured two rooms (L.5005, L.5001) connected by a single passage 0.8 m wide. The E of the two rooms (L.5001) also provided evidence for a doorway 1 m wide leading into the gate's exterior chamber.

The passage of the gate between the towers is thought to have measured about 3.1 m wide and only this part of the passage, but not its chambers, was paved (see Yadin, et al. 1989:plan 42).²³ The passage actually slopes as it leads outside the settlement about

²³Note that the figure of 7.3 m given in the text of *Hazor III-IV* (Yadin, et al. 1989:281) as the width of "the gate's passageway" is incorrect and is intended to refer to the combined breadth of the gate's chambers from north to south. The correct figure of 3.1 m for the "width of the passageway" is provided at the end of the same paragraph.

1.5 m over a length of 16.5 m (a grade of about 5°). Three piers with 3.4 m spaces between them, projected 2.3 m from each of the gate's two towers. The piers were not of similar size, the widest being the most exterior (3 m), the second widest the center pier (2.3), and the narrowest the interior pier (2 m).

The town **fortification wall** associated with the Stratum 3 gate was moved 9 m to the E of the Stratum 4 wall (Yadin, et al. 1989:282). It approached the center of the S tower and like the earlier wall featured a casemate construction of a combined width of 5.2 m, which included a 1.5 m wide outer wall (W.5534), a 1.4 m wide inner wall (W.5528), and a space of 2.3 m between them. Like the gate, these walls were built of mudbrick with stone foundations. Excavation of the casemate wall approaching the N side of the N tower of the gate indicates that the overall width of 5.2 m could be achieved with walls of varying width; in this case the outer wall (W.5502) was 1.9 m wide and the inner wall (W.5523) 1.2 m wide with a space of 2.1 m between them. It should be noted that the exterior wall had foundations more than 2 m deeper than those of the interior wall of the casemate and this was probably intended to compensate for the building of the casemate on the earlier slope of the site. Excavations to the N of the gate also suggest that the casemate was not continuous but was instead replaced by a solid wall after a distance (ibid., 283).

In addition to the wall of Stratum 3 it appears that a **revetment wall** (W.5503) of large basalt boulders was constructed 10 m E of the town's wall (Yadin, et al. 1989:284). A fifty meter length of this wall preserved to a height of nearly 5 m was exposed. Although it could not be stratigraphically connected to the gate and town wall of this period, the presence of pottery below the revetment wall suggests that it was not constructed as part of the initial defenses of the settlement (ibid., Yadin 1972b:60f.). Furthermore, its distance from the Stratum 3 fortifications made it ideal for regulating entry to the town in this period, while it would have been too far to have served a similar

purpose in Stratum 4. Yadin postulated that this wall also remained in use during later phases of the settlement's fortifications. Ussishkin, however, has suggested that this wall was never exposed in antiquity, but had been "covered by earthen fills" and only served to "stabilize the constructional fills on which the gatehouse and the piazza were based" (1992:276). Unfortunately, Ussishkin's theory cannot be tested as it rests on the assumption that the deterioration that the wall had suffered within the thirty-four years since its excavation is the best indication that it could not have "stood exposed and in use for a few centuries without being affected". The counter-argument against this suggestion is that during the same amount of time the wall was also not maintained, as it would have been in antiquity. In Stratum 2 (LB I) no major changes were made to the late MB fortifications in Area K.

Although the area was never explored, Yadin suggested that another gate may have served the lower town on the E side S of Area K (Yadin, et al. 1958:3), but like the gate suggested S of Area C this too has not yet been confirmed.

Area P. Excavations in Area P by Amihai Mazar revealed that the modern road, which had been laid through this part of the site at a 45° angle (on a NE-SW line) to the embankment of the fortifications, used the depression in this area which corresponded with an ancient **six-pier gate** into the lower town on its E side (A. Mazar 1997a:353). Only the N half of this gate survived and for this reason it is not possible to derive the complete dimensions of this structure in its earliest phase (D). The gate appears to have attained its layout during Stratum 4 (MB II), local phase D, when the structure was built with what is thought to have been a **six-pier** plan. Its piers (e.g., W.1449) which extended back into the structure to form its W and E elevations, as well as its inner dividing wall between its towers measured 3.3 m wide, while its passage walls measured 3.1 m wide (W.1447) (ibid., 354). The four chambers within the towers (L.1435 to S)—two on each side—measured 5 x 3.2 m; these appear to have been connected by a narrow passage

(L.1410C) measuring 70 to 80 cm wide. Although the phase D gate was considerably damaged, no destruction layer could be associated with the gate's condition (*ibid.*, 355). The floor of the gate was only exposed in a small area against its inner wall (L.1434). A part of the stone paved ramp (L.1424) that led to the gate may have been exposed against the E elevation of the N half of the gate.

In Phase C, Stratum 3 (MB III/IIC or LB I) the gate appears to have been built along the lines of the earlier plan with the new floor (L.1429) about 1 m above the earlier floor (A. Mazar 1997a:355). The dimensions of the W tower of this gate (L.1414) are reconstructed as 20.6 x 9.5 m with roughly 1 m of its stone foundation preserved, which was probably its complete height. Based on the schematic plan of the Phase C gate it was about 25 m across and 20 m deep (A. Mazar 1997a:plan V.3). No evidence of the mudbrick superstructure remained. The Phase C walls appear to have remained in use during Phase B (Stratum 1b-2?, LB I-IIA). The interior passage wall during these two phases was narrower, only 2.65 m, wide, which contributed to the creation of deeper chambers between the gate's piers. A building built against the N tower of the gate (Building L.1418) may have been built as early as Phase C, though it was definitely in use during Phase B (*ibid.*, 363). The exact purpose of this building is unknown. Ceramics found on the floor of the W tower (L.1414) date the destruction of the gate to the end of the MB (MB III/IIC) (*ibid.*, 357). When the Phase B gate was destroyed it was replaced by the final gate in Area P belonging to Phase A and dated to the LB IIB (*ibid.*, 360).

Also in Area P remains of stone-built **terraces** were excavated to the S of the gate (A. Mazar 1997a:368ff.). This set of six terraces bridge an elevation difference of 3.45 m over a distance of 10 m as they approached the S elevation of the S tower of the gate (see Section A-A¹). Each terrace was between 40 and 60 cm high. The earliest of the sets of terraces identified is dated to Phase C, although they may have first been constructed in Phase D; they continued in use into Phase B when the width of the terrace (and perhaps

the associated wall) was widened to 15 m (*ibid.*, 367). Probes excavated below these terraces demonstrated that they were originally dug into the earthen rampart. As was the case in the construction of the gate, the use of basalt stones in the construction of the terraces serves as an indication of the later date of the structure.

Sections and Excavations in the ‘Eastern Spur’. Before the excavation of the gate in Area P two sections were made through the N side of the fortifications of the ‘Eastern Spur’ of the lower settlement in advance of construction by the Kibbutz Ayeleth Ha-Shahar (Yadin 1972b:25,54–57; Dunayevsky and Kempinski 1990). Although sections A-A and B-B were completed in 1965 (see fig. 1 in Dunayevsky and Kempinski 1990 for location of sections), final publications of these soundings remain forthcoming. **Section A-A** is the E most of the two sections (*ibid.*, fig. 11) and served to demonstrate that this portion of the rampart was constructed with a **core wall** built of mudbricks preserved over 7 m high, which was wider at the bottom (10.5 m) than at the top where it measured 8 m thick (*ibid.*, 55). Yadin identified the construction of the core as a ‘structural casemate’ noting that it featured a space “3 m wide and 5 m. deep, filled with basalt and other stone pebbles and beaten earth”. The construction of the core was completed with mudbricks measuring 40 x 30 x 15 cm and Yadin noted that often the vertical mortar joints between bricks could be as much as 10 cm thick. The build up of an **earthen rampart** occurred in sets of debris (I–III) that were piled against the front of the wall and plastered when complete, which appears to suggest that it functioned as an exterior surface prior to the addition of the layers of the interior side of the core wall. The final ‘block’ of debris on the exterior was sealed by a **glacis** consisting of 15 cm of plaster (Dunayevsky and Kempinski 1990:25). All of the ceramics recovered from the fortifications here were of MB I (IIA) and II (IIB) in date (*ibid.*, 26).

As if to only demonstrate that construction of Hazor’s defenses was not contiguous around the site, **Section B-B** revealed that no mudbrick core wall was present

in the area 140 m to the w of Section A-A (Dunayevsky and Kempinski 1990). The core in Section B-B consisted only of earth which may have been a result of the topographical needs of the construction of the rampart as it approached the gate in Area P. Despite these irregularities we can attempt to calculate the amount of fill used in the rampart of the Eastern Spur based upon Section A-A, which was better preserved and appears not to have lost a great deal of its height against the core wall. Its combined width minus the core wall was roughly 46 m, while the rampart's height was about 8 m. Presuming that these dimensions represent an average for the rampart around the Eastern Spur which was 880 m, the rampart's total volume would have been approximately 161,920 m³.

Table 31. Summary of MB fortifications of Hazor. Abbreviations: UT (upper town) and LT (lower town).

Area	Stratum XVII (UT) Stratum 4 (LT)	Stratum XVI (UT) Stratum 3(LT)
Area A (UT)	Wall?	
Area C (LT)		Rampart and Fosse
Area G (UT)		Stone glacis and Fosse (date uncertain)
Area H (LT)		Rampart
Area K (LT)	Six-pier (?) gate 1 st Town wall	Six-pier gate 2 nd Town wall
		Revetment wall
Area P (LT)	Six-pier gate Terraces (town wall)	Six-pier gate Terraces (town wall)
Sections AA & BB (LT)	LT: Rampart and core wall	

Exploration of the Eastern Spur in Area C during salvage excavations carried out in 1995 revealed that the **rampart** here was composed of earth, crushed limestone, and fieldstones (Covello-Paran 1999). Further excavation in Area Q3 10 m E of Area P on the Eastern Spur identified five main layers in the construction of the rampart (Covello-Paran forthcoming). These layers, which were found in the center of the rampart, comprised a

large amount of occupational debris sandwiched between three plaster layers. These findings again confirm the lack of uniformity in the construction of Hazor's defenses.

In addition to these findings K. Covello-Paran has suggested that an **outer rampart** may have existed north of and parallel to the northern rampart of the Eastern Spur in Area N2 (Covello-Paran forthcoming). Although this is possible and would be analogous to the ramparts surrounding Munbaqa, the results require further excavation to be confirmed.

In all, the defenses of Hazor during the Middle Bronze Age were rather formidable (Table 31). Yadin noted that around the lower town the fosse, rampart, and glacis would have served to keep enemy troops at a distance of no less than 130 m in any location (Yadin, et al. 1958:3). These same features served as the defenses of Hazor during the LB. The traditional figures for the size of Hazor range from 74 to 80 ha (Yadin, et al. 1958:2; Broshi and Gophna 1986), however, these are only estimates of its gross size since they include the area occupied by the fortifications. A much more reasonable figure is to be found in Herzog's estimate of 63.1 ha (6.1 ha upper town, a 50 ha lower town, and 7 ha eastern spur, Herzog 1997a:120). As Table 32 illustrates the total volume of Hazor's ramparts was approximately 961,670 m³.

Table 32. Dimensions and volume of Hazor's earthen ramparts.

Section	Height	Width	Length	Vol. (m³)
West (Area C)	15	90	700	472,500
North (Area H)	8.5	55	600	140,250
East ^a	8.5	55	800	187,000
Spur	8	46	880	161,920
TOTAL	—	—	2,980	961,670

^aHeight and width are based on dimensions of rampart in Area H.

HEBRON, TEL (JEBEL RUMEIDAH)**MR** 1597.1036**References:** (Hammond 1968; Ofer 1993).**Plans:** Site and excavation areas (Hammond 1968:fig. 6; Ofer 1993).**Sections:** NA.**Photos:** Area I3 (Hammond 1968:pl. XXX b).

The site of Hebron is located 30 km SSW of Jerusalem in the hill country. The area of Tel Hebron's MB settlement seems to have centered on a "low spur of Jebel Rumeida" according to Ofer (1993:607). The MB defenses were excavated by two expeditions: one from 1964 to 1966 by Philip Hammond (1968) and from 1983 to 1986 by Avi Ofer (1993). Evidence for the MB wall and rampart was exposed in Area I3 on the S side (1964 and 1966 seasons), Area G (also Area I7) on the SW—a suggested location of one gate—and Area F on the N side of the site. More than 2 m of the remains of a 9.5 m thick cyclopean stone **wall** which enclosed the settlement were exposed above the surface prior to Hammond's excavation in Area I3 on the site's S side! Despite that Hammond had misidentified another wall (of Roman date) in Area G as part of the MB defenses, there is still ample evidence in Area G for the MB wall, a stone **glacis** built against the wall, a **fosse** cut into bedrock, and possibly one gate (Ofer 1993:608). The tell appears to have been no more than about 4.9 ha (*ibid.*, 607).

HEFER, TEL (TELL EL-IFSHAR)**MR** 1415.1976**References:** (Paley, et al. 1984; Paley and Porath 1993).**Plans:** NA.**Sections:** NA.**Photos:** NA.

Tel Hefer is located on the southern coastal plain about 4 km inland from the coast of the Mediterranean Sea and about 8.8 km SW of Tel Zeror. While Hefer has been generally treated as an MB I (IIA) site which lacked fortifications, some evidence revealed during excavations in 1984 suggests that the site was, in fact, fortified to some degree and that unfortunately the fortifications have not been preserved in most areas where they would be expected (Paley, et al. 1984). The evidence consists of a 4 m thick mudbrick **wall** in Area A belonging to Phase A/14 (Paley, et al. 1984:45; Paley and Porath 1993:611). This wall has been traditionally interpreted as part of a large public building the outer face of which “had been destroyed when the slopes of the mound were eroded and mined in later periods” (Paley and Porath 1993:611). Since almost all walls more than 2 m thick in the southern Levant which are attributed to the Middle Bronze Age belong to fortified structures and the wall was found in the step trench on the N side of the site, there appears to be no reason to doubt its identification as the town wall. Furthermore, the excavators have noted that, “natural erosion as well as soil quarrying, principally during the Byzantine period, have reduced the overall size of the site, and the Middle Bronze remains are close to the surface” (Paley and Porath 1997:369). If interpreted correctly, then like the settlement at Aphek, Tell el-Ifshar experienced some unfortified occupation prior to the construction of its MB I (IIA) defenses.

The site appears to have been a little more than 4 ha during this period (Paley and Porath 1997:369). Two destructions that may have been site-wide, have been detected in

Area C (Phases C and E). These may correspond with sub-phases of Phase 15 in Area A, prior to the construction of the fortifications at Tel Hefer (Paley and Porath 1993:611). The fortifications, therefore, may have been built in response to the cause(s) of these destructions.

IBLEAM*

MR 1777.2058

References: (Zertal 1993).

Plans: NA.

Sections: NA.

Photos: NA.

The site of Ibleam is located in the northern Samarian hills about 18.5 km to the NE of Megiddo. The MB II (IIB) fortifications of Ibleam have been noted to include a **wall** and “huge earthen **rampart**” (Zertal 1993:1312). According to Broshi and Gophna, who also list the site as featuring a rampart, the site’s gross size was 9 ha (Broshi and Gophna 1986).

IRBID, TELL

MR 229.218

References: (Lenzen and McQuitty 1989; Lenzen 1992).

Plans: NA.

Sections: NA.

Photos: NA.

The site of Irbid is located in the N part of Jordan. It was fortified around the start of the MB I (IIA) and later renovation of the fortification system (MB IIB–C) appears to have included a **fortification wall** built of basalt boulders (Lenzen and McQuitty 1989:300). Apparently many of these stones featured dimensions of more than 4 m

square (Lenzen 1992:456). The site is circular, a layout which appears to be due to this wall. The site appears to have been as much as 20 ha in size according to Falconer (2001), but dimensions of 350 x 400 m cited elsewhere suggest that the site's size was actually only about 14 ha (Lenzen 1992:456).

ISKANDER, KHIRBET

MR 2233.1072

References: (Parr 1960; Richard and Boraas 1984; 1988; Richard 1990; 1993; 1997).

Plans: Site (Richard 1990:fig. 2); Area B (Richard and Boraas 1988:fig. 3; Richard 1990:fig. 3); Area C (Richard 1990:fig. 23f.).

Sections: Area B (Richard 1990:fig. 5).

Photos: Trench I (Parr 1960:pl. 13); Area B (Richard and Boraas 1988:fig. 2; Richard 1990:fig. 4; 1993:650); Area C (Richard 1990:figs. 25f.).

The 3 ha site of Khirbet Iskander is located on the N bank of the Wadi el-Wala in Transjordan about 50 km SSW of Amman (Richard 1993). Iskander, which had been settled during EB I, was resettled during the EB IV following an occupation gap during the EB II–III. The site appears to be one of the only sites which is known to have been fortified during the EB IV in the southern Levant. Multiple phases of occupation are attested during the EB IV the earliest of which (Area B Phase G) featured an unfortified village. This was followed by four phases of fortified EB IV settlement (Area B Phases E-B) (Richard 1990:36ff.). Sections of the fortifications were excavated in Areas A, B, and C, located on the SW, NW and SE sides of the site respectively.

The fortifications on the N side of the site were exposed in Area B where four phases of fortified occupation were delineated. These were constructed in Phase E when the so-called “inner wall” (3016=4067) was built (Richard 1990:36). This wall was built with a stone foundation and mudbrick superstructure, the exterior face of which had collapsed to a 30° slope (1993:650), perhaps as a result of an earthquake (1990:36). In the

following phase (D) the “outer wall”, which was the new **fortification wall**, was constructed just outside of the earlier “inner wall”, which now featured buttresses to keep it from collapsing further. The space between these walls was filled with rubble. The outer wall (4020, 3017, and 8024) was preserved 2.5 m thick and was supplemented with a **tower** preserved 3 m high (ibid.). When this system fell out of use in the middle of the EB IV the site appears not to have been refortified.

In Area C there is evidence of the SE entryway of the settlement dated to Phases C-A (Richard 1990:44; 1997). Though this **gate** is not of the postern type it does not appear to conform to a previously known gate type and its plan can probably be considered *ad hoc*, since it was clearly a modification of earlier buildings in this part of the site (ibid., fig. 23). However, the 2.25 m wide passageway, aligned N-S and flanked by guardrooms, was plastered and lined with benches and may have been built with a roughly symmetrical plan in mind (1997:188). On its interior end steps led into an open courtyard before leading into the town. The S end of the gate is flanked by what appear to be the remains of the S fortification wall stretching to Area A on the W.

In Area A limited clearance of the S **wall** of the late EB IV settlement (Phase B) running between Areas A and C revealed that it was 0.8 m wide, the stone foundation having been preserved to a height of 1.25 m (Richard 1993:650). This settlement was clearly destroyed, but the cause of this destruction remains unclear (ibid., 651).

JAFFA (YAFA)**MR** 1267.1625**References:** (Kaplan 1967; 1972a; Kaplan and Ritter-Kaplan 1993).**Plans:** Site (Kaplan and Ritter-Kaplan 1993:655).**Sections:** NA.**Photos:** NA.

The site of Jaffa is located on the Mediterranean coast about 47 km N of Ashkelon. Excavation of Jaffa by J. Kaplan from 1955 to 1964 revealed the remains of a MB II (IIB) (Levels VIII) wall built upon a rampart in Areas A (SE) and B (N). In Area B a section of the N-S **rampart**, which was constructed of “beaten” earth and *kurkar*, was revealed to have a trapezoidal cross-section. Unfortunately, no dimensions for this structure have been provided. Although the mudbrick **fortification wall** resting directly upon the rampart was only found in Area A (the southern of two walls there), based on the alignment of the rampart in both areas Kaplan has suggested that the enclosure was square (Kaplan and Ritter-Kaplan 1993:658). Furthermore, he has suggested that 50% of this enclosure has eroded due to exposure to wave action (Kaplan 1967). There does not appear to be any evidence to support J. Kaplan’s earlier claim (1972a:75) that the enclosure could be dated to the MB I (IIA). In light of the building of the modern settlement of Tel Aviv it is difficult to estimate the size of MB Jaffa, but Broshi and Gophna have suggested a figure of around 3 ha (1986).

JATT**MR** 1540.2005**References:** (Kotter 1986:138–140, 417–421).**Plans:** NA.**Sections:** NA.**Photos:** NA.

Jatt is located in northwestern Samaria at about 100 m above the surrounding landscape. The site, which is dated to the late MB II (IIB–C), was approximately 8 ha in size (Kotter 1986:139). Kotter's description of the site emphasizes its natural defensibility on every side and because of its location in the hill country it was supplied with sufficient limestone for the construction of its defenses (*ibid.*). It is noted to have been fortified by Gophna and Beck (see map p. 47, 1981), although the nature of these fortifications is unclear.

JEMMEH, TELL (ANC. YURZA)**MR** 097.088**References:** (Petrie 1928; Van Beek 1992; 1993).**Plans:** Site (Petrie 1928:pl. 4).**Sections:** ST1 (Van Beek 1992:Ill. 1–3, 5f.).**Photos:** Site aerial (Van Beek 1993:667); ST1 (Van Beek 1992:Ill. 4).

Tell Jemmeh, located 32.7 km ssw of Ashkelon, has been tentatively identified with LB Yurza mentioned in various New Kingdom sources. The site's first Bronze Age occupation was established during the MB II (IIB) and the entire site remained occupied through the Iron Age (Van Beek 1993:668). The site is located up the Nahal Besor from Tell el-‘Ajjul with the wadi, which has severely cut into the site, on its N side.

thick). The rampart fell out of use and was subsequently buried by more than 2.15 m of debris (Van Beek 1993:668).

The site's original plan was probably rectilinear as suggested by three pieces of evidence: the roughly square shape of the mound in Petrie's original plan (1928:pl. 4), the straight lines of the rampart and fosse evident in black and white aerial photographs of the site (Van Beek 1993:667), and the orientation of the Dynasty XVIII buildings excavated by Petrie on the w side of the mound—the w wall of this complex is parallel to the line of the w rampart and fosse (see Petrie 1928:pl. 6). Originally the site's N defenses were built along the Nahal Besor, but the wadi has now greatly eroded much of this side of the mound (see Figure 76). If this reconstruction is accurate then the site was roughly square, 170 m on a side, with an inhabitable area of approximately 2.9 ha.

JENIN*

MR 1783.2074

References: (Zertal 1993).

Plans: NA.

Sections: NA.

Photos: NA.

The site of Jenin is located in the northern Samarian hills 10 SE of Ta'anach. Its MB II (IIB) fortifications have been noted to include a **wall** and a “huge **earthen rampart**” (Zertal 1993:1312). According to Broshi and Gophna the site's gross size was 0.7 ha (1986).

JERICHO (TELL ES-SULTAN)**MR** 196.141

References: (Sellin and Watzinger 1913; Garstang and Garstang 1940; Kenyon 1981; Ussishkin 1989; Marchetti 1998; Sarie' 1998; Marchetti and Nigro 2000; Marchetti and Yasin 2000; L. Nigro 2000).

Plans: Site (Kenyon 1981:fig. 1, 4; Marchetti and Nigro 2000:fig. 1); Site H (Kenyon 1981:pls. 328a, 329); Site A (pl. 343); Trench II (pl. 255b); Trench III (pls. 271f.); Site, Area C (Sarie' 1998:fig. 3:4), Area A (Marchetti 1998:fig. 4:8, 15, 37; 2000:figs. 5:7, 5:59), Area E (Marchetti and Yasin 2000:fig. 4:6), Area D (L. Nigro 2000:figs. 3:1f.), Reconstructed layout of MB town elements (F. Nigro 1998:fig. 4).

Sections: Site H (Kenyon 1981:pls. 339f.), Trench I (pl. 236), Trench II (pls. 259f.), Trench III (pls. 273–275); Ussishkin's reconstruction (1989:fig. 9); Marchetti's Area C (Sarie' 1998:fig. 3:1), Area A (Marchetti 1998:fig. 4:1–2, 12, 39, 44f.), Area E (Marchetti and Yasin 2000:fig. 4:1).

Photos: Trench I (Kenyon 1981:pls. 89b–93a), Trench II (pls. 108a–110a), Trench III (pls. 125b–128); Area C (Sarie' 1998:fig. 3:2–3, 5–12), Area A (Marchetti 1998:4:3–6, 9–11, 13f., 16, 18f., 35f., 38, 40–42; 2000: figs. 5:10–19, 60–64, 67), Area E (Marchetti and Yasin 2000:fig. 4:2, 7–10), Area D (L. Nigro 2000:figs. 3:3–7).

The site of Jericho is located about 22 km NE of Jerusalem and about 10 km N of the Dead Sea. Four major expeditions have explored the MB defenses of Jericho in various locations. These features include its ramparts, a stone revetment, and a mudbrick defensive wall. The first expedition by E. Sellin and C. Watzinger between 1907 and 1909 exposed primarily the late MB II (IIC) stone revetment at the foot of the last rampart (see esp. plan 3 and figs. 34f., 1913).²⁴ J. Garstang continued work at the site

²⁴As a result of their participation in the early phases of archaeological exploration of Palestine they mistakenly attributed all MB remains to the "Israelitische Period".

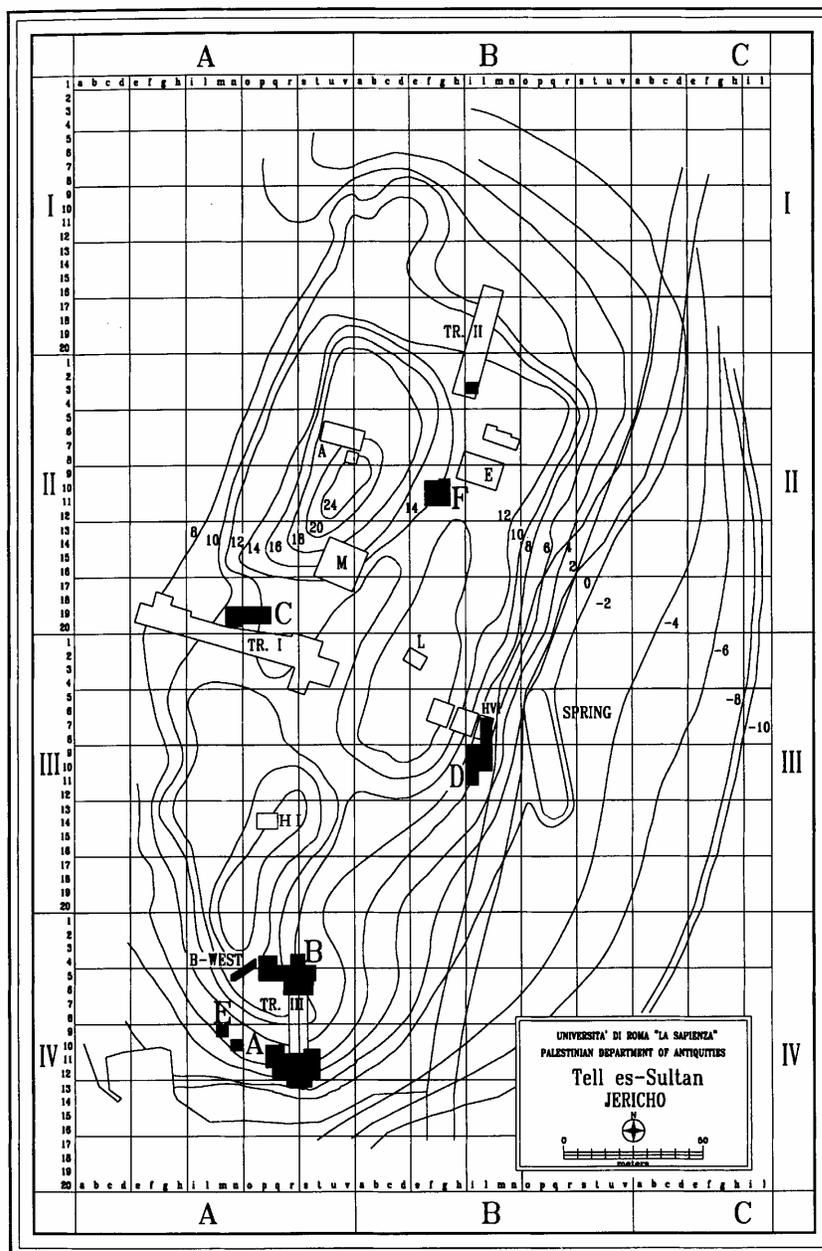
from 1930 to 1936 exposing more of the revetment (see pl. 6, 1930; 1931; see also plan of third town in pl. 5, 1940). Kenyon's excavations at the site from 1952 to 1958 were successful in obtaining sections (on the N, W, and S sides of the tell) of what she had considered to be three separate ramparts dated to the MB II (IIB–C) (Kenyon 1981). Kenyon also created a composite plan showing the area's which had been excavated by all of these projects (*ibid.*, fig. 1). Her original impression of Jericho's MB defenses seems to have come predominantly from the MB wall discovered in Site H and the eroded remains of the ramparts which she had uncovered in Trenches I–III (see Table 33). She suggested that erosion along with the construction of the modern road on the E side of the site had taken a toll on both the rampart and mudbrick wall atop the rampart (Kenyon 1993:679). First-hand examinations of the site and section drawings of trenches, as well as an examination of the topography of the settlement, all illustrate the extent of this erosion.

Table 33. Jericho rampart phase correlations according to Kenyon and their associated features. The loci provided with each phase are those which are considered certain. The list of loci is not exhaustive since certain phases are not clearly attested in all areas of the mound and the ascription of certain loci to particular phases in the construction of the rampart was not always possible.

Area	Rampart 1	Rampart 2	Rampart 3	Post-Rampart 3 Wall	Post-Rampart 3 debris
Trench I	<i>lvii</i>	<i>lviii–lx</i>	<i>lxi–lxiii</i>	Not detected	<i>lxiv–lxvi</i>
Stage XLIII		KB, KC	KD*, KE		
Trench II	<i>lxix</i>	<i>lxx</i>	<i>lxxi–lxxib</i>	<i>lxxii</i>	<i>lxxii–lxxiii</i>
Site O	OEK, OEL,		KD, OEN,	OEP, OEQ,	
Stage XXII	OEM		OEO*, OEQ	OER, OEX	
Trench III	<i>lxxx–lxxxii</i>	Not detected	Not detected		
Site N	NFK, NFL,	detected	NGK*	NFR, NFS	
Stage XXI	NFM, NFN, NFO, NFP, NFQ, NFV				
Site A			<i>Phase uncertain</i> Foundation (?) for town wall on rampart		

*Indicates the great revetment which was exposed around three-quarters of the site.

Figure 77. Plan of areas excavated at Jericho by Kenyon and Italian expedition.
 Reprinted, by permission, from N. Marchetti and L. Nigro (2000:fig. 1).



Following Kenyon's work, at least one major review of the data for the MB defenses was written in which Ussishkin suggested identifying a fourth rampart (1989). His suggestion, however, has not gained widespread acceptance and, fortunately, our understanding of the MB defenses has not been limited to the contradictory conclusions

of these three campaigns. The descriptions of Jericho's fortifications provided by the first three expeditions can now be supplemented by the work of the Italian expedition from the University of Rome led by N. Marchetti and L. Nigro (see preliminary reports for areas by Sarie' 1998; Marchetti 1998; L. Nigro 2000; Marchetti and Yasin 2000; Marchetti 2000). Their work began in 1997 with the intent of re-exploring the MB fortifications and they were successful in not only clarifying the rampart's phasing, but also succeeded in identifying a MB mudbrick wall in Area C which crowned the rampart. The stratigraphic phasing established by this expedition is used here to refer to the MB I–II (IIA–C) periods (Periods 4a–c) and for all previously excavated features of the MB defenses which have been reconsidered by the new expedition.²⁵ The work done by the new expedition has resulted in a synthesis of the work of the previous three expeditions and appears in many cases to have succeeded in explaining the discrepancies that have existed between them (see also Table 34 below).

Period IVa (late) or IVb (MB I–II/IIA–B): Fortification Walls

Based on her excavation of Site H Kenyon believed that the earliest evidence of the MB defenses of Jericho were mudbrick **town walls** found in square H VI on the E side of the mound (Kenyon 1981:346ff.). The earliest of these was wall HAH (phase xvi), which was unfortunately poorly preserved and was never completely excavated. It was succeeded by a 1.4 m thick mudbrick wall (HAJ, phase xviii) which was later widened by 0.5 m with the addition of wall HAK (phase xix). The passage of time between the constructions of these walls can be seen in the accumulation of debris against the W side of the walls in the N section (ibid., pl. 339). In phase xx wall HAL (0.4 m thick) was added to wall HAK. In phase xxi the composite mudbrick wall built of these three units

²⁵The Italian expedition has established a complete stratigraphic sequence for all periods attested at Jericho (see Tab. 1 in Marchetti and Nigro 2000:9).

(HAJ–HAL), which attained a width of 2.3 m, was destroyed. Kenyon suggested that the mudbrick debris to the w (phase xxi) were the remains of these walls. After this destruction, according to Kenyon, there was no other evidence of the town wall in the excavated area since she presumed that it was moved further to the E.

Table 34. Revised phasing of the MB fortifications of Jericho by the University of Rome expedition.

Excavation Area	MB I–II (IIA–B) Rampart #1 (Periods IVA–B)	MB II (IIC) Rampart #2 (Period IVC)	Refs.
Trench I	lvi–lvii, lower lx KC	lviii–lix, upper lx, lxi–lxv KB, KD*, KE	<i>Jericho III</i> , pl. 236; (Marchetti 1998:fig. 4:44)
Trench II Site O	lxix OEK, OEL	lxx–lxxi OEM, OEO*, OEQ, OER	<i>Jericho III</i> , pl. 259; (Sellin and Watzinger 1913:fig. 34f.); (Marchetti 1998:fig. 4:45)
Trench III Site N	lxxx–lxxxii lower lxxxii–lxxxiii, lxxxv–lxxxvi NFP(=W.3), NFK, NFL, NFM, NFN, NFO, NFP, NFQ, NFV	upper lxxxii NGK*	<i>Jericho III</i> , pl. 273; (Marchetti 1998:fig. 4:39)
Site H	Walls HAH–HAL; Tower: HBJ–HBL		<i>Jericho III</i> , pls. 328a, 329
Area A–B	W.3(=NFP), W.5(=W.274), W.70, W.19, W.15, W.164, W.190	W.4* (P.154), W.174, W.71, W.72, F.60, F.63 P.14, P.17	(Marchetti 1998:figs. 4:1, 37, 39; 2000:fig. 5:7 and 5:59)
Area C	W.93, W.98, W.84, W.112, L.111	W.113	(Marchetti 1998:fig. 4:44)
Area D	Wall 7		(L. Nigro 2000: figs. 3:1f.)
Area E	Tower E1 (W.268, W.270), W.274 (=W.5)	F.269	(Marchetti and Yasin 2000:fig. 4:6)

*Indicates the great revetment which was exposed around three-quarters of the site.

Also excavated in Site H were the remains of a massive **tower** including three of its mudbrick walls (HBJ, HBK, HBL) which were preserved to heights from 2 to 2.95 m

(Kenyon 1981:351f., pl. 340). Kenyon had identified this structure as a defensive tower belonging in theory to a gateway which would have provided access to the spring. Although the tower's walls were very thick and they were destroyed by fire on at least two occasions, because the town walls in this area had long since fallen out of use and there were no finds suggesting that the tower had a military function, its identification as a tower remains uncertain.

The latest expedition's soundings in Area D near Kenyon's squares H II, III, and IV have yet to provide results confirming Kenyon's conclusions about the earliest MB remains, but they have identified a mudbrick **fortification wall** (W.7) over 3.5 m wide (L. Nigro 2000). This Nigro suggests corresponds with Kenyon's walls HCJ and HCP, of which little was known (Kenyon 1981:356f.). Approximately 20 m of the length of W.7 were exposed to a height of 12 courses (about 1.75 m high). The bricks of W.7 measured 42 x 36 x 15 cm. Based on pottery recovered the wall has been dated to late Period IVa, late MB I (IIA) (L. Nigro 2000:170f.).

MB I–II/IIA–B (Period IVa-b): The First Rampart

The Italian expedition's work in Area C (N of Trench I) and Area A (at the S end of Trench III) has had significant implications for both the identification and dating of the Jericho's MB ramparts. Table 34 above summarizes the re-phasing of Kenyon's constructional phases including new features identified by the most recent expedition (cp. Kenyon's results, see Table 33). Marchetti has emphasized that the most useful basis for determining the actual number of ramparts at Jericho and the periods during which they were constructed is on the basis of the latest pottery recovered from within each of the layers assigned to the ramparts, thus establishing a *terminus post quem* for each rampart's construction. This evidence taken in combination with the stratigraphic relationships evident in the section drawings makes it possible to reconstruct each rampart's building phases. Based on this approach Marchetti has suggested that instead of three ramparts as

identified by Kenyon, only two ramparts actually existed: one dated to the MB I–II (IIA–B), Periods IVA–B, and another to the late MB II (IIC), Period IVC (Marchetti 1998).

Evidence of Jericho’s first **earthen rampart** comes in the first place from Kenyon’s excavation in Trenches I, II, and III. In Trench I, on the w side of the site she identified portions of the earliest MB rampart as part of her Stage XLIII occupation (Kenyon 1981:16, 108ff.).²⁶ However, Kenyon had misidentified the EB IV remains and some indistinct MB occupation debris below her first rampart as a berm which was 5.4 m above the level of the plain. Thus, according to her interpretation the first rampart was only 5 m high and 14.5 m wide²⁷ and was built of yellow and gray earth and sealed with *huwwar* plaster with a slope of 38°. This plaster was securely fixed to the surface by tongues that were set into the rampart. To support this interpretation of the first rampart in Trench I Kenyon was led to suggest that a robbed out fieldstone retaining wall (KA) had once abutted the face of the “berm” below the first rampart. However, Marchetti’s re-examination suggests that wall KC, in fact, functioned as the **retaining wall** for the first rampart in Trench I.²⁸ Furthermore, Marchetti has also demonstrated that the EB IV and MB fill identified by Kenyon’s below the first rampart actually formed the base of the original rampart (cp. Trench III, see Figure 80). This can be established, according to Marchetti, by a re-examination of the section of Trench I along with the results from Area C (see below). Therefore, according to Marchetti’s reinterpretation of Kenyon’s results

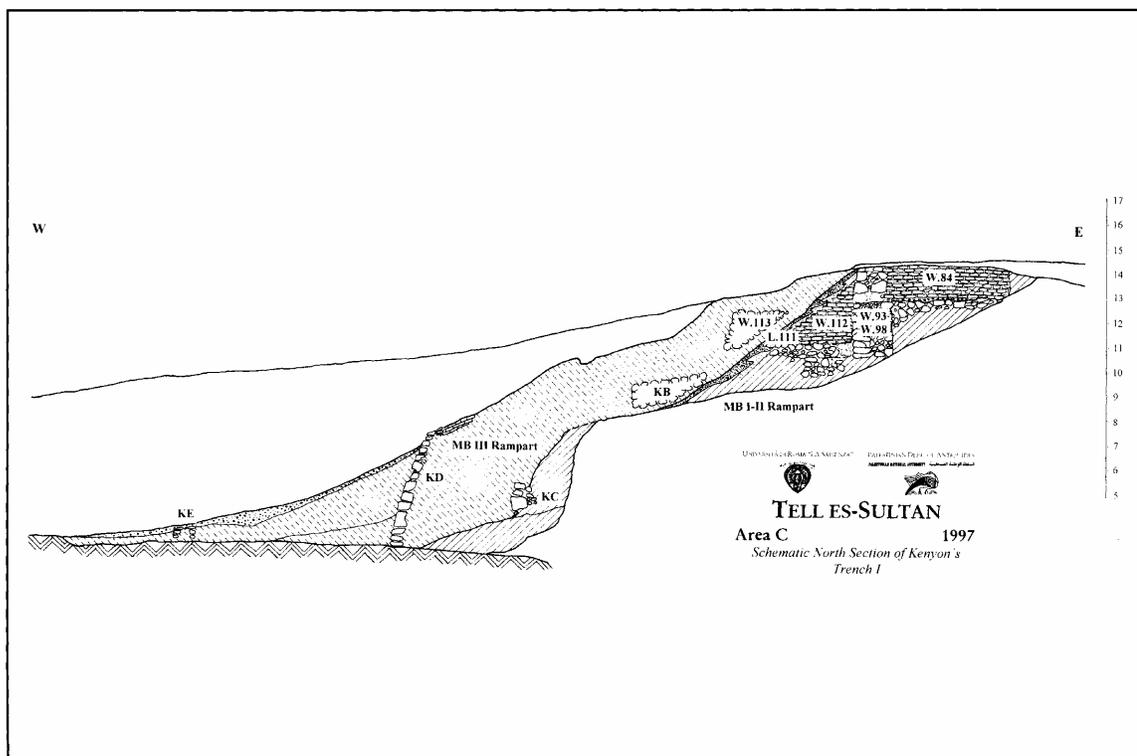
²⁶Kenyon’s use of the term *stages* refers to “structural phases...indicating a main alteration in plan”. This terminology is almost synonymous with the use by most other archaeologists of the terms *stratum*, and sometimes for the *phases* of those strata, though she suggested that *stages* here could not be “applied from site to site”. Furthermore, in place of locus number designations she prefers *phases* (see Kenyon 1981:2f.).

²⁷Kenyon cites its average width as 5 m (1981:108), but this can be disputed as too narrow even for an average width based on the N section of Trench I.

²⁸Kenyon had assigned the fill behind KC to the second rampart and its repair (Kenyon 1981: pl. 236).

the two ramparts can best be distinguished by the remains of separate revetment walls at their bases and the fact that the glacis of the original rampart was constructed of *huwwar* and plaster which was locked into the rampart's surface (see Figure 78 below).

Figure 78. Schematic north section of Kenyon's Trench I and Area C of Italian expedition. Reprinted, by permission, from N. Marchetti (1998:fig. 4:44).



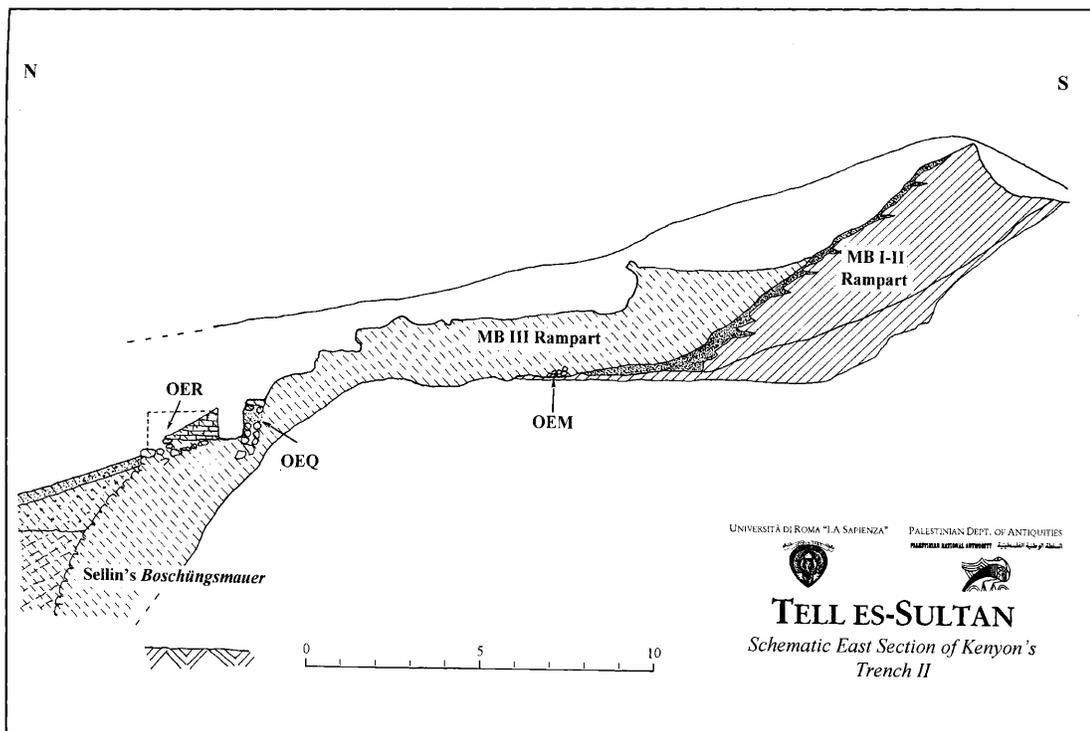
To the N of Trench I on the NW side of the mound, the earliest rampart was also identified by Kenyon in the S section of Sellin and Watzinger's excavation area near Kenyon's Site A on the NW side of the site which was cleaned and drawn by her (1981:374f., pl. 343). Here foundation stones rested at the summit of the rampart providing evidence for the suggestion that a wall had crowned the first rampart, though remains of the mudbrick wall were at that time elusive. While the Italian expedition has not yet conducted excavations in the vicinity of Site A, they have recently produced evidence of this same foundation and what had once been the mudbrick wall above it (Figure 78), which was associated with the first rampart in the vicinity of Trench I (Sarie'

1998:103–115). Their E-W trench in Area C was laid N of and adjacent to the N section of Kenyon's Trench I.²⁹ Here they discovered a mudbrick **fortification wall** (W.84) composed of 9 courses of preserved mudbricks (30 x 30 x 10 cm) roughly 1.2 m high and, most impressively, 5.75 m wide (16 rows) (see figs. 3:1, 3:4 in Sarie' 1998)! This wall has been identified as the mudbrick wall which crowned the first rampart (see Figure 78). Kenyon did not encounter it in her excavation of the area nor was it revealed in the section (1981:pl. 236). The wall was built upon a fieldstone foundation. This was constructed behind both a small fieldstone **retaining wall** (W.98), 9 courses high and 4 rows wide, and another fieldstone wall (W.93) that served as a footing to the mudbrick wall, 3 rows wide and 3 courses high. This footing would have reinforced the foot of the mudbrick town wall (W.84) which was built both behind it and upon it. W.93 and W.98 were in turn buttressed in front by the top portion of the **rampart**, here composed of mudbrick (W.112) 16 courses high (with a triangular section) resting on a narrow fieldstone wall (W.114) (cp. Megiddo XIII–XII Area C Wall A). This entire core in front of the wall was then covered by a compact, crushed *huwwar* **glacis** (L.111); this glacis is elsewhere evident in the E section of Trench II (see below). The actual elevation in Trench I of the wall and its associated features as found in Area C must have been higher than the top of Kenyon's Trench I, as is indicated by the lower elevations of the EB III walls K and M in Trench I, which appear to rise just slightly to the N as they enter Area C. This is no doubt due to greater erosion which occurred in the area of Kenyon's Trench I but it is more likely that it indicates the presence of a gate—at least an EB gate—to the

²⁹ It should be observed that the trench laid for Area C by the Italian expedition is in strict conformance to the N-S grid which affects, even if only slightly, any attempts to use the section drawings for measurements without mathematical correction. Area C is, therefore, 19° off of perpendicular to the fortification line. The following widths are taken from the section drawing (excluding W.84 measured in plan 3:4); corrections are included in parentheses: W.93 1.54 m (1.46 m); W.98 1.98 m (1.87 m); W.112 3.3 m (3.12 m); W.113 2.75 m (2.6 m); and W.114 1.87 m (1.77 m).

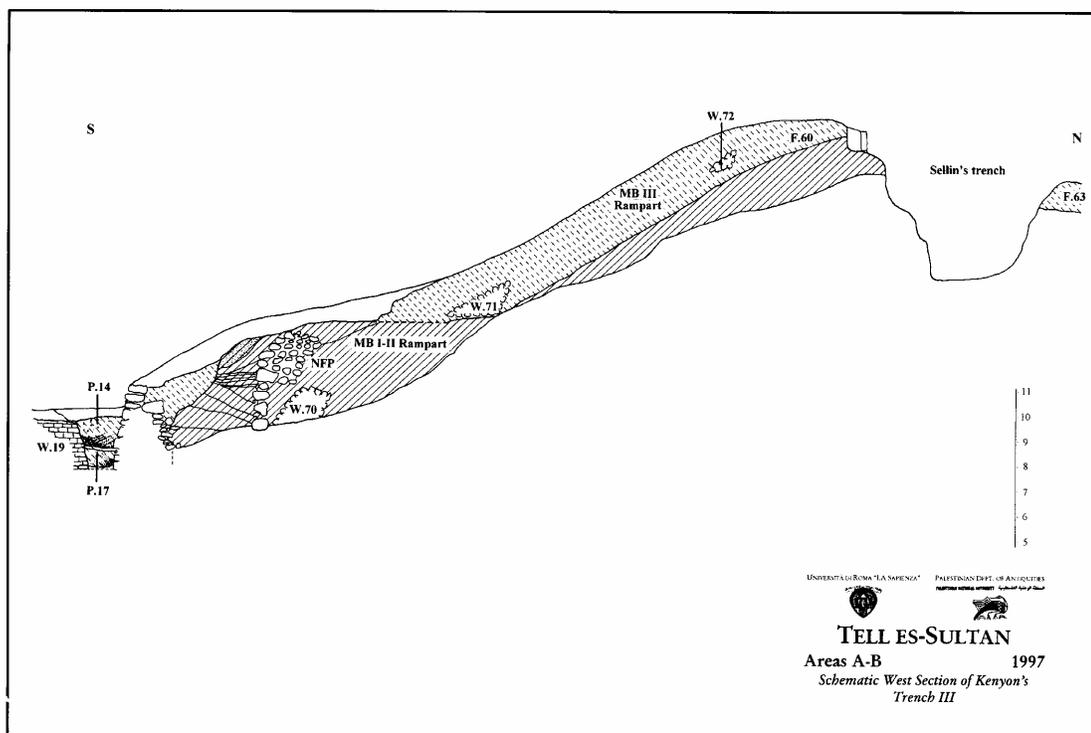
s of Kenyon's Trench I which meant that the preserved remains of the wall ended just to the N of Kenyon's trench.

Figure 79. Schematic east section of Kenyon's Trench II. Reprinted, by permission, from N. Marchetti (1998:fig. 4:45).



The first rampart, which was also excavated in Trench II, was covered with a plaster glacia surface with a slope of 35° (Kenyon's phase *lxix*). The plaster surface here featured the same construction technique of interlaced fingers of plaster in the fill of the rampart (Figure 79 above). Here the first rampart's dimensions, approximately 7 m high, are also very comparable to its dimensions in Trench I, thus seeming to further confirm the Italian expedition's reinterpretation of Kenyon's results.

Figure 80. Schematic section of MB rampart in Kenyon's Trench III and Area A. Reprinted, by permission, from N. Marchetti (1998:fig. 4:39).



In Trench III Site N Kenyon has suggested that only the first rampart (XXI phase *lxxxi*) survived (Kenyon 1981:215ff.).³⁰ Here the situation is again complicated by even more erosion than in Trenches I and II (note how different the w and e sections of Trench III are in figs. 273f.). Several rib or **retaining walls** incorporated into the construction of the first rampart in the area of Trench III are partially preserved (NFL, NFM, NFN, and NFO). It seems that repairs were also done during the life of this rampart in the course of which a fieldstone **revetment wall** NFP was constructed to control erosion at the base of the rampart. Some building seems to have taken place outside of wall NFP after the

³⁰ Although far less significant than in Trenches I and II, anyone attempting to use Trench III for dimensions in the section should be aware that the trench conforms to the N-S axis of the grid. It is difficult to determine the exact degree of deviation from perpendicular since it is different at each contour elevation along the length of the trench, but the following figures are approximately correct: 15° deviation for the EB city wall at the N end of the trench; and a 6° deviation for the first rampart and the stone revetment wall at the S end of the trench.

construction of the first rampart, which is evident from both Kenyon's and Marchetti's excavations.

While the earliest rampart featuring a plaster and *huwwar* **glacis** has been identified in Trenches I, II, and III and Areas A and C, it was best preserved in Kenyon's Trench II. The glacis surface associated with its construction is one of the clearest indications that the earthen embankment which it sealed belonged to a single architectural feature, namely the first rampart as Kenyon had originally identified it, if only its upper portion. In addition to its uniform surface, in Trench I and III a low **revetment wall** was constructed at the foot of the slope, walls KC and NFP=W.3=W.5, respectively. In Area C, as mentioned earlier, excavation revealed its **fortification wall**, which was not preserved in Kenyon's Trench I just to the S. It is possible to estimate the length of the wall and rampart as about 660 m. If the rampart's dimensions, about 24 m wide and 7 m high, as indicated in Trench I/Area C are accurate, then its volume would have been approximately 55,440 m³.

Despite the clarity of this new analysis, a precise dating of the first rampart is difficult. The earliest deposition of earth for the building of the first rampart in Trenches I, II, and III were composed primarily of EB IV sherds (see Marchetti 1998, n. 11), indicating that there was probably no MB I (IIA) settlement at the site until after the construction of the rampart had begun. The upper layers of the rampart featured mostly MB sherds. Based on the sherds contained in the layers of the first rampart Marchetti has concluded that the rampart was constructed during the late MB I (IIA) and continued in use during the MB II (IIB–C) (1998:118). Associated with the MB I–II (IIA–B) rampart the Italian expedition has also revealed the continuation on the SW side of the tell of the revetment wall W.3=W.5 towards the NW from Area A and Trench III. Also built on the line of the wall was what appears to have been the foundation of a rectangular **tower** (W.280 and W.268) about 7.5 m long (width unknown) (Marchetti and Yasin 2000).

MB II/IIC (Period IVc)

Lower Town Wall and Tower

Although little context exists at present for a thorough discussion of the evidence for a **wall** and **tower** belonging to the lower town excavated by the Italian expedition in Area A in 1998, it is still worth including here. The tower's full dimensions are not available, but it was slightly over 5 m wide (Marchetti 2000:fig. 5:7). Its attribution to Period IVb means that it was thought to have been built following the construction of the first rampart, but before the second was begun (Period IVc). The exterior mudbrick wall (W.19) measures approximately 1.75 m wide and formed the outer wall of the tower. The tower's three other walls (W.15, W.164, W.190) were of similar thickness. If the context and orientation of the tower are understood correctly then the tower projected inward from the wall rather than outward (cp. Megiddo XIII).

The Second Rampart

Although Kenyon originally identified a total of three ramparts, as noted above it is now clear that, in fact, only two ramparts were constructed during the MB at Jericho (Marchetti 1998).³¹ The second rampart, according to Marchetti was built during the late MB II (IIC) and is most easily identified by the tall stone **revetment wall** which rested at its foot around the tell. This so-called "Great revetment wall" was traced around nearly three quarters of the site by Sellin and Watzinger (1913:Tafel I) who referred to it as the "Israelitische boschüngsmauer". It should be recalled that they had misattributed MB

³¹The second rampart identified by Kenyon (in Trench I) was built against the first resting on both the remainder of the berm and the level of the surrounding plain. Like the first it too was initially constructed of earth against the small fieldstone retaining wall KB (phase lviii), but in a second phase (lix–lx) that has been interpreted as a repair of the collapsing rampart KB was added and a new fieldstone wall (KC), described as a curb due to its small size, was also added beyond the berm. Plaster was again used on the surface, but no technique was employed for securing it on the surface (Kenyon 1981:109f.). According to Kenyon, a third and final rampart was also built against the second rampart in what she identified as phase lxi in Trench I and faced with fieldstone retaining wall KD.

remains to the Israelite period. The revetment wall was again identified by Kenyon as wall KD in Trench I, OEO in Trench II, and NGK in Trench III. The Italian expedition only encountered the revetment wall anew in Area A-B and identified it as W.4 dating it to Period IVc (see * items in Table 34). Founded on bedrock, this wall stood 4.65 m high and featured a 75° batter in Trench I. This revetment wall like its predecessors was no more than a single row wide and was probably intended to prevent erosion of the slope, but its stones were “slightly dressed boulders, with the crevices very carefully packed with small stones” (Kenyon 1981:110).

From the top of the revetment wall the slope of the second **rampart** was a mere 22° and Kenyon detected several rows of mudbrick (1.25 m wide) just above the retaining wall laying on the surface’s slope (ibid). These should be identified as the remains of a mudbrick glacis intended to protect the surface of the rampart. The composition of this rampart was more varied and included mudbrick debris, rubble, and stones in addition to earth.

At the foot of wall KD chipped stone and gravel was deposited up to 7 m from the base of the rampart against a 0.5 m high fieldstone wall. Based on the section drawing of Trench I (Kenyon 1981:pl. 236) we may presume that this was intended to cause water that would have rushed against the base of wall KD to be channeled away or filtered down in a controllable manner. Some time after the defenses went out of use fallen red mudbricks were deposited beyond wall KD and were then overlain by mudbrick detritus. These are presumably the remains of the wall which crowned this rampart (Kenyon 1981:110). Schematic section drawings by Marchetti seem to identify the accumulated debris beyond the revetment wall as part of the late MB II (IIC) rampart, Period IVc (1998:figs. 4.39, 44f.). Whether this is intended to illustrate the deposition of eroded material from this rampart or that this material was part of the original rampart *in situ* is unclear. The dating of the material from this deposition will also not resolve this issue if

it in fact yields a contemporary date, since this would be expected whether it is eroded material from the rampart or part of its original construction. In the final analysis the last rampart exhibited the greatest technical ability and a clear improvement in the approach to the defense of the settlement since the construction of the first rampart.

Gates

Given the vast amount of excavation at Jericho which has led to exploration of over 50% of the settlement's surface it is curious that no gate structures dated to the MB have been identified. An examination of the historical topography of Jericho's w slope seems to indicate that a depression has existed since excavations began just to the s of Kenyon's Trench I and Garstang's Area u. It appears to be an area just to the s of all previous excavations, and it may have been the location of the w gate leading into the hill country and the Jordan Valley road. The gate's location appears to be indicated by a hollow bounded by the u-turns of the N and S 14 m contour lines (see fig. 4, Kenyon 1981). This location, if correctly identified with the gate, is perfectly centered on the w side of the tell, approximately 130 m from both the N and S ends of the length of the first rampart here. The presence of this feature may also explain a shallow dive in the EB III walls K and M and the disappearance (i.e., erosion) of the MB mudbrick fortification wall crowning the rampart as it neared the gate proceeding s from Area C into Trench I. This may also indicate that the MB gate was, in fact, located above the EB II–III gate.³²

To date there has been no evidence for the fortifications of Jericho during the LB. Yadin's suggestion that the last MB wall continued in use through the LB until the 13th century to be identified with the wall of Jericho destroyed by the Israelites (Yadin

³²It is possible that the Italian expedition is unaware of this possibility as they have considered the area to be a prime location for a new entrance to the archaeological park (see possible 'ingresso principale' on fig. 4. in F. Nigro 1998).

1982:22), finds no support in the present study since no walls at any EB or MB site are known to have lasted for three-hundred years without needing to be rebuilt.

JERUSALEM (ANC. URUSALIM)

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References: (Kenyon 1974; Shiloh 1984; Reich 1987; Reich and Shukron 1998; 1999a; 1999b; 1999c; Steiner 2001a; Boas-Vedder 2001).

Plans: Site (Kenyon 1974:fig. 18); Sections of MB wall (Reich 1987:figs. 1, 3); Macalister Field V (1926:pl. 5), cp. Parker section of Gallery XIX (Vincent 1911:pl. 6) and Kenyon Trench A (1974:fig. 16; Steiner 2001a:fig. 3.4); Shiloh Area E1 (1984:fig. 14); Reich Areas C and H (1999c:31).

Sections: Kenyon Trench A (1974:figs. 15, 17; Steiner 2001a:fig. 3.3).

Photos: Kenyon Trench A (1967:pls. 19f.; Steiner 2001a:fig. 3.2); Reich Area H (1999c:30).

Jerusalem is located in the hill country 30 km NNE of Hebron. Excavations in the town have revealed various sections of the MB (so-called “Canaanite” or “Jebusite”) wall along the E slope of the ‘City of David’, also known as Ophel. This **fortification wall** (Kenyon Wall NB=Wall 3 Steiner) has been noted for its “cyclopean” construction. The wall, of which 13 m was exposed by Kenyon, was 2 m wide and was preserved 1 m high (Steiner 2001b:10). Kenyon and Macalister were the first excavators to propose an early date for the sections of this MB town wall, but K. Kenyon only re-excavated the section that Parker had first exposed (Reich 1987:163). The section of the wall Kenyon re-exposed was in Trench A at about two-thirds of the way down the E slope of the site (Kenyon 1967:24f.; 1974:81ff.). She suggested that the wall was located in this area in order to bring the means of accessing the MB water source (see below) within the site’s defenses (Kenyon 1967:25). The pottery in the wall was dated by her to the 18th century B.C. (ibid., 24), a date reiterated by Steiner (2001b:12), thus providing an MB II (IIB)

date for its construction. This section of the wall, as noted above, was previously excavated by Parker and can be seen in Vincent's publication of the wall (see pl. 6, 1911).

Kenyon probably exposed another section of the MB wall running E-W to the NW of wall NB. The remains here were referred to as part of Structure J and they consisted of what appears to have been a section of the **fortification wall** (Steiner 2001b:12ff.). Its width, however, is unknown. Though Steiner has suggested that a natural depression to the N of this wall may have functioned as a moat, improving the wall's defensibility in this location (*ibid.*, 21), there is no real evidence to support this interpretation.

Excavations by Yigal Shiloh also revealed segments of the MB **fortification wall** in Area E1 (Shiloh 1984:12). Here a 20 m long section of a 3 m wide "cyclopean" stone wall was exposed and assigned to Stratum 18B, the earliest MB occupation dated to the transition between MB I and MB II (IIA–IIB). A buttress (W285) was subsequently added to its interior during Stratum 18A and the entire structure served into Stratum 17 the final MB occupation of the site. Shiloh placed Strata 18 through 17 within the 18th century (*ibid.*).

More recent excavations in Jerusalem around the Gihon Spring have revealed further remains of the MB settlement (Reich and Shukron 1998;1999a;b). These remains consisted of what appear to have been two towers and a pool. A **tower** located to the E in Area H has been dubbed the "Spring Tower" because it protects a space of about 6 m by 10 to 11 m where the spring emerges from a vertical surface of the bedrock (Reich and Shukron 1999a:78*). The building was sufficiently exposed that its overall dimensions can be determined to have been about 17 m E-W by 14 m N-S (*ibid.*). Its "cyclopean" stone walls were as much as 3.7 m wide (Reich and Shukron 1999c:30) and were preserved to a height of 2 m (Reich and Shukron 1999a:78*). To the W of this tower and just N of the pool was another small **tower** called the "Pool Tower" with walls of about 3 to 3.5 m

amidst the stones of which early MB II (IIB) sherds (18th to 17th centuries B.C.) were found (Reich and Shukron 1999a:77*; 1999c:30). The floor of this tower featured “flat stone slabs” (ibid.). The excavators have speculated that a similar tower protected the pool on its S side (Reich and Shukron 1999c:30).

Although the remains of Jerusalem’s MB occupation are substantial, they have been primarily limited to the E side of the site and, therefore, a reconstruction of the extent of the town at this time is not possible.³³ Nevertheless, we may suppose that they encompassed most of what has been referred to as Ophel, the peninsular hill S of the Temple Mount which was flanked by the Tyropoeon Valley on the W and the Kidron Valley on the E. The remains thus far exposed indicate that the character of the construction of Jerusalem’s MB wall was similar to that of other hill country sites such as Shiloh and Hebron, relying heavily upon quarried stones for the construction of its wall.

KABRI, TELL

MR 1633.2682

References: (Kempinski 1987a; 1987b; 1991; 1991a; 1991b; 1993a; 2002a; 2002b).

Plans: Site (Kempinski 2002b:fig. 1.3); Area C (fig. 4.19); Area T (fig. 4.24).

Sections: Area C1, E section (Kempinski 1987a:figs. 5f.; 1991:figs. 10f.); Rampart schematic (2002a:4.20).

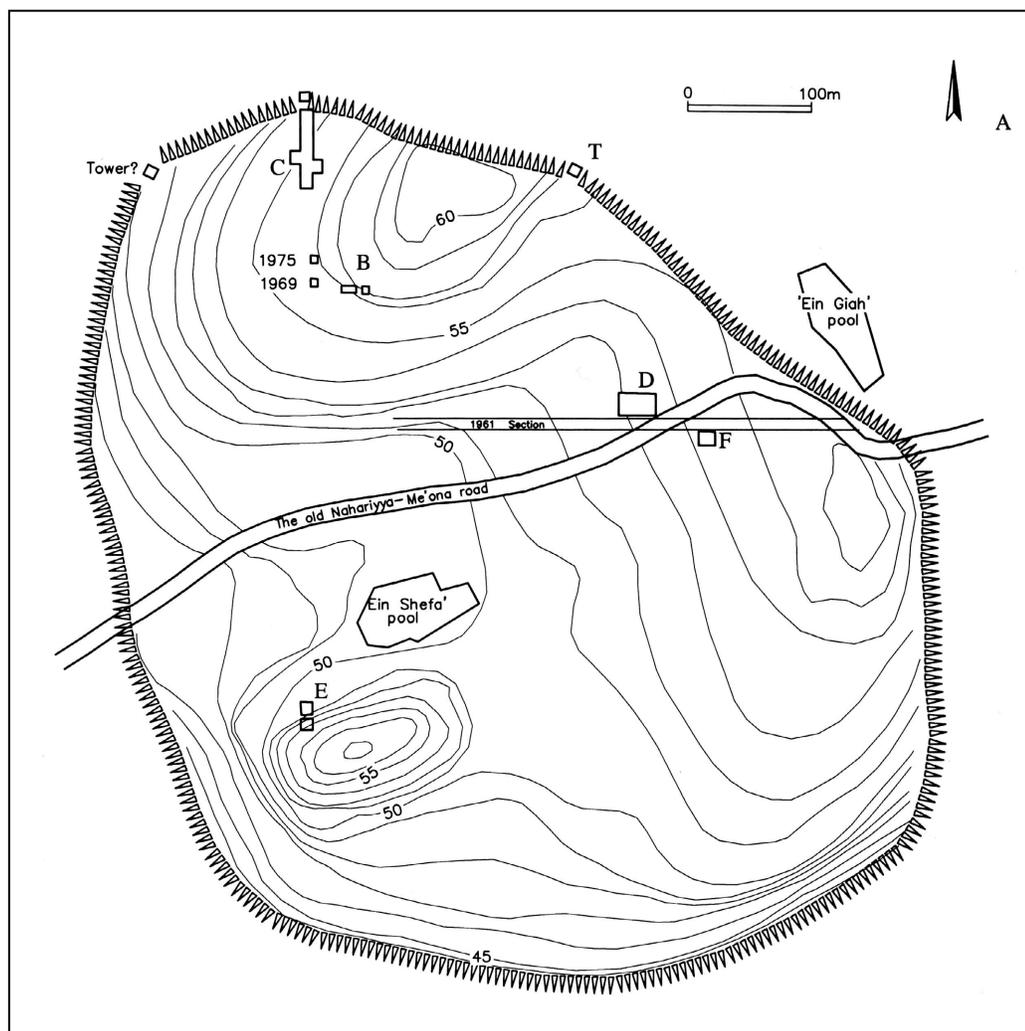
Photos: Area C1 (Kempinski 2002a:4.21f.); Area T (fig. 4.25).

The site of Kabri is located a little more than 4 km E of Nahariya along the Nahal Gatton (Figure 81). Its earliest MB occupation, although attested only in tombs, has been dated to the MB I (IIA) following a period of abandonment during the EB IV (Kempinski 2002b:5). Though remains of the stone foundation of the MB II (IIB) fortification wall

³³Despite the limited data Steiner has suggested that the settlement was between 4 and 5 ha in size during the MB (2001b:21), following Broshi and Gophna’s estimate of 4 ha (1986).

have been traced along the surface of the site's rampart (Kempinski 2002a:35), the MB II fortifications of Kabri were first examined in 1961 during the cutting of a 500 m long and 3.5 m deep trench across the site from E to W by a local company (1993a:839). This trench exposed a 35 m wide earthen rampart at the site's edge. Eventually excavations by Kempinski and Niemeier also exposed the fortifications in Areas C and T2, on the N and NE sides of the site respectively. In the latest analysis Kempinski has suggested that the remains of the MB fortifications of Kabri represent a single phase of construction dated to the MB II (IIB) (Kempinski 1993a:35ff.), rather than two phases as he had previously suggested (Kempinski 1991a).

Figure 81. Plan of Kabri (after Kempinski 2002b:fig. 1.3).



In Area C parts of an **earthen rampart**, a revetment wall, and town wall were identified (Kempinski 2002a:37). The rampart consisted of a mounded earth core, fills above this, and what appears to have been a **revetment wall** (W404) located at its outer foot. The fills used in the rampart were deposited using the “sandwich method” and they included occupational debris from the EB III town, as well as pebbles and crushed *kurkar*. If the reconstruction of the slope below W404 is accurate in the section drawing (ibid., fig. 4.20), then the slope of the rampart may have been as much as 45°, at least at the bottom. A fosse is suggested to have been built at the foot of the rampart (ibid.), but it has never been identified in excavations. Just inside the crest of the rampart in Area C a wall, referred to as the “inner wall” (W400), was constructed (Kempinski 2002a:37). It is probably to be identified as the **fortification wall** used with this rampart. This mudbrick wall was more than 4 m wide and was built upon a stone foundation and preserved about 1 m high.

Excavations in Area T2—so-called because the remains here were originally identified as part of a **tower** (Tower 2)—revealed what has been identified by Kempinski as the 5.5 m wide stone foundations of a casemate wall (W1601/W1600) (2002a:37). In Area T2 the inner of the two walls (W1601) was equated with the revetment wall (W404) in Area C (Kempinski 1991a:fig. 11). While Kempinski’s interpretation of the fortifications of Kabri is for the most part in keeping with the general understanding of the construction of MB fortifications, his suggestion concerning the construction of a casemate wall on the front of the rampart cannot be accepted. In the first place, there are no parallels for such a construction on the front of a rampart in the MB. Secondly, an examination of the photograph of Wall 1600 (Kempinski 2002b:fig. 4.25) clearly shows that the structure projects several meters from the rampart (or main defenses whatever they might have been when this structure was built) and that the large stone masonry terminates on the south side. It is not possible to demonstrate that this structure resembles

in any way the revetment wall (W404) in Area C and we do not need to see a continuous and similarly constructed fortification system between Areas C and T, which are removed by more than 200 m. Therefore, I believe we should return to Kempinski's original identification of the structure as a **tower**, tentatively dated to the MB II (IIB), which projected from the main line of defense.

The MB fortifications of Kabri have been provided with a *terminus post quem* date of MB II (IIB) (Kempinski 1993a:37ff.). This is based upon MB IIB ceramics found in the rampart fill and the fills of the revetment walls (W1600). These fortifications probably enclosed an area of roughly 32 ha within the nearly circular layout of the ramparts, which were approximately 2,130 m long (Kempinski and Niemeier 1994:fig. 2).

The location of one of the MB gates has been identified on the NW side of the tell but has not been excavated (Kempinski 1993a:841). The likely location of another gate on the E side of the site has also been suggested (Kempinski 2002a:35). According to Kempinski the site's destruction is to be dated to the end of the MB II (IIC).

KEISAN, TELL

MR 164.253

References: (Humbert 1993; Seton-Williams 1980).

Plans: Site (Seton-Williams 1980:pl. 2); S trench (pl. 4).

Sections: S trench (Seton-Williams 1980:pl. 4).

Photos: Site aerial (Humbert 1993:863); S trench (Seton-Williams 1980:pl. 126).

The MB settlement of Tell Keisan was located some 9 km SE of Akko. Though the site was clearly fortified in what appears to have been the EB II (Stratum XVI) with a 5 m wide mudbrick wall (Humbert 1993:863), there does not appear to have been any continuity as it concerns the fortifications of this settlement and those of the MB settlement. The remains of the fortifications of the MB settlement (Strata XV–XIV) were

found in a trench on the s side of the site dug by J. Garstang as part of the Nielson Expedition (Seton-Williams 1980:382f.). These remains included a core wall, two earthen ramparts, glacis, and revetment walls for retention of the glacis.

Stratum XVI (MB II/IIB)

The MB **core wall**, which probably also served as the foundation of the town wall, was preserved to a height of 5 m, though its base was not reached (see pl. 4 and p. 382, Seton-Williams 1980). This part of the fortifications appears to have been constructed entirely of stones which averaged about 45 to 50 cm on a side. Though the inner face of the wall was sloped, the outer face was vertical.³⁴ An **earthen rampart** (so-called ‘earth *debris*’) 8 m high and roughly 19 m wide, and a **glacis** (so-called ‘lower revetment’, Seton-Williams 1980:pl. 4) rested against the exterior face of this wall, thus suggesting that this wall was probably the core of the rampart and also served as the foundation for what must have been the mudbrick superstructure of the town wall. This conclusion appears to be supported by the fact that no MB floors or any other architecture associated with the wall were ever identified; they would have been further back from the rampart. The ceramics in the fill of the earthen rampart were MB I (IIA) and earlier, therefore suggesting that the fortifications were probably initiated no later than the start of the MB II (IIB). The glacis stretched 19 m from the wall to the base of the tell and ranged from 0.5 to 2.5 m thick. It was composed of “white plaster and rubble”. According to Seton-Williams the glacis was identified around the entire tell (ibid.).

Stratum XV (MB II/IIB–C)

A later renovation of the **rampart** led to the addition of about 80 to 100 cm of earth above the original glacis and the construction of a second **glacis** (so-called ‘upper

³⁴The slope cannot be determined with certainty as the section is schematic and the trench was not aligned perpendicularly to the slope of fortifications.

revetment', Seton-Williams 1980:pl. 4) about 70 cm thick on top of this. This glacis is also dated to the MB II (IIB–C) based on ceramics. Garstang also identified retaining walls (e.g., Walls X and Y) within the fills of both ramparts for “holding up the *debris* during construction” (ibid.), and both glacis appear to have featured **revetment walls** (Walls B1 and XA) between 0.5 and 1 m high at their base for preventing the erosion of the rampart.

The rampart would have raised the base of the wall about 10 m above the level of the plain. Given the known width of the two ramparts, 19 m and 21 m, respectively, it is possible to establish their relative slopes as 28° and 25°, respectively. If the top of the core wall is a basis for suggesting the thickness of the town wall, then it would have been around 1 m thick. The circumference of the MB fortifications is difficult to determine since the fortifications do not seem to parallel the site's present contour lines in Garstang's trench. Based upon the angle of the fortifications in this trench with respect to the contours of the tell it seems quite possible that the fortifications at this point represent a portion close to a corner in the town wall (see pl. 2 in Seton-Williams 1980). If the site's plan was roughly oval as it appears today and may be supported by MB II (IIB–C) **wall** remains on the NW side of the site (ibid.), then the fortifications may have been about 810 m long, enclosing a space of about 4.5 ha, however, this cannot be established with any certainty.

Humbert has also suggested that a MB gate may be located on the N side of the site in Area D (1993:863), below the remains of Iron Age residences. The location of the access road to the W in the center of the N side of the site, however, might just as likely have been the location of one of the site's gates. It is not possible to suggest the location of any other gates at present.

KEBARA, EL-***MR** 1793.1967**References:** (Zertal 1992; 1993).**Plans:** NA.**Sections:** NA.**Photos:** NA.

The site of el-Kebara is located in the northern Samarian hills 17 km NNE of Shechem. Its MB II (IIB) fortifications have been noted to include a wall and a “huge **earthen rampart**” (Zertal 1993:1312). The remains of the MB wall are probably those of a 60 m long wall built of cyclopean masonry, which is located on the s side of the site and was identified during Zertal’s survey (1992:224). This stretch of wall was built 5 m wide and preserved up to 4 m. There is a 6 m wide opening in the wall, which is flanked by the remains of towers on both sides. Though this wall could have formed the core wall within a rampart, if it had functioned as such it should not have been exposed to the elements, and for this reason it is probable that it was instead a **revetment wall** at the base of the town’s defenses. According to Broshi and Gophna the site’s gross size during the MB II (IIB–C) was only 0.2 ha (1986).

KHEIBAR, KHIRBET**MR** 1764.1954**References:** (Kotter 1986:140ff., 425ff.; Zertal 1992; 1993).**Plans:** NA.**Sections:** NA.**Photos:** NA.

The site of Khirbet Kheibar is located in the northern Samarian hills about 6 km to the SE of Tell el-Far‘ah North. The MB II (IIB) fortifications of Kh. Kheibar have been

noted to include a **wall** and a “huge **earthen rampart**” (Zertal 1993:1312). The upper part of the mound was surrounded by a wall of cyclopean masonry, which is probably the wall referred to by Zertal (1992:227). It was preserved up to 3 m high. According to Zertal the site’s size was 2 ha within the cyclopean wall.

KITAN, TEL (TELL MUSA)

MR 2043.2220

References: (Eisenberg 1993).

Plans: NA.

Sections: NA.

Photos: NA.

Tel Kitan is situated on the w side of the Jordan Valley near the mouth of the Nahal Tavor approximately 12 km NNE of Beth-Shean. The site was occupied from the MB I (IIA) through the LB I (Strata VI–III), but appears to have only been fortified during the late MB II (IIC), Stratum IV (Eisenberg 1993:881). At that time the site featured a mudbrick **fortification wall**, which has been exposed on the s and w sides of the tell; on the s side the wall was 2 m thick and was built of square mudbricks resembling those used in the MB temple, while on the w side domestic units were built against the wall. The site, which was approximately 0.8 ha in size (Broshi and Gophna 1986), appears to have consisted of little more than a handful of dwellings centered around a *migdal* style temple. The Stratum IV settlement was destroyed at the end of the MB (Eisenberg 1993).

KURDANE, TEL (ANC. APHEK)***MR** 160.249**References:** (Broshi and Gophna 1986).**Plans:** NA.**Sections:** NA.**Photos:** NA.

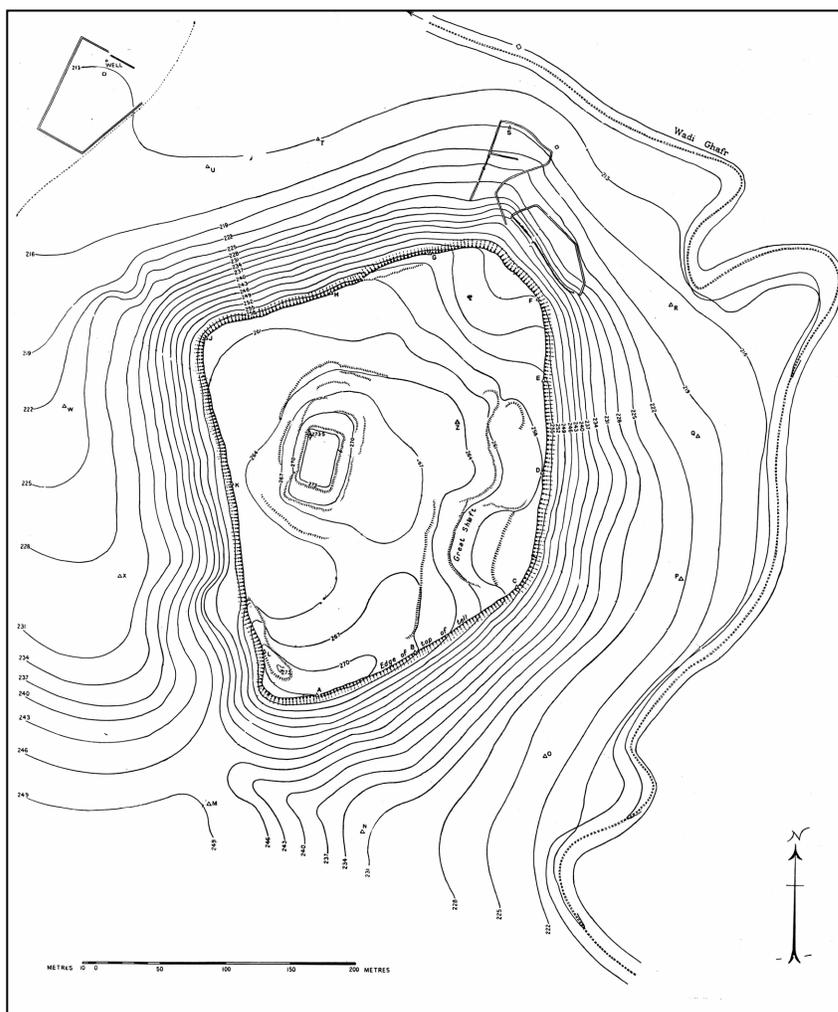
Tell Kurdane (Aphek) is located 9 km to the SE of Akko. According to Broshi and Gophna, who list the site as featuring a **rampart**, the site's gross size was 1.75 ha (Broshi and Gophna 1986). To what part of the MB the rampart belongs has not been specified.

LACHISH (TELL ED-DUWEIR)**MR** 1357.1083**References:** (Tufnell, et al. 1940; Tufnell 1953; 1958; Ussishkin 1993b).**Plans:** Site (Tufnell 1953:pl. 106).**Sections:** NW (Tufnell 1958:pl. 90); NE (ibid., pl. 96); Fosse (Tufnell, et al. 1940:pl. 69).**Photos:** NW side (Tufnell 1958:pl. 5:1–2, 4); NE side (Tufnell 1958:pl. 6:1–6); Fosse (Tufnell, et al. 1940:pl. 69, 72; Tufnell 1953:pl. 125; 1958:pl. 6:4–6); so-called “sapper's tunnel” (Tufnell 1958:pls. 6:2, 90).

Lachish is located in the western foothills of the hill country approximately 30 km ESE of Ashkelon. Lachish is flanked on its N and S sides by the Nahal Lachish (Wadi Ghafir). Although the site seems to have featured MB I (IIA) occupation (Cohen 2002a:86), the construction of the rampart during the MB II (IIB) was most likely responsible for the shape of the mound today (Ussishkin 1993b:898), which is roughly rectilinear, almost square (335 m x 235 m), with its four corners oriented to the cardinal points of the compass (Figure 82 below). Excavation of Lachish revealed several elements of its defenses dated to the MB II–III (IIB–C). Among these elements were a

plaster glacis, rampart, and fosse, though no remains of a wall were found atop the rampart in excavations on the NE and NW sides of the mound where the defenses have been explored (Tufnell 1958:45–48).

Figure 82. Plan of Lachish (after Tufnell 1953:pl. 106).



On the NW side of the mound excavation of an E-W trench revealed the site's MB rampart, glacis, and fosse (see section AB in pl. 90, Tufnell 1958). The **rampart** was composed in some places of "grey debris and brick wash" deposited in alternating layers, sometimes described as the "sandwich" technique, while in other places it consisted of earth (*terre pisée*) with limestone chips and dark clay (*ibid.*, 45f.). Sherds recovered from the rampart's layers only suggest a date within the MB II (IIB–C) period. The slope of

the rampart was thought to be as a result of the slope of the bedrock below the rampart's layers. The rampart is about 30 m wide from its top to the bottom of the fosse and is preserved to height of about 7 m (*ibid.*, 46), though it might originally have stood as much as 16.6 m above the valley floor. It would have been about 1,020 m long (305 m x 205 m). A lime-plastered **glacis** covering the rampart was exposed at the base of the rampart and its slope was 29°. A **fosse** also accompanied the rampart (see pl. 72 in Tufnell, et al. 1940). Originally cut from the bedrock (pl. 69), it was traced for almost 140 m on the NW side of the mound; it is 2 m deep and 9 m wide. Excavation of a circular pit in square C13 suggests that the fosse also served to collect water from the slopes of the mound in a cistern (?) in square B13 (p. 46). Based on the ceramics found in it was suggested to have been in use by at least the mid-MB II. No gates dated to the MB have been located.

Tufnell noted that Level VIII was brought to an end by an intense conflagration (1958:48). The settlement at the end of this period (late MB II–LB I) appears to have featured a 3.35 m wide mudbrick wall built into the glacis on the slope of the rampart (*ibid.*, see pl. 96); five courses of this wall were preserved. This suggests that the settlement experienced some growth and the line of the town wall moved outwards slightly. Although Tufnell acknowledged that the wall was built after the glacis, she noted that it probably did not constitute “a substantially later phase” (*ibid.*). That this is probably correct can also be supported by the fact that the wall's foundation rests at the level estimated for the top of the original rampart (ca. 247.6 m ASL)! The length of this wall would have been about 900 m enclosing an area of about 5 ha.

Tufnell reports having detected a “sappers' tunnel” dug into the site's w rampart (1958:pls. 6:2, 90). However, the fact that this tunnel parallels the summit of the mound and that at no point along its 22 m length that had been excavated did it undermine the wall, makes it difficult to accept its identification as a “sappers' tunnel”. To accept this it

would be necessary to provide some basis for why the sappers would not have turned towards the wall in an abrupt and decisive manner before digging more than 22 m. Furthermore, the location of the start of the tunnel, virtually below the wall makes it difficult to believe that this is where the sappers would have begun their work.

MALHATA, TEL (TELL EL-MILH)

MR 1523.0697

References: (Kochavi 1967;1993).

Plans: NA.

Sections: NA.

Photos: NA.

Malhata is located on the S bank of the Nahal Malhata about 5 km ESE of Tel Masos. The MB IIB occupation at Tel Malhata, designated Period B, was represented by remains of the defenses of what has been interpreted as a roughly 1 ha fortress (Kochavi 1993:935). These consisted of an **earthen rampart** “built of alternating layers of loess and river pebbles” supported within the rampart by “three stone **retaining walls**”. A stone **core wall** about 1 m thick was built to support the inside face of the rampart with structures built along its interior slope and against this wall. The rampart’s **glacis** featured a plastered slope of 30°. The site which was founded at the start of the MB II (IIB) and was destroyed during the late MB II (IIC).³⁵ A 2.5 m thick wall, perhaps to be identified as the **town wall**, was revealed in section B (Kochavi 1967:272). Structures exposed inside this wall appear to have been destroyed during a fire which Kochavi dated to the late MB II (IIC). The defenses of this period were accompanied by a **fosse**, which also continued in use during the next phase of MB occupation.

³⁵It appears that Kochavi did not adhere to the accept the designation MB IIC for the late MB II but instead referred to the early and late MB IIB (Kochavi 1993:935).

MANAHAT (NAHAL REPHAIM)**MR** 1679.1289**References:** (Edelstein and Greenhut 1989; Edelstein and Milevski 1990; Edelstein 1993).**Plans:** (Edelstein 1993:1281).**Sections:** NA.**Photos:** Isometric reconstruction (Edelstein and Greenhut 1989:fig. 103).

The site of Manahat is located in the Rephaim Valley w of Jerusalem. This small rural site was between 3 and 3.5 ha in size during the MB II (IIB–C) (Edelstein and Greenhut 1989:121). It has generally been characterized as an undefended site, but the evidence from Area 100 on the s side of the site suggests that the perimeter **fortification wall** consisted only of the rear walls of houses around the settlement (cp. Giv'at Sharett).

MARJAMA, KHIRBET ('AIN SAMIYA)***MR** 1816.1554**References:** (Finkelstein 1988; 1993a:1313).**Plans:** NA.**Sections:** NA.**Photos:** NA.

Khirbet Marjama Sheikh is located 8 km SSE of Shiloh in the hills of southern Samaria (for location see Finkelstein 1988:fig. 54). It has been identified as a fortified settlement of the late MB II (IIC) (1993a:1313). It was approximately 3 ha in size (1988:145).

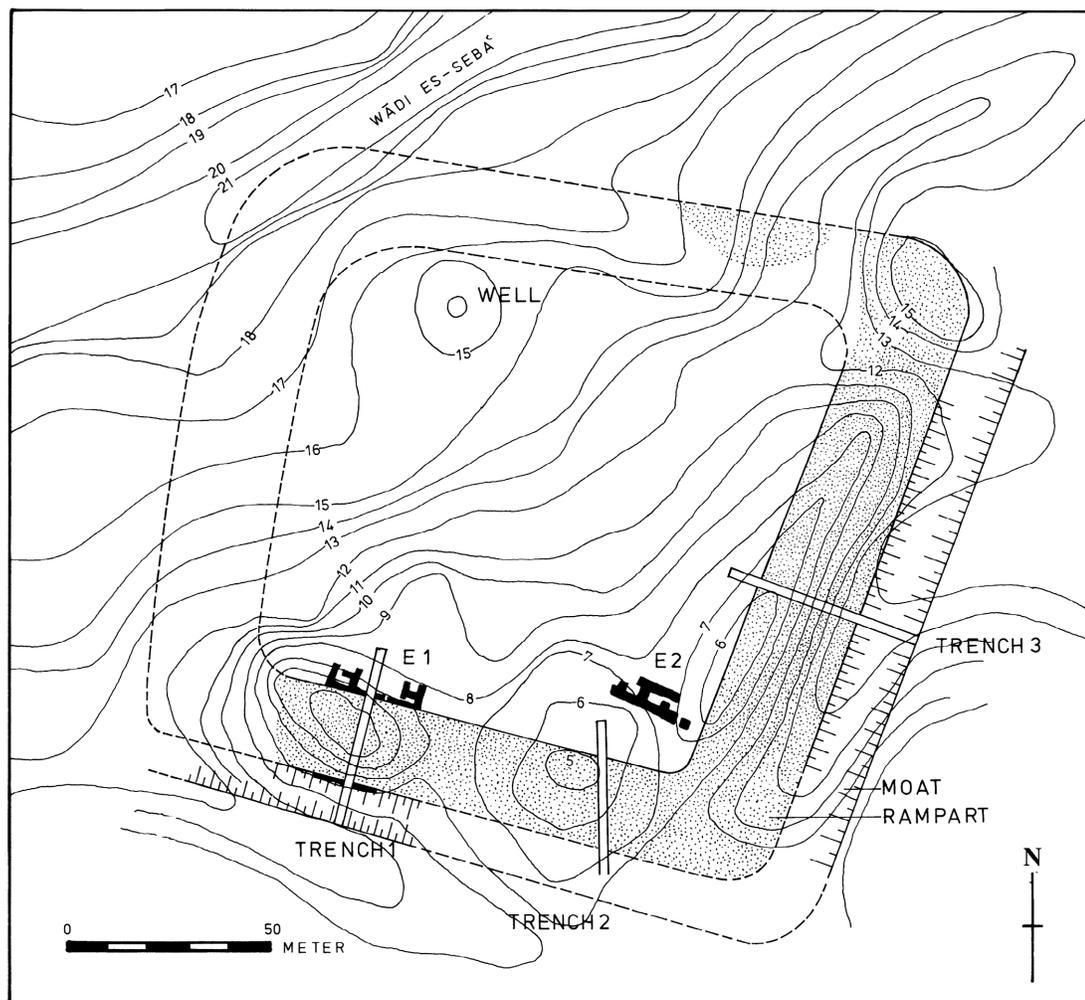
MASOS (KHIRBET EL-MASHASH)**MR** 146.069**References:** (Fritz and Kempinski 1983; Singer 1983; Kempinski 1993b).**Plans:** Site (Fritz and Kempinski 1983:plan 27); Area E Trenches 1–3 (plan 28).**Sections:** Area E: Trench 1 (Singer 1983:fig. 22), Trench 2 (fig. 23)**Photos:** Site aerial (Fritz and Kempinski 1983:pls. 1, 70–71); Area E Trench 1 (pls. 72a, 73–75).

The remains of an enclosure dated to the late MB II (IIC) were excavated in 1972 and 1974 about 600 m to the SW of Tell Masos on the s bank of the Nahal Beersheba in Area E (Singer 1983:187). The MB settlement was about 1.7 ha in gross size (*ibid.*, 186), though only 1.2 ha were inhabitable within the ramparts, a square area approximately 110 m on a side. It is possible that the late MB II (IIC) settlement should be more specifically dated to the period during the Thirteenth Dynasty in Egypt (i.e., MB IIB), as Kempinski has suggested, when it may have functioned as a “way station, controlled by the block of city-states crystallizing at that time in the southern Shephelah and along the southern coast of Canaan” (1993b:986), however, this date remains uncertain. Although remains of the settlement have been divided into two phases by Kempinski (1993b),³⁶ the original publication by Singer (1983) advances only a single settlement with several sub-phases of occupation during the late MB II (IIB–C) but with no variation in settlement plan and no assertion that the site was a fortress prior to the construction of the rampart. The following description adheres to Singer’s interpretation since the data he has published, in my opinion, supports a single phase of occupation. Furthermore, this interpretation has

³⁶In Kempinski’s analysis the first stage of the site has been identified as a fortress which was then followed by the construction of a five-sided rampart enclosure built from the remains of the earlier fortress and featuring a revetment wall and fosse.

been accepted by A. Mazar who suggests that the site should be considered late MB II (IIC) in date (see Table 4 in A. Mazar 1990:196).

Figure 83. Plan of Masos (after Fritz and Kempinski 1983:plan 27).



Following what may have been an earlier occupation during the MB II (IIB), a **rampart** enclosure was constructed in the late MB II (IIC) of earth and debris, with a glacis, an inner **retaining wall**, and a revetment on the outside of the rampart (Singer 1983:187ff.). Today only the E and S sides of this four-sided enclosure are preserved, the N and W sides being “completely eroded away by winter floods”, according to Singer (p. 186). The basal layers of the rampart as seen in Trench 2, where only the last half of a meter of the rampart was preserved, appear to include in some places earlier occupational

debris such as ash and burnt bricks (p. 187). Elsewhere the rampart is built primarily of loess intentionally deposited upon existing loess mounds up to 6 m high; the difference in between the intentional and original deposits of similar material is apparent in pl. 74a (Fritz and Kempinski 1983) At least where existing loess mounds were present, the earliest layers deposited as part of the rampart's construction appear to have been first deposited against structures built on the interior slope where the tip lines (35°) are steepest proceeding then down the slope where the fill's tip lines are less steep (30°) (Singer 1983:187). When complete the base of the rampart appears to have been as much as 50 m wide, based upon the section of Trench 1, though Singer's estimate of 30 m accounts specifically for the intentional buildup between the outer revetment and the S wall of building 806. The net effect of the buildup of the ramparts was to raise the site's defenses more than 7 m above the surrounding plain, even though the intentional buildup in this location constituted only the top 1.5 m of the complete buildup. The slope of the exterior of the rampart was approximately 17° when excavated, but may originally have been 25°. If the rampart was 440 m long then its volume can be estimated at 77,000 m³.

It is difficult to be certain that the rampart featured a distinct **glacis** across the entire site, though Singer asserts that portions of a pebble glacis were detected (Singer 1983:188, see also fig. 22). Nevertheless, it is clear that the rampart featured a stone **revetment wall** at its foot to prevent the erosion of the rampart into the fosse; this wall was preserved to a height of about 1.5 m. A **fosse** was also dug around the site into the soil, at least on the three sides where the wadi was not present, in order to improve its defensibility. Its extent can be seen in the aerial photograph of the site. It appears to have been about 5 m wide at its top and 2 m wide at its base and about 1 meter deep (see fig. 22, Singer 1983), even though it is shown as much as 10 m wide on the plan of the MB settlement (Fritz and Kempinski 1983:plan 27). The excavators have assumed that the earth taken from the fosse was used in the raising of the ramparts. The length of the fosse

was about 150 m on a side, perhaps as much as 450 m long if it was not present on the N side where the wadi is located.

The excavations of Masos allow the following reconstruction of the constructional phases of the site's fortifications. Once the location of the rectilinear fortifications had been decided upon the initial steps would have included the building up of low spots between loess mounds along the planned lines of the rampart, probably with fill from the fosse. This continued until the rampart achieved a roughly 6 to 7 m elevation above the surrounding plain. In the second phase of construction structures (buildings 806, 819, etc.), perhaps to be identified as bastions and towers, were built along the crest of the rampart. In order to provide them with solid foundations more fill was added to the rampart's surface against the exterior walls of these buildings using occupational debris in certain areas (Trench 2) and excavated loess in others (Trench 1). This raised the rampart at least another 1.5 m. Finally, a pebble glacis may have been added to protect the surface of the rampart. There does not appear to be any evidence for positing that a separate wall crowned the ramparts. Instead, it appears that only the exterior walls of structures along the crest of the rampart provided walls.

ME'AMER, TEL (TELL EL-'AMR)*

MR 159.237

References: (Broshi and Gophna 1986; Prausnitz 1993a).

Plans: NA.

Sections: NA.

Photos: NA.

Tel Me'amer, which is located 20 km S of Akko, has been identified as a MB site of approximately 0.7 ha with a **rampart** (Broshi and Gophna 1986).

MEGIDDO (TELL EL-MUTESELLIM)**MR** 1675.2213**References:** (Schumacher 1908; Guy 1931; Loud 1948; Yadin 1972c; Kempinski 1989; Finkelstein, et al. 2000; Ilan, et al. 2000).**Plans:** Site (Loud 1948:figs. 376f.); Area AA (figs. 378–380); Area BB (figs. 396–400); Area CC (fig. 407); see also reconstructions of Strata XIII–X (Kempinski 1989:plans 2–5, fig. 38); Area F (Ilan, et al. 2000:fig. 4.9); Lower town wall (Guy 1931:fig. 14).**Sections:** See Pflock 22 (Schumacher 1908); Areas AA, BB, and CC (Loud 1948:fig. 416); Area F (Ilan, et al. 2000:figs. 4.3f.).**Photos:** Area AA (Loud 1948:figs. 6–22, 25–27); Area BB (figs. 197–201); Area CC (figs. 264–267); Area F (Ilan, et al. 2000:figs. 4.5–4.8).

The site of Megiddo is located in the Jezreel Valley about 11 km SE of Tel Yoqne'am. Although extensive excavations were carried out at Megiddo by the Oriental Institute's expedition resulting in broad exposures of the town's architecture and the development of a ceramic sequence, several problems with those results have made it necessary to carefully approach questions of Megiddo's stratigraphy.³⁷ Pertinent re-examinations of the Bronze Age stratigraphy have included work by Kenyon (1958; 1969), Müller (1970); Yadin (1972c), Gonen (1987), Kempinski (1989), Esse (1991:67–90), and most recently an expedition led by Israel Finkelstein and David Ussishkin (2000). Yet despite these reassessments and changes to the phasing of units within the settlement, the stratigraphy of the defenses remains largely as it was published with only

³⁷These problems among others outlined by Kenyon (1958:51*f.; 1969) have included the archaeological methodology employed, hasty and limited publication, interruptions in work during the course of the excavation, and a ceramic assemblage of mixed reliability. Nevertheless, one cannot make light of the incredible results of this early project, due to its improvements upon the work of even earlier archaeologists such as Sir Flinders Petrie and the important role which the site's stratigraphy has played in the years since its excavation.

minor alterations. The MB fortifications were excavated by the Oriental Institute expedition in three successive seasons, 1936 (Area CC on the S), 1937, (Area BB on the E), and 1938 (Area AA on the N). The dates assigned to the MB stratigraphy used here are those put forward by the most recent expedition to Megiddo (Ilan, et al. 2000).

The first phase of Megiddo's MB settlement belonging to the MB I (IIA) was Stratum XIV. No remains of the fortifications or perimeter of the settlement dated to this period have been excavated.

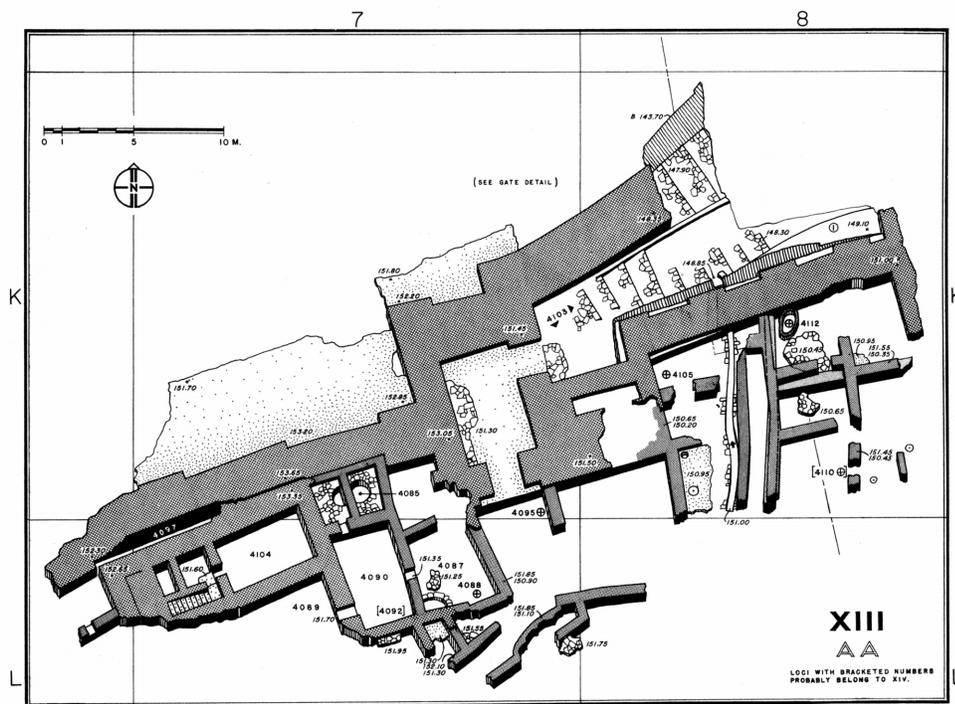
Stratum XIII (MB I/IIA)

The earliest evidence for the MB fortifications of Megiddo is associated with Stratum XIII. Close examination of the remains of this stratum in Area BB made it possible to further subdivide its remains in this area into phases A and B (Loud 1948:84ff.). It does not appear that Megiddo was fortified until Stratum XIII A, the first time since the EB III. In this phase a 1.8 m thick mudbrick **fortification wall** of offset-inset construction was built in Area AA (Figure 84) where a two-chambered, bent-axis gate complex was also excavated (ibid., 6ff.). The insets in the town wall in Area AA were 2 m apart. Because Stratum XIII was the earliest stratum excavated in Area AA, Loud postulated that the fieldstone foundations for the gate which were wider than their mudbrick walls may have belonged to an earlier stratum, such as Stratum XV which was not excavated in this area (Loud 1948:6f.). But this suggestion has not been advanced by other scholars and it remains impossible to verify. Penetrating the foundation of the town wall to the E of the gate was a drain over 15 m in length which channeled water from the town out onto the steps of the town's approach (4103).

On the N side of this stepped approach the battered stone **retaining wall** for the N wall of the citadel gate was preserved 3.7 m high. The gate has been identified as a **single chamber gate** by the excavator which features a 90° turn between the main chamber and the stairs leading to the lower town. Passages between gate's piers were 1.5 m at their

narrowest. Outside the gate nine steps 10 to 35 cm high led down the upper tell's slope to the lower town or "terrace". The width of the gate and the presence of these steps seem to argue against the use of this gate for chariot or wagon access, without negating the possibility that donkey's could have come up these steps. For this reason and the results of excavation in the lower town, it is possible to postulate that this gate served only as a citadel gate leading down to the lower town (discussed below). It was suggested by Loud that the gate was not covered and no evidence for benches was discovered. Eleven courses of mudbrick were preserved in the citadel gate.³⁸ A **glacis** made of limestone gravel less than 2 m wide was also found abutting the walls of the earliest gate and town wall (Loud 1948:6–8, figs. 6–20). Kenyon determined its slope to be about 16° (1969:55).

Figure 84. MB gate and wall of Stratum XIII in Area AA (Loud 1948:fig. 378). Courtesy of the Oriental Institute of the University of Chicago.



³⁸This observation is based on unpublished photo A4636 of the Oriental Institute's expedition (Archives of the Oriental Institute).

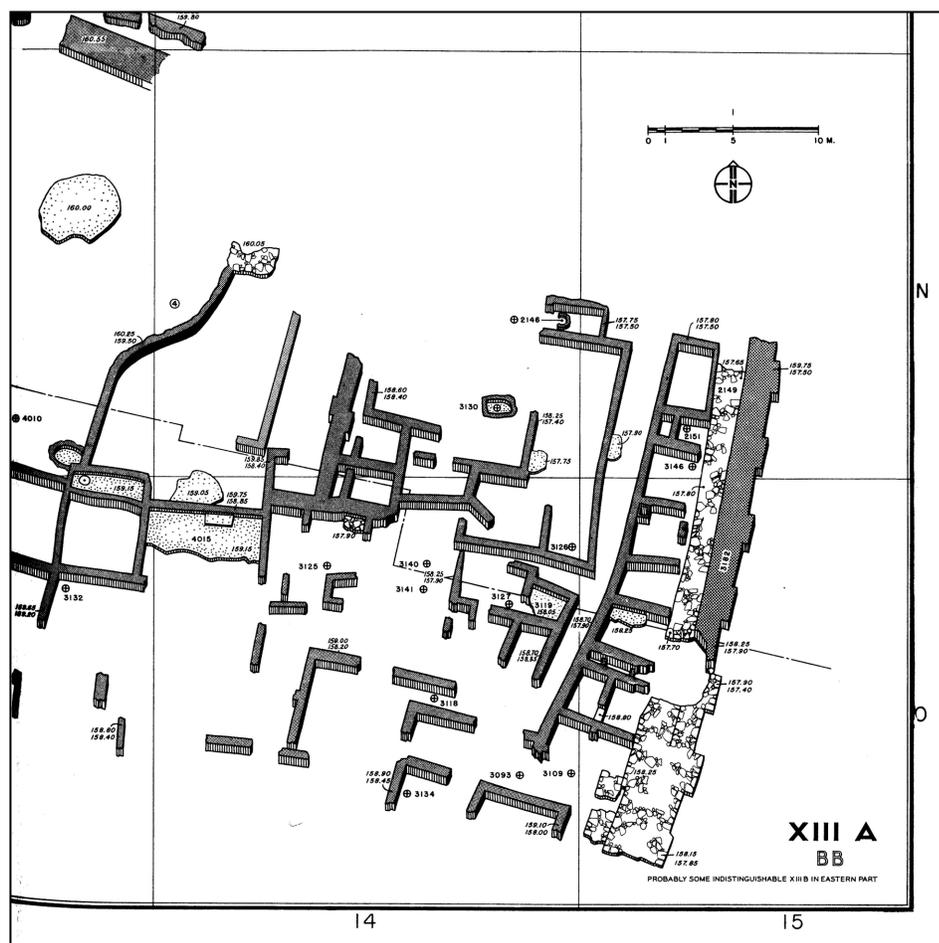
Although the identification of structure 4104 w of the gate and just inside the town wall (though not abutting it) is uncertain, its rectangular layout (13 x 6.5 m) and partially preserved staircase suggest that it was a **tower** which provided access to the top of the town wall (Loud 1948:7f.). It may have been constructed on the interior of the wall owing to the lack of flat ground upon which to build the tower outside the town wall. Contemporaneous towers with similar dimensions and orientation to the wall have also been found at Tel Zeror and Tel Poleg. Further confirmation of this identification is provided by a mudbrick tower excavated in Area BB in Stratum XII (see below). No finds are reported as associated with structure 4104, but in the same room as its well-preserved staircase a mudbrick storage bin and bench evoke some idea of how this structure might have served the town's defenders who would have occupied it.

The earliest town **fortification wall** found in Area AA should probably be equated with the mudbrick town wall 3182 in Area BB, though it is 30 cm thinner in Area BB. In Area BB (Figure 85 below) the wall was only 1.5 m thick and the insets, which were one brick deep (35 cm), were more regularly spaced, slightly less than 3 m apart (Loud 1948:87). Wall 3182 was built of 35 x 35 x 10 cm mudbricks and the entire structure was founded upon a stone foundation (2149) 3 m wide. Though this wall is described as made of brown mudbricks, close examinations of fig. 398 (see the line dividing N from the S phase in the construction of 3182, Loud 1948) and G. Loud's field diary reveal that at the S end of Area BB wall 3182 was constructed slightly differently.³⁹ Here it was found to be constructed of gray mudbricks over 2.1 m thick with offsets

³⁹See G. Loud's field diary entry for March 18, 1937 for the East Area (BB): "The mudbrick wall [3182] is puzzling near the south end, for here at what may be part of a gate the two kinds of brick are reversed—the brown brick [identified with 3182] continues in the line of the gray [previously identified with 3181], while the gray is behind [3182]—on the town side of the brown" (Archives of the Oriental Institute). This observation is a good lesson in avoiding equation of walls based simply on brick size or color.

spaced only 2 m apart. This difference led Loud to suggest in his field diary, but not in the publication that there may have been a gate here (see n. 39). Although a gate seems improbable here given the lack of evidence for other gates or an approaching ramp in this area, this change in construction style may simply characterize the lack of continuity in wall construction around the site which is also attested at other sites. The fieldstone foundation which was twice as wide as the wall also followed the offset-inset layout of the mudbrick wall. The remaining excess foundation protruded on the interior of the town wall (Loud 1948:84–87, figs. 197–201). This was perhaps due to the fact that in Area BB the citadel's wall formed the outer defense of the settlement where in Area AA the wall primarily functioned to separate the citadel from the lower town.

Figure 85. MB wall of Stratum XIII in Area BB (Loud 1948:figs. 397f). Courtesy of the Oriental Institute of the University of Chicago.



The Stratum XIII defenses were also revealed in Area CC, though the results are not as clear as those in Areas AA and BB (Loud 1948:105ff.). In this part of the site it was more difficult to assign remains to Stratum XIII or XII due to limited excavation in a 5 m wide trench. Nevertheless, two complexes of walls, referred to as A and B, were revealed and have been associated with the Stratum XIII and XII defenses. The mudbrick **wall** within the wall A complex, including the outermost wall on the edge of the slope and its **glacis**, was preserved 4 m high and 2 m wide. It featured two phases in the course of its construction (see section, fig. 416, Loud 1948). It appears that wall A formed the interior buttress of an early **rampart** built at a distance from the town wall itself (i.e., complex B). This is suggested by the 3 m high, w elevation of wall A which slants at 70° against a mudbrick core construction 3.5 m thick and 2.5 m high with a triangular section. The face of this structure is covered on the E by what has been identified as a **glacis** (4 m wide x 1 m thick of unknown composition) in the section drawing with an approximate slope of 40°. It is unlikely that Loud's reconstruction of the defenses of Strata XIII–XII in Area CC (see fig. 267, Loud 1948) is correct since the lower portion of the wall A complex is never likely to have stood alone exposed on its interior face, let alone featuring a mudbrick superstructure which hung suspended in mid-air over its lower courses. It would have been necessary to build up the interior against the rampart if a wall was to be built on top of it. It is perhaps for this reason that Kempinski suggested that the wall A complex related to neither 3181 or 3182, as found in Areas AA and BB (1989:109). Instead he suggested that the wall A complex was a part of a greater enclosure wall and rampart which encircled both the upper tell and lower town, and for this reason it was not detected in Areas AA and BB. It is also possible that the wall A complex should be dated to Stratum XIII A and continued in use during Stratum XII when the wall B complex was constructed. But the temporal relationship between the wall A and wall B complexes remains uncertain.

The wall B complex, which comprised part of the defenses in Area CC, itself consisted of two walls, perhaps the remains of a **tower** (dimensions unknown) like that in Area AA but larger. Unfortunately, although a doorway was preserved to a height of 2.15 m between the N and S mudbrick walls within the tower no finds from inside the structure help to clarify its function. Both of these walls were 1.75 m thick and made of mudbricks 35–40 x 35–40 x 10 cm, dimensions which are similar to bricks used in wall (3182) of Stratum XIII A in Area BB. Although the S wall was preserved to a height of 1.75 m, the N wall was only preserved to a height of 1 m. Perhaps the S wall served as the extension of 3182/3181 from Area BB (Loud 1948:105–113). However, if Kempinski's reconstruction is correct, it would seem, therefore, that no reinforcement of the wall in this area was undertaken during Stratum XII as in Area BB after its initial construction, which was perhaps due to the continued serviceability of the rampart (wall A complex). Given that the wall B structure was constructed on a deliberately packed surface at a distance of 10.5 m from the wall A complex with no structures of consequence between them, Kempinski's interpretation seems plausible.

Stratum XII (MB I–II/IIA–B)

During Stratum XII, as mentioned above, Megiddo's **fortification wall** was widened around the entire site as evidenced in Areas AA and BB (Loud 1948:8ff., 87ff.). In Area AA only the wall to the W of the location of the gate, which was not preserved, was thickened with an addition of nearly 2 m (Figure 86 below), which was also plastered.⁴⁰ Although here the wall retained the offset-inset design of the earlier wall, the portion of the wall to the E of the gate's location lacked buttressing and was not built with an offset-inset design. No remains of the Stratum XII citadel gate were preserved, since it

⁴⁰This plastering on the addition to the mudbrick wall during Stratum XII, which was preserved in an identical fashion as that of Area BB (i.e., between the bricks' joints), is only evident on the N face of the wall in unpublished photo A4528 (Archives of the Oriental Institute).

construction, the use of better bricks, and the addition of a **tower** (9.5 x 6 m) constructed of mudbrick on the exterior of the wall (Loud 1948:87–92, figs. 198–201).

Excavation in Area F of the Tel Aviv University expedition has revealed part of a rampart around the lower town to the NE of the upper town's gate (Ilan, et al. 2000:78ff.). Unfortunately, limited soundings in this trench, which did not reach bedrock or virgin soil, make it difficult to interpret the results. Nevertheless, in Area F a wall (94/15), which is probably to be identified as a **revetment wall**, was excavated. Against this wall layers of a **rampart** were deposited, though the upper 2 m or more of the wall were left exposed (*ibid.*, 80). It was apparently built around the lower town and probably corresponds, as suggested by the Tel Aviv expedition, with Wall K identified by Guy, though misdated to the 10th century B.C. (see fig. 14, Guy 1931 for the course of this wall). Following some limited soundings of the lower town in 1971 and 1972 Yadin had suggested that the “rampart” only consisted of “building remnants and the accumulation after the MB II” and for this reason could not be considered part of the site's defenses (1972c:162). However, the results from the Tel Aviv expedition appear to confirm the existence of defenses around the lower town, the earliest of which can now be placed at least at the start of the MB II (IIB).

Stratum XI (MB II/IIB–C)

In Stratum XI the town's defenses were modified yet again. This time in Area AA a much thinner, though buttressed **fortification wall** was built upon an earthen rampart about 7 m out from the location of the earlier town wall. The 1.25 m thick wall, presumably composed of mudbrick, was built on a rubble foundation with interior buttresses (1 x 1 m) about 1.5 m apart. A **glacis** was found running up the rampart and against the lower, exterior part of the wall though its composition was not described. While an **earthen rampart** can be posited from the section (Loud 1948:fig. 416) though it is not explicitly described by Loud, it is impossible to be certain of the embankment's

original height since the section drawing is only schematic. Although estimates for the rampart's height range from 3 m (Kempinski 1989:110) to 5 m (Kenyon 1969:56, fig. 27), an examination of the section lends more credence to Kempinski's figure. The outer slope of the glacis and rampart was 45° based on an examination of the same section. Although Kenyon's reconstruction of the interior slope of this embankment is speculative it is probably a reliable reconstruction of the remains found to the S of the wall but not displayed in section.

Only the W remnant of the gate was found on the E side of Area AA, but the remains are insufficient from which to reconstruct its layout (Loud 1948:15, fig. 26). No remains of this period's defenses were found in Area BB or CC by the Oriental Institute Expedition.

Stratum X (MB II/IIC)

Remains of the defenses of Megiddo in Stratum X are very poorly preserved. Nothing is left of the gate in Area AA or the town wall in Areas AA, BB, or CC. Although Loud speculated that the Stratum IX six-pier gate may have been in use at the end of Stratum X, it is not possible to demonstrate this stratigraphically. There is also no evidence of a uniformly constructed wall associated with this gate in any of the areas excavated.

MEVORAKH, TEL (TELL MUBARAK)

MR 1433.2155

References: (Stern 1984).

Plans: (Stern 1984:fig. 21, 26–28).

Sections: (Stern 1984:fig. 32f.).

Photos: (Stern 1984:pls. 18–19).

The site of Tel Mevorakh is 4.4 km downstream from Burga, the nearest large settlement, along the Nahal Tanninim. The MB settlement has been identified as a

fortress by Ephraim Stern which was said to have been destroyed at the end of the MB (Stern 1984:36). Its location in the center of the coastal plain between the plain of Sharon to the S and the Carmel coastal plain must certainly be considered strategic.

Stratum XV

The earliest occupation on Mevorakh was founded as a well planned “road-fortress” on virgin soil during the middle of MB I (IIA), Stratum XV (Stern 1984:69). Unfortunately, remains from this phase are limited to the central excavation area where only three mudbrick walls on stone foundations (W182, W188, W191) of fortress B-349 were revealed. While Stern has identified this structure as part of the fortress, its location at the NW corner of the site suggests itself more specifically as the NW **tower** of the fortress that must have encompassed the entirety of the natural hill. The walls of this structure average 1 m wide. Preserved to almost 3 m in height in one location, the walls are the most rectilinear in plan of those found during the course of excavations by Stern. Unfortunately, excavation within the tower did not yield any significant finds for this phase.

Stratum XIV

In the second phase of MB I (IIA) occupation (Stratum XIV), it is clear that the site experienced a population growth which forced settlement beyond the walls of this fortress (Stern 1984:52). This was indicated by the building of a mudbrick **wall** (186) of a similar character to the w and against the tower’s exterior wall (182), as well as the construction of a house dated to the MB I (IIA). It should also be noted that no rampart or glacis was built during either of these phases.

Stratum XIII

During the first phase of MB II (IIB) settlement at Mevorakh (Stratum XIII) a **earthen rampart** of sand, hamra, and kurkar (so-called *terre pisée*) was deposited over the earlier, perimeter walls of the Stratum XIV–XV settlement. This formed a small

crater, not unlike the craters of larger settlements (e.g., Ashkelon, Tel, Dan, Hazor, Timnah, etc.), within which the settlement was located. Its inner slope was covered by “thin layers of hard clay, mixed with a large number of potsherds” (Stern 1984:49). This undoubtedly served to protect the rampart against erosion. Stern has characterized the site during this period as a border fortress, serving Tel Dor (*ibid.*, 69). The gate entrance to the site must have been located on the E side where a slope feasible for an entrance was found and since the N, W, and S sides of the site form the steep sides of the rectangular enclosure. During this period the site was about 0.1 ha (*ibid.*, 68). It is not really possible to estimate the quantity of earth and materials used in the ramparts enclosing Mevorakh in this period since insufficient sections are available from which to establish its dimensions.

Stratum XII

The final stage of MB occupation at Mevorakh during the late MB II (IIC) (Stratum XII) continued with the occupation of the MB II (IIB) fortress. The site is thought to have been no more than about 0.1 ha in area (Stern 1984:1). The strategically important role of this site along the coastal plain throughout the MB is attested by its nearly continuous occupation despite the abrupt interruption of occupation at other MB sites such as nearby Burga, which was abandoned at the start of the MB II (IIB). At the start of the LB Mevorakh was leveled for the construction of the LB temple which required more than a meter of buildup above the MB fort.

MICHAL, TEL (DHAHRAT MAKMISH)***MR** 131.174**References:** (Herzog 1989).**Plans:** Site (Herzog, et al. 1989:1.2; Herzog 1989:4.2); N end of high tell (fig. 4.7).**Sections:** W (Herzog 1989:fig. 4.3); E (fig. 4.4); S (fig. 4.5) Composite A-A (fig. 4.1).⁴³**Photos:** Site aerials (Herzog, et al. 1989:pls. 2, 5), W trench (pl. 7) S trench (pls. 8f.).

Tel Michal is located on the Mediterranean coast about 12 km NNE of Jaffa. The MB settlement at Tel Michal was limited to the high tell (0.2–0.3 ha) during the late MB II (IIC) (Herzog 1997a:129). Although a composite drawing of the E-W trench across the excavation area has been published, the step trench revealed only a very limited picture of an embankment which is conjectured to have been built during the late MB II (IIC). According to the excavator much of the settlement's w side has been eroded, a process which was occurring even in antiquity as evident from the eastward shift in the LB I (Str. XVI) and II (Str. XV) settlements (see Figure 87 below). While it is doubtful that the remains recovered from Tel Michal should be identified as part of ramparts or glacis of the MB or LB, this site is included in this catalogue in order to address reasons for its association with ramparted settlements of the MB.

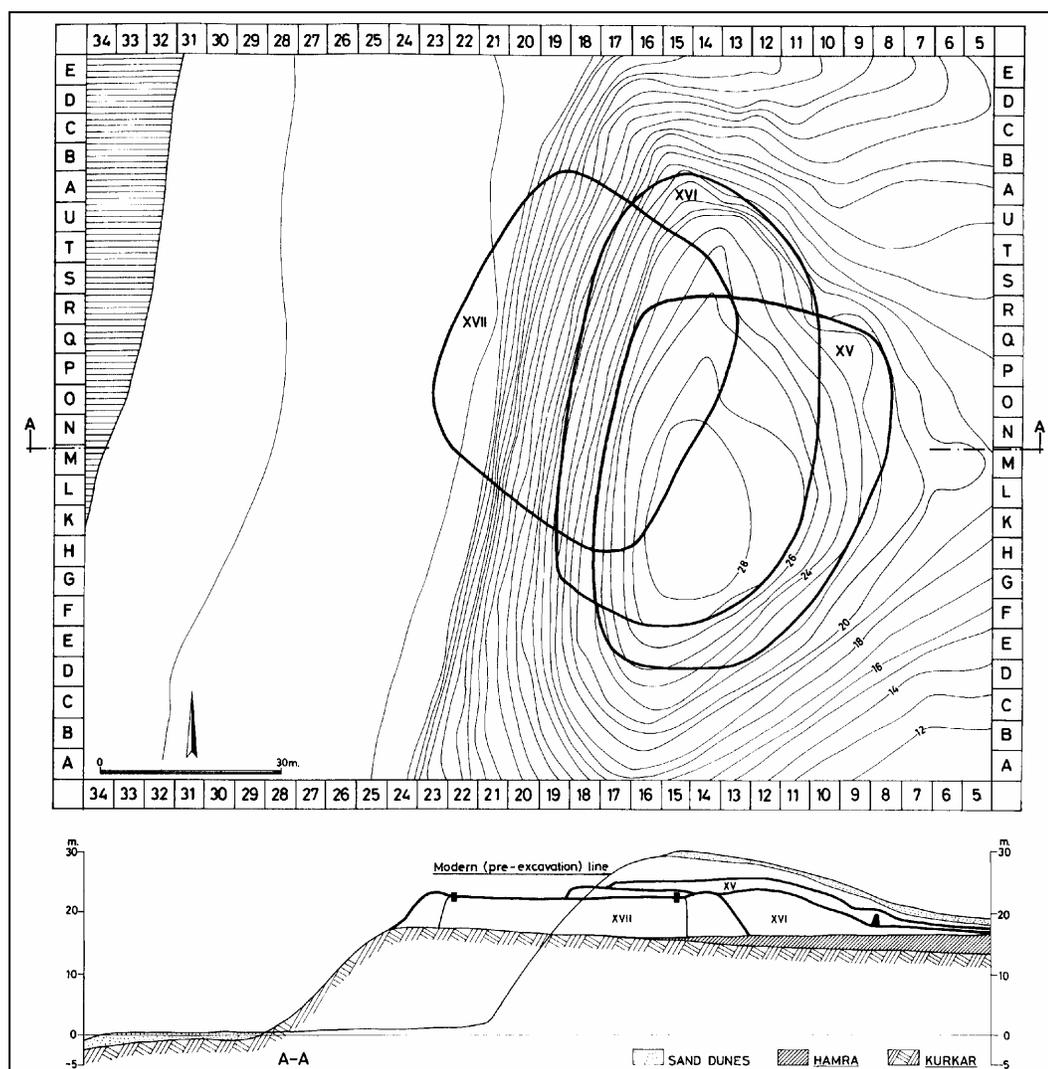
Stratum XVII (late MB II/IIC)

While a substantial part of the picture of the late MB II (IIC) settlement has been reconstructed by the excavator, late MB II (IIC) remains (Stratum XVII) consisted mostly of fills and were encountered in the w step trench (squares M16–18) and in squares M8, O13–15, S15, and R15 (Herzog 1989:29ff.). These fills, which contain only MB II (IIB–C) sherds, formed a supposed platform (782) over 4 m high expanding the area of the

⁴³It is important to note that in addition to the limited information that these sections provide of the MB deposits at Tel Michal they were drawn from photographs and, therefore, have undoubtedly introduced some inaccuracy (Herzog, et al. 1989:7).

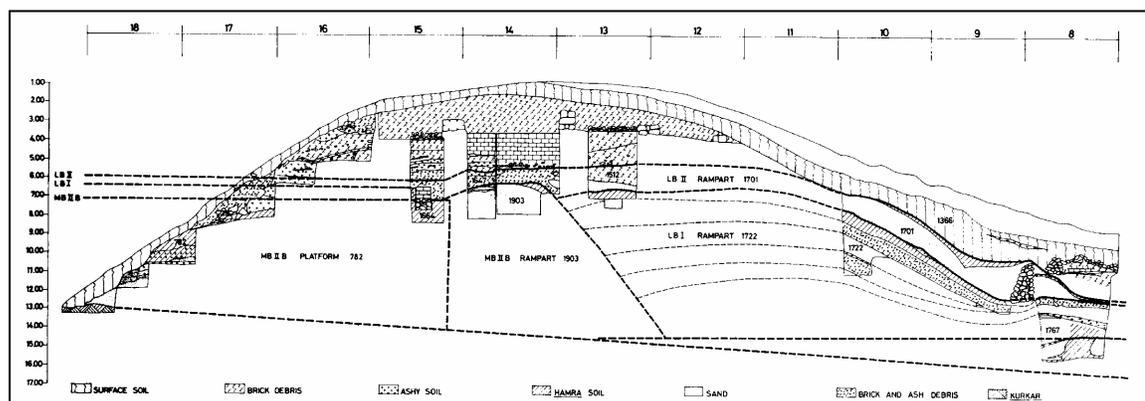
original *kurkar* hill for the construction of the settlement. The platform on the NE and E sides was purportedly delimited from the rampart and glacis by mudbrick walls S156 (which was 0.64 m thick, preserved to a height of 3.27 m, and was truncated on the w where the mound has since collapsed) and N156, respectively. But the identification of this locus as a platform is very speculative; as fig. 4.3 shows Locus 782 was no more than a debris layer about 1 m thick. The nature of this layer, if it reached the center of the mound, can only be guessed about. Therefore, there can be no certainty in its continued identification as a platform.

Figure 87. Plan of Michal showing the evolution of its embankments. Reprinted, by permission, from Z. Herzog (1989:fig. 4.2).



Likewise, an equally dubiously identified “sand rampart”, consisting of Locus 719 on the N and Loci 1657, 1663, and 1903 on the E, was supposedly constructed around the entire site and against this platform. However, this cannot, unfortunately, be verified as the rampart since it is nowhere demonstrated to have abutted the platform (Locus 782) and was also never excavated to a sufficient depth to verify its thickness and hence its identity as a rampart. This sand may be nothing more than wind-blown accumulation against the *kurkar* ridge atop which the settlement was founded. Equally doubtful is the identification of *hamra* covering the sand of this supposed rampart, which was exposed on the NE side of the tell in square T14 (Locus 716) and on the E in square N13–14 (Loci 1665 and 1901), as a glacis intended to keep the sand rampart from eroding. Therefore, based upon the evidence available at present there appears to insufficient basis for the identification of an intentionally constructed platform, rampart, or glacis at this site. The lack of evidence for a fortification wall at Tel Michal would only seem to support this revised interpretation, as such features are frequently attested together. Although Herzog has estimated that 31,500 m³ of earth and sand were moved for the construction of the platform and ramparts at Tel Michal (1989:32), since no soundings penetrated the core of the tell to a sufficient depth, it useless to speculate about the construction of these features.

Figure 88. Section through ramparts at Tel Michal. Reprinted, by permission, from Z. Herzog (1989:fig. 4.1).



Based on a projection of the building walls identified around the site's edge, the site is estimated to have been 2.5 ha in gross size (cp. with my figure below) during the late MB II (IIC), of which only 20% remains today. But based upon the defined limits of the site during the MB II its inhabitable area appears to have measured only approximately 30 x 30 m or roughly 0.1 ha in size, which is half the size suggested by Herzog. Herzog has attributed the late MB destruction to tectonic activity, downplaying the presence of considerable amounts of brick and ash from the settlement which preceded the construction of the LB I rampart (1722) (Herzog 1989:38).

Strata XVI–XV (LB I–II)

Two successive settlements (Strata XVI and XV), neither of which was enclosed by a fortification wall, were built during the LB I and II (Herzog 1989:38ff.). Both of these featured what have been referred to as ramparts built of sand, and have been compared to the “rampart” of the late MB II (IIC). Although these features were probably intentionally added to the E, N, and S sides of the site changing the shape of the tell over time, their identification as ramparts is unnecessary as they bear no relationship to MB ramparts in function. Even though the site's inhabitable area does not appear to have increased significantly (see figs. 4.2 and 4.8 Herzog 1989), these features were probably no more than attempts to expand the settlement to accommodate modest growth.

The Stratum XVI embankment, referred to as a rampart (1722 on the E, 1562 on the S, and 1381 on the N), was composed of sand (1761, 1722, 1562), ash (1764, 1750, 1727, 1746), brick and occupation debris (1750, 1730, 1556, 1559), and some *hamra* soil which was used to stabilize the sand (1562, 1558). This embankment was covered with a *hamra* surface, which Herzog has identified as a glacis (1718 on the E, 1555 on the S, and 1383 on the N). Although the preservation of the embankment is not identical on the E and S sides, both locations reflect the same general sequence of deposition: sand, brick and occupation debris, and a *hamra* surfacing. While the correspondence between

embankment layers at different locations within a site is unusual, here it can be explained by the small size of Tel Michal which probably meant that each of its embankments were constructed in a very short period of time (i.e., one building phase). The slope of this embankment was preserved to about 30°. Herzog has suggested that the remains of building 873 on the N side of the site during Stratum XVI may have been a “fort guarding the approaches from the north” (ibid., 41), but again no clear evidence for this identification is available.

The Stratum XV embankment, which was also identified as a rampart (1701/1736 on the E, 971 on the S, and 1512 in the center), was also constructed mostly of sand which was held in place by a **retaining wall** (M91) (Herzog 1989:39f.). Not as much mudbrick debris (e.g., 1554) and ash (e.g., 1736, 1512) appear to have been used in its construction as in the previous embankments, yet like them it too was covered with a *hamra* surface, again referred to as a *glacis* (1702/1737 on the E and 956/963/961/1262 on the S). The slope of this rampart was preserved to about 25°.

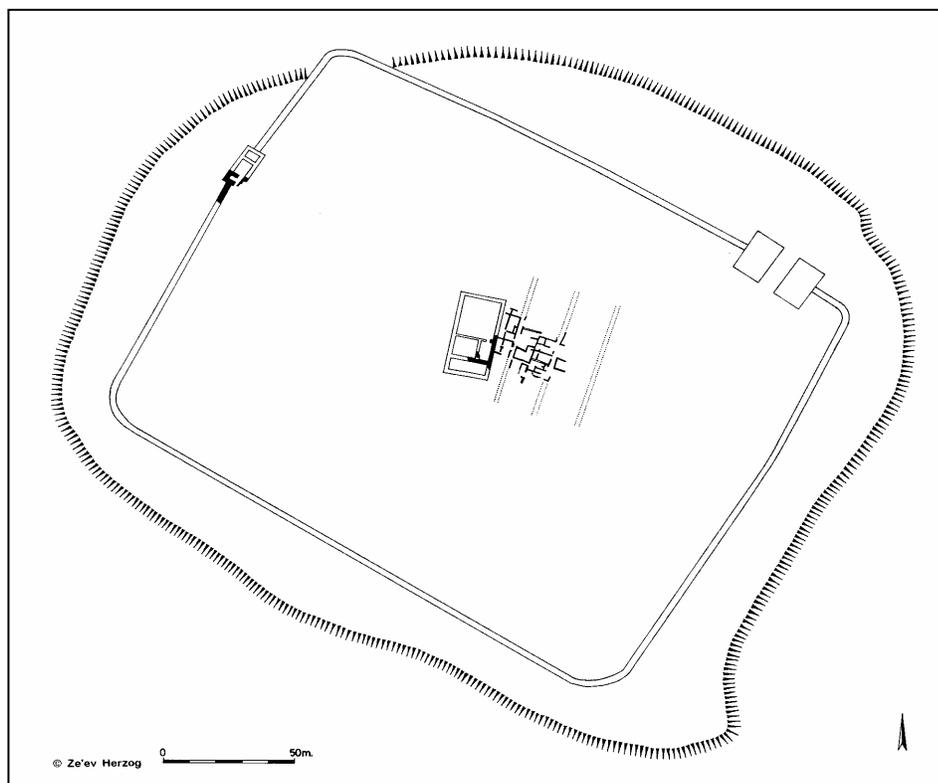
NAGILA, TEL**MR 127.101****References:** (Amiran and Eitan 1965; 1993).**Plans:** Site (Amiran and Eitan 1965:fig. 11; 1993:1080).**Sections:** Area C (Amiran and Eitan 1965:fig. 11).**Photos:** NA.

Nagila is located along the Nahal Shiqma approximately 27 km SE of Ashkelon in the coastal plain. During the MB II (IIB) Tel Nagila (Stratum XI) was resettled after an occupational gap beginning in the EB IV. The fortification system was excavated in Areas C and F, though it is clear that settlement had spread outside the fortifications during the site's occupation during part of the MB II (IIB–C). Area C on the NW side of the site provided the most information about the site's fortifications, which consisted of a rampart, glacis, fortification wall, and a fosse at the foot of the rampart. In addition to these defenses the site was flanked on the E by the Nahal Shiqma.

The **rampart** consisted of a core of mounded earth on the interior slope of which a mudbrick **fortification wall** 2.3 to 2.5 m thick was built. About 3 m of the wall's elevation was preserved. The lower portion of the exterior of the wall and the rampart's surface were then covered by alternating layers of earth, capped by a crushed chalk **glacis**. The rampart and glacis appear to slope at an angle of about 35° (see fig. 11, Amiran and Eitan 1965). The excavation of Area C on the inner slope of the rampart (cp. Achzib) revealed not only the town wall but another parallel wall about 3 m behind it. This wall of similar thickness probably belonged to a rectangular **tower** which was part of the defenses at this point along the wall (see reconstruction in fig. 4.21 in Herzog 1997a). That this tower was involved in a site-wide fiery destruction is evident from the thick layer of ash excavated above its floor. Amiran and Eitan have noted that the level of the floor inside the perimeter wall was about 1.5 m lower than the level at which the rampart

met the exterior of the wall. This perhaps illustrates that the wall must have been built to a considerable height if it was to serve as an effective defensive wall above the rampart. The estimated length of the rampart is about 685 m.

Figure 89. Plan of Tell Nagila showing MB fortifications. Reprinted, by permission, from Z. Herzog (1997a:4.21).



From an examination of the site's plan and section in Area C it is possible to also add some details concerning the size of the **fosse** that encircled the site at least on three sides. The fosse was apparently carved into the bedrock about 3 m deep and about 8.5 m wide at its base (almost 14 m at its top) along the 850 m perimeter of the base of the rampart (Amiran and Eitan 1965; 1993). The w side was probably protected by the Nahal Shiqma.

The site's perimeter wall was also excavated in Area F where fallen bricks and additional evidence of the conflagration which brought its MB occupation to a close were also exposed. Despite this terminal date for the fortifications, the excavators were unable

to conclude during which phase of the site's MB II–III (IIB–C) occupation (Strata XI–VII) the fortifications were constructed. Nevertheless, fortifications were inconsequential during the LB I when the site was unfortified and a flagstone pavement was laid over the fortification wall in Area F.

NAHARIYA, TEL

MR 159.268

References: (Yogev 1993).

Plans: Site (Yogev 1993:1089).

Sections: NA.

Photos: Site aerial (Yogev 1993:1089).

The site of Nahariya is located on the N coast of Israel about 10 km N of Akko and is situated on the S bank of the Nahal Gat. Although the full extent of the original mound is uncertain it is possible that the site occupied as much as 3.75 ha during the MB within a space of roughly 250 by 150 m (see plan of mound by, Yogev 1993). The remains of the MB belong to Strata III and II on the main mound. Stratum III, which has been divided into three sub-phases (IIIC–IIIA), dates to the MB I (IIA) but does not appear to feature any evidence of fortifications (ibid., 1089).

However, during the early MB II (IIB, Stratum II), the site was fortified with a 3.8 m wide **fortification wall**, 12 m of which were exposed in a sounding excavated in 1980 on the N side of the site. The foundation of this wall was built of three to four courses of *kurkar* stones. If this wall enclosed the entire MB mound it would have been about 800 m long. The **N Gate** of the settlement was also located in this sounding on the N side of the site, though only the 3 m wide passageway and part of the tower on the W side of the gate were exposed. Both of these structures are provisionally dated to the early MB II (IIB).

Nothing is known of the defenses of the site in the periods immediately following.

NAJJAR, KHIRBET***MR** 1782.2056**References:** (Zertal 1992;1993).**Plans:** NA.**Sections:** NA.**Photos:** NA.

Khirbet en-Najjar is located in the northern Samarian hills about 1 km SE of Ibleam. The MB II (IIB) fortifications of Khirbet Najjar have been noted to include a **wall** and “huge **earthen rampart**” (Zertal 1993:1312). The only access to tell is from SE where there are remains of a 4 m wide stone wall ascribed to the MB II. The remains of a tower located s of entrance are also visible. According to Broshi and Gophna the site’s gross size was 2.5 ha (1986).

NEBI RUBIN***MR** 1245.1485**References:** (Gophna and Beck 1981; Broshi and Gophna 1986).**Plans:** NA.**Sections:** NA.**Photos:** NA.

Nebi Rubin is located about 3 km ENE of Yavneh-Yam. The site is listed on Gophna’s settlement map as fortified (see map in Gophna and Beck 1981:47) and also in Broshi and Gophna’s catalogue where it is said to be approximately 10 ha in size (1986:84).

NIMRIN, TELL**MR** 2094.1451**References:** (Flanagan, et al. 1994).**Plans:** Site (Flanagan, et al. 1994:fig. 1).**Sections:** N40/W20 (Flanagan, et al. 1994:figs. 13, 15).**Photos:** N40/W20 (Flanagan, et al. 1994:figs. 12, 14).

Tell Nimrin is located on the E side of the Jordan Valley to the NE of Jericho on the S bank of the Wadi Shuaib. Evidence of the site's MB fortifications may have come to light in square N40/W20 on the NW flank of the site, but the designation of these remains as part of the site's fortifications and not another type of monumental construction remains uncertain (Flanagan, et al. 1994:217ff.). If these remains are part of the fortifications then they preserve two phases of an E-W stretch of the town's **fortification wall**. Of the first phase of the fortifications the remains of the stone built foundation (L222) more than ten courses high were preserved. The second phase was at least 3 m wide and consisted of a about six courses of "small boulders" (L201) and a mudbrick superstructure (L143) of which ten courses were preserved; the entire structure including both phases stood upon excavation more than 4 m high (ibid.). Both of these structures are dated to the late MB II, the two distinct phases being specifically dated to the late MB IIB and MB IIC respectively (ibid., 218). There has been no clear evidence of a violent destruction to coincide with the abrupt termination in settlement.

PELLA (TABAQAT FAHL)

MR 2075.2065

References: (R. H. Smith and Potts 1992; Knapp 1993; Bourke 1997; Bourke, et al. 1998; Falconer 2001).

Plans: Site (Bourke 1997:fig. 1); Area III (R. H. Smith and Potts 1992:fig. 7); Area XXVIIIIC (Bourke, et al. 1998:fig. 18).

Sections: NA.

Photos: Area III Plot D (R. H. Smith and Potts 1992:pl. 29a), Plot F (Bourke, et al. 1998:figs. 15f.); Area XXVIIIIC (Bourke, et al. 1998:fig. 19).

The site of Pella is located on the E side of the Jordan Valley about 12.5 km to the SE of Beth-Shean. Excavations since 1982 have revealed extensive remains of the site's MB defenses. These defenses though already known to date to the MB (Stratum XI), now appear to date more specifically to the MB I/II (IIA–B) based upon ceramics recovered from the wall in Trench III and the tower in Trench XXVIII (Bourke, et al. 1998:189ff.). These fortifications continued in use through the end of the MB (Bourke 1997:104ff.).

The remains of the MB fortifications of Pella consisted primarily of two large mudbrick **fortification walls** excavated in Area III squares C (Wall 41), D, and F (Wall 7) (R. H. Smith and Potts 1992:40ff.). They are believed to have fortified the site's SE side where the slope of the terrain drops off towards the wadi on the S. Perhaps for this reason the total elevation of the N-S stretch of the mudbrick wall exposed in Area III was more than 11 m across the 10 m of its exposed length, though the wall was in no single place preserved to this height. This wall was 3.3 m wide and was constructed on a foundation of fieldstones.⁴⁴ In one place on its E side the wall appears to have featured a buttress about 90 cm thick added to the wall's exterior, though this was perhaps within

⁴⁴Elsewhere it has been noted that the wall in this area was between 3 and 5 m thick (Bourke 1997:104).

another defensive structure attached to the outside of the wall that might be identified as a tower (? F37). Further remains of an E-W stretch of the town wall (7) preserved to a height of 4.5 m and 3.58 m wide have been identified in the adjacent Square III F to the NE (ibid., 42f.). The wall, therefore, appears to corner between these two segments and turn E. Neither of these walls has yet been dated more definitively within the MB. B. Knapp has noted that a “**glacis**-like mudbrick packing” was added against the wall’s outer face at the start of the MB II (IIB), but no other details have been provided (Knapp 1993:31). Furthermore, he suggests that a “wall of massive stones” was probably built within the earlier enclosure in Area III during the end of the MB II (MB IIC) serving as an “enceinte”.

A second section of the MB fortification wall on the S side of the site along with a tower were identified in Area XXVIII C (Bourke, et al. 1998:189ff.). The **tower** (Tower 1), which was built on the inside of the town wall (cp. Megiddo), measured 8 m long (E-W) and more than 12 m (N-S) wide (ibid., 191). It was built with a foundation of five courses of stone cut into the bedrock and a superstructure of which more than 40 courses of mudbrick were preserved. The W town **fortification wall** (Wall 9) associated with the tower was approximately 2.6 m thick and was coated on its exterior with mud plaster 2 to 3 cm thick (ibid., 193). The town wall stretching E (Wall 10) was 2.4 m wide. Ceramics from the tower’s foundations suggest a MB I/II (IIA–B) date (ibid., 194).

Another section of the MB **fortification wall** was exposed about 300 m to the W of Area III in Area VIII. Falconer suggests that the MB walls enclosed an 8 ha settlement at Pella in this period (2001:277). If occupation was limited to the mound during the MB then the location of the walls in Areas III and VIII would delimit an area approximately 265 m long and 135 m wide, or roughly 3.6 ha. Thus the estimated length of the wall would have been about 800 m.

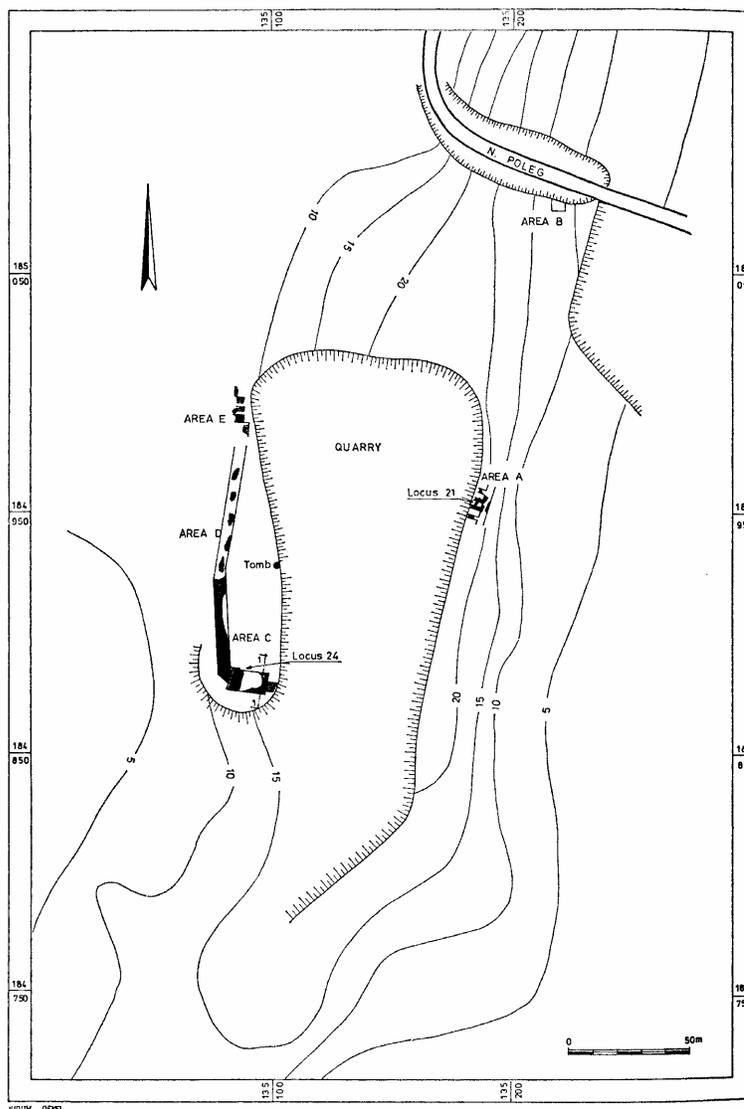
POLEG, TEL**MR** 1352.1849**References:** (Gophna 1973; Kochavi, et al. 1979; Gophna 1993b).**Plans:** Site (Gophna 1973:fig. 1); Area A (fig. 2); Area C (fig. 3); Area E (fig. 6).**Sections:** Area C (Gophna 1973:fig. 4).**Photos:** Area C (Gophna 1993b:1194).

Tel Poleg is located along the Nahal Poleg about 22 km SW of Tel Zeror. Information concerning the fortifications from the MB I (IIA) fortress at Poleg was obtained through salvage excavations conducted in 1959 and 1964 (Gophna 1973; Kochavi, et al. 1979:133–139). The small size of the site, 1.2 ha, suggests that it most likely functioned as a fortress on the coastal road (see Figure 90 below). Excavations in Areas A, C, D, and E, on the E, S, and W parts of the mound, respectively, revealed portions of the fortification wall. Although it was impossible to establish stratigraphic links between these excavated parts of the wall, since the site had served as a quarry, the ceramic remains have made it possible to date each of the areas to the MB I (IIA).

In Area A the mudbrick **fortification wall** (Locus 21) was 2.7 m wide. It was perhaps not wider here because the steep slope on this side of the site also aided its defense. Bricks used in this structure measured 60 x 50 x 12 cm (Gophna 1973:111). In Area C a mudbrick **tower** (Locus 24) measuring 15 x 8 m along with a portion of the wall measuring 5 m thick which ran N towards Area D were excavated (*ibid.*, 115). From the published photographs it is possible to discern that about twenty rows and twenty courses of mudbrick were preserved to a height of more than 2 m (Gophna 1993b; also Gophna 1973:115). The average dimensions of the bricks used in this tower were 55 x 35 x 12 cm in size (Gophna 1973:115). The slope on the W side of the site was considered more moderate, perhaps explaining the disparity in thickness between the walls found in Areas

C and D, and the much thinner wall found in Area A, where the slope was considerably steeper.

Figure 90. Plan of Tel Poleg and its MB fortifications. Reprinted, by permission, from M. Kochavi et al. (1979:fig. 5).



Some indication of the slope, roughly 20°, leading up to the wall is provided in the section drawing of the w section of Area C (Gophna 1973:fig. 4) and this has been identified as the **rampart** built of layers of crushed *kurkar*. The excavation of Area E revealed what appears to be the s half of the **gate complex** of the “indirect approach type” (Kochavi, et al. 1979:132). Aside from this gate it is impossible given the state of

preservation of the site and its immediate environs to guess the location of other gates. Its proximity to the Nahal Poleg would have provided it with a source of water and would have improved the defensibility of the S side of the mound where it is thought to have flowed in antiquity.

PORAN, TEL (TELL EL-FARANI)

MR 1137.1242

References: (Gophna 1992a).

Plans: Site (Gophna 1992a:fig. 2).

Sections: (Gophna 1992a:fig. 4).

Photos: NA.

Tel Poran, a site of some 10 to 12 ha, was located along the coastal plain about 7 km S of Ashdod and 8 km N of Ashkelon. It was among a number of sites discovered in the process of salvage archaeology in Israel which were excavated in the 1960's and 1970's (Gophna 1977; 1992a). Although like many sites founded during the MB it too was situated along a wadi, the Nahal Ivtah, this fact seems to have played no role in the site's selection during the MB, since it had already been occupied during the EB II–III. Instead the reoccupation of the site seems to have been concerned with the reuse of its existing, though dilapidated, EB town **fortification wall**, which appears to have served as the **core wall** for the building of the MB **rampart**, for which it is, unfortunately, not possible to provide a more specific MB date. During this process of building the rampart over the EB II–III wall remains layers of crushed *kurkar*, bricky material, and ash were heaped outside the wall behind a small **retaining wall** 9 m from the base of the wall. Gophna is probably correct in identifying the mudbrick layer on the rampart's surface as a **glacis**. Subsequent natural accumulation accounts for another 10 m added to the slope outside of the retaining wall and upon the MB rampart slope.

Of greatest interest at this site is the apparent lack of remains of a MB wall atop the rampart of this period. Gophna has suggested that this is conclusively demonstrated by the remains of a pit dug into the top of the wall's surface which contained EB pottery (Gophna 1992a:fig. 5). Nevertheless, the pit could have been dug before a MB wall was built above it, which has subsequently eroded away in this location. It is unfortunate that the 33 m section illustrated does not include the wall and rampart's stratigraphic relationship to the remains inside the EB wall. Further conclusions regarding the site's fortifications must await more complete publication of the excavator's findings.

QANA, TEL*

MR 1397.1707

References: (Broshi and Gophna 1986; Gophna and Portugali 1988).

Plans: NA.

Sections: NA.

Photos: NA.

Tel Qana is located about 5 km NW of Apeh in the southern coastal plain. The MB I (IIA) settlement was approximately 0.7 ha (Gophna and Portugali 1988:26). It is identified as a site with a **rampart** by Broshi and Gophna (1986).

QARQAF, KHIRBET*

MR 1643.1859

References: (Zertal 1992:357ff.; 1993).

Plans: NA.

Sections: NA.

Photos: NA.

The site of Khirbet Qarqaf is located in the northern Samarian hills about 15 km NW of Shechem on the road between Shechem and Dothan. The MB II (IIB) fortifications

of Khirbet Qarqaf have been noted to include a **wall** and “huge **earthen rampart**” (Zertal 1993:1312). According to Broshi and Gophna the site’s gross size was 0.7 ha (1986).

QASHISH, TEL (TELL QASIS)

MR 160.232

References: (Ben-Tor and Bonfil 1987–1988; Ben-Tor 1993b).

Plans: Site (Ben-Tor, et al. 1981:fig. 1); schematic drawing (ibid., 1202).

Sections: NA.

Photos: NA.

The site of Tel Qashish is situated on the N bank of the Nahal Kishon 2 km NW of Tel Yoqne‘am (Ben-Tor 1993b:1200ff.). The site was occupied throughout the MB (IIA–IIB), its walls being founded upon the remains of EB walls which may have been visible during the MB I (IIA) when the site was resettled following a hiatus during the EB IV. However, the fortifications date at the earliest to the MB I–II (IIA–B) transition (ibid., 1201), suggesting that the earlier settlement of the MB I (IIA), of which there is some limited evidence, may have been unfortified. The fortifications consist of a 15 m stretch of the 2 m wide town **wall** with a rectangular **tower** built inside the wall (Ben-Tor 1993b:1202; Ben-Tor and Bonfil 1987–1988:107). A feature probably to be identified as a **rampart** (called a ‘glacis’ by Ben-Tor) was built against the outside of the wall with “earth and stone chips” (Ben-Tor 1993b:1202). Although the site has been described as 1 ha in size, if the enclosure was only about 130 m E to W by 50 m N to S then its inhabitable area was no more than about 0.7 ha. The site appears to have been unfortified during the LB (Ben-Tor 1993b:1203).

QUMEI, KHIRBET***MR** 1707.1834**References:** (Zertal 1992:377f.; 1993).**Plans:** NA.**Sections:** NA.**Photos:** NA.

The site of Khirbet Qumei is located in the northern Samarian hills less than 5 km NW from Shechem. The MB II (IIB) fortifications of Khirbet Qumei have been noted to include a **wall** and “huge **earthen rampart**” (Zertal 1993:1312). According to Broshi and Gophna the site’s gross size was estimated at 0.7 ha (1986).

REHOV, TEL (TELL ES-SAREM)***MR** 197.207**References:** (Broshi and Gophna 1986; A. Mazar 1999).**Plans:** Site (A. Mazar 1999).**Sections:** NA.**Photos:** NA.

Rehov is located on the w side of the Jordan Valley 5 km s of Beth-Shean (A. Mazar 1999:2). According to Broshi and Gophna (1986) Rehov features a **rampart** datable to the MB. But thus far excavations led by Amihai Mazar from 1997 through 2001 have not exposed remains of the MB fortifications of the site. Yet evidence that Rehov was occupied during the MB is provided by a cemetery to the s of the site (A. Mazar 1999:7) as well as sherds from phase D-11 that may date to the late MB II (IIC) (*ibid.*, 11). A precise estimate of the MB settlement is not possible until a more complete understanding of the nature of the settlement of that period is available.

RUKAIS**MR NA.****Lat. Long.:** approx. 32.8° N, 36.6° E**References:** (Betts, et al. 1996; Eames and Schroder 1997; Betts 1998).**Plans:** Site (Betts, et al. 1996:fig. 2).**Sections:** Area 5 (Betts, et al. 1996:fig. 5:2).**Photos:** NA.

The late MB II (IIC) site of Rukais is located along the Wadi al-‘Ajib in the Hauran in E Jordan (Betts, et al. 1996; Eames and Schroder 1997). Although only preliminary results are available for the excavations of the site’s MB II (IIC?) defenses, this site of about 0.6 ha appears to have been fortified with a “massive” basalt fieldstone **wall** (ibid.). Further evidence for the site’s fortifications consist of the only evidence of a typical MB II (IIC?) **gate** in Jordan (personal communication, Bruce McLaren 2003). The size of the site may prove to be greater when the lower town to the SW is included (Eames and Schroder 1997:150).

SAHAB**MR 245.142****References:** (Ibrahim 1989; 1997).**Plans:** Site (Ibrahim 1989:519).**Sections:** NA.**Photos:** NA.

Sahab is located 12 km SE of Amman. The site features a MB fort with a glacis-rampart excavated in Area H on the SE corner of the site and the remains of a LB wall (possibly also of late MB date) in Areas G II and III on the SW corner of the site. The MB fortifications in Area H consisted of an **earthen rampart and wall** (Ibrahim 1989:518).

The identification of the glacis mentioned in connection with the rampart cannot be confirmed.

The wall in Area G II may be associated with a MB wall excavated in Area H III, but this has not yet been established (Ibrahim 1997). The site was definitely walled during the LB as evidenced in Areas H III–IV on the SE, H II on the E, and H II, B019 on the N (Ibrahim 1997; 1989:519). Based on the reconstructed extent of the LB wall (which appears to trace the course of the MBA wall, Ibrahim 1989:519), the site appears to have been roughly square and about 125 m on a side for a net area within its wall of about 1.6 ha. Given the site's rectilinear plan I propose that the fortifications preserved through the LB may actually have been constructed in the late MB II (IIC). Their complete extent would have been more than 500 m long.

SERA', TEL (TELL ESH-SHARI'A)

MR 119.088

References: (Oren 1993b;1997c).

Plans: (Oren 1993b:1329).

Sections: NA.

Photos: NA.

Tel Sera' is located about 32 km to the SSE of Ashkelon. Recent excavations by Eliezer Oren at the site confirm the presence of late MB fortifications at the site (personal communication, E. Oren), which Oren had earlier suggested (Oren 1997c:1). The site may have been resettled during the late MB II (IIC) (Stratum XII) on a natural mound of about 4 to 5 m in height along the Nahal Gerar, which provided additional defense of the site's SE side (Oren 1993b:1329). Evidence for the site's defenses was encountered in Area B (*ibid.*, 1330). No regularity of the site's plan can be inferred from its contours. The site and probably its fortifications do not appear to have been altered during the LB I.

SHECHEM (TELL EL-BALATAH)**MR** 1755.1805

References: (Sellin and Steckeweh 1941; G. E. Wright 1964; Dever 1974b; Seger 1974; 1975; G. R. H. Wright 1985b; Lederman 1985; Ussishkin 1989; Campbell 2002; G. R. H. Wright 2002).

Plans: Site (G. R. H. Wright 2002:ills. 2, 7), Contours (ill. 3), Schematics (Campbell 2002:figs. 78, 100, 122–24, 129); Field I (G. R. H. Wright 2002:ills. 12–15); Field III (ill. 38f.); Field IV (Campbell 2002:fig. 144; G. R. H. Wright 2002:ill. 52), NW Gate (Campbell 2002:fig. 129; G. R. H. Wright 2002:ills. 48f.).

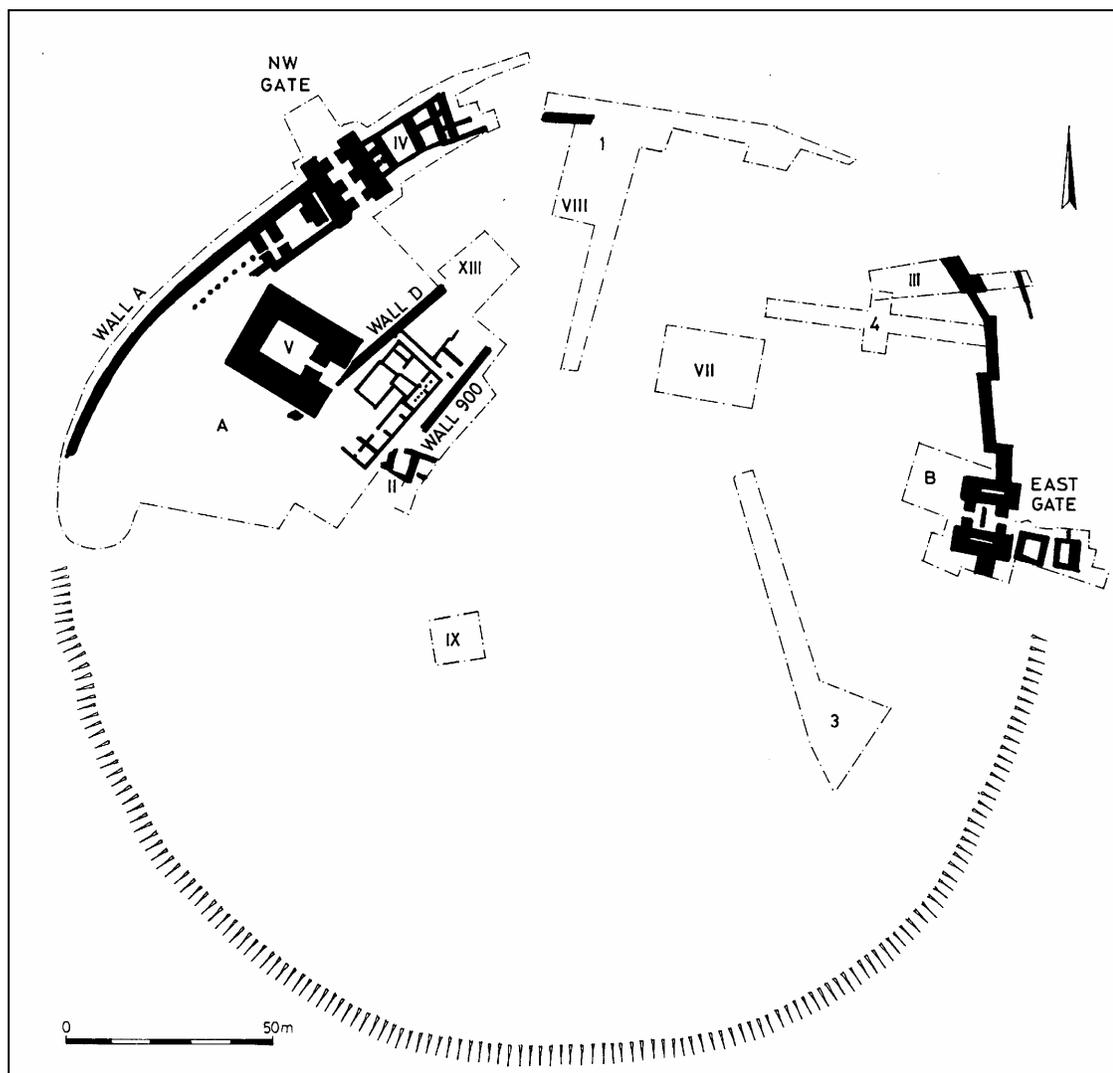
Sections: E Area: Field I (Campbell 2002:figs. 127f., 131f.; G. R. H. Wright 2002:ills. 20–22, 24–27); NW area (Campbell 2002:fig. 99; G. R. H. Wright 2002:ill. 10); Field III (G. R. H. Wright 2002:ills. 41–44), Field IV (ills. 54–59); Field V (Campbell 2002:fig. 17; G. R. H. Wright 2002:ill. 68), Section AA (G. R. H. Wright 2002:ill. 8); Field VI (figs. 11, 14); Field XIII (Campbell 2002:fig. 35).

Photos: Field I (Campbell 2002:fig. 130); Field III (figs. 112, 114); Field VI (fig. 18).

Shechem (Tell Balatah) is located in the hill country about 49 km N of Jerusalem. The excavations of Shechem were conducted during a large part of the 20th century by several expeditions. The cumulative results of these excavations have been recently presented by E. F. Campbell and G. R. H. Wright (2002; 2002) and they include treatment of the excavations of the MB defenses on the NW (Fields IV–VI, XIII), N (Field VIII), NE (Field III), and the E (Field I) sides of the site.⁴⁵

⁴⁵The presentation of the data is at times difficult to follow due to a proliferation of different terms for the same features and the fact that sections produced by earlier expeditions to the site are simply reproduced as they originally appeared (see Burke forthcoming). It is also particularly confusing since it includes data for the fortifications from limited probes to the s of the NW gate.

Figure 91. Plan of Shechem and its MB fortifications. Reprinted, by permission, from Z. Herzog (1997a:fig. 4.14).



MB I/II (IIA/B) Transition (Stratum XX)

There appears at present to be no data to suggest that Shechem's MB I (IIA) settlement was fortified (Campbell 2002:26). The site, therefore, was first fortified at the start of the MB II (IIB), Stratum XX, with Wall D, between 2.65 and 2.85 m wide, serving as the first **fortification wall** (p. 27). Earlier MB I (IIA) settlement was also present outside this wall (p. 25). The faces of the wall were built of dressed or specially selected stones with rubble piled between these (p. 28). Along the 52 m of its exposed

length it was preserved to a maximum height of 1.7 m and some of its mudbrick superstructure was found during Austro-German excavations, though the Joint Expedition did not find any similar remains in a further extension within Area 9. The latest ceramics recovered from a dismantling of this wall were determined to be of transitional MB I–II (IIA–B) date. Unfortunately, this wall has only been identified on the NW side of the site, despite the fact that the C Rampart which was built against this wall was itself identified in the other areas excavated. The location of Wall D, 40 m inside the line of the later MB fortifications in the NW area, suggests that the site was considerably smaller than at the beginning of the MB II (IIB).

Early MB II (IIB) (Strata XIX–XVII)

The Joint Expedition's excavations in Field V revealed the defenses of the Shechem, which followed those of Wall D during the MB II (IIB) (Campbell 2002:44f.). Some time after the construction of Wall D the fortifications of Shechem were modified with the addition of the **first rampart** (Stratum XIX) 37 m outside the line of Wall D.⁴⁶ The actual height of this rampart and its slope cannot be established (though J. Seger (1975) has suggested that it was 15 m high), and for this reason this rampart is also referred to as the "truncated rampart". Its composition nearest revetment Wall C at least partly included interlaced tongues of *huwwar* limestone and dark soil. This rampart's exterior was held in place by a **revetment wall** (Wall C) built of fieldstones with a slight batter that was preserved to a height of as much as 5 m (Campbell 2002:44). Though it was not completely excavated its function can be compared to similar revetment walls at Jericho and Ebla. Because Wall C is associated with this rampart, the rampart is also referred to as the 'C rampart'.

⁴⁶It is important to note, however, that no complete section of the fortifications was ever undertaken on the NW side of the site and, therefore, the actual nature of their construction must remain uncertain even if the major elements were partly exposed (Campbell 2002:44).

A **second rampart**, the so-called “augmented rampart” (Stratum XVIII or XVII), was constructed following the first rampart also during the MB II (IIB). (This feature corresponds with Dever's "Glacis B", locus 72.125, Campbell 2002:109). The rampart appears to have been detected in excavations in Area A-B in Fields IV and III (Campbell 2002:45), though its slope was only about 15° in Dever's Field IV Section EE (G. R. H. Wright 2002:ill. 58). The basis for its identification in Field IV is that, even though revetment Wall C was not detected, a rampart appears to have been constructed with a surface which terminated at the base of the revetment wall of the latest MB fortification system (i.e., Wall A, Campbell 2002:45). A sloped fill would have been unnecessary behind Wall A if it was intended only to provide the base for a level extension of the town out to the line formed by Wall A. Sherds from the fill of this rampart date to no later than the early MB II (IIB). The date is furthermore confirmed by the fact that sherds found in the layers above this rampart date to the late MB II (IIC). Both of these ramparts appear to have been constructed of materials taken from outside of the site. This is indicated by the small amount of pottery recovered from the ramparts' fills, the reddish earth used throughout, and the lack of ash and charcoal detected (Campbell 2002:49).

Late MB II (IIC) (Stratum XVI)

A violent destruction at the end of Stratum XVII appears to have brought about “massive earth movement and filling at the fortifications and in the public precinct” which also “removed much of the evidence of destruction,” though it was very evident in the domestic quarter (Campbell 2002:103).⁴⁷ The first phase of renovation of the site's fortifications in this period (Stratum XVI) involved the construction of a “Cyclopean”

⁴⁷ It was the massive change brought on after this destruction that have been cited by the Joint Expedition as the basis for designating the following MB strata as MB IIC (Campbell 2002:105). Thus the last two of six strata associated with the post-MB I (IIA) occupation at Shechem were deemed to belong to this phase.

revetment wall (Wall A) around the N half of the site (about 380 m long) at the base of the previous “augmented” rampart (“Glacis B”), standing as much as 10 m high in places (pp. 105ff.). Its construction involved the placing of boulders, probably unquarried, with dimensions greater than 1 m to a side (some as much as 2.2 m long) on a thin layer of earth resting above bedrock. As each course of boulders was set in place earthen fill (i.e., a rampart, see below) was added behind them. Although its dimensions vary throughout its construction, it was determined by the Austro-German expedition to have been as much as 2 m wide at the top and 4 m wide at its base and built eight to ten courses high. The exterior face of the revetment wall was sufficiently dressed “so as to present a relatively smooth and flush face”, while its interior face was “uneven, and slants inward” (pp. 106f.). Though large boulders formed the bulk of the wall smaller stones and cobbles were used to fill smaller spaces between them. The slope of the revetment appears to have been almost vertical along its lowest courses but about 15° towards the top (pp. 107).

The Austro-German expedition also revealed two drains on the NW side of the site that fed water from this quarter out two openings more than 5 m above the base of the revetment wall A which were about 0.45 m wide and 1 m high. In certain places, such as just to the NE of the W gate, the wall features a “saw-tooth” design similar to that of Shiloh’s MB II (IIC) fortifications (Campbell 2002:109). Evidence for a superstructure for Wall A was recovered from Field I during salvage work in the late 1980’s (p. 115). This evidence included mudbricks measuring 55 cm long and 12 cm thick. Despite its incredible masonry, the extrapolated length of Wall A around the entire site is only 740 m.

The **rampart** which corresponds with this revetment wall was designated “Glacis A” (locus 7276) by Dever (Campbell 2002:109). Although it was not traced across its entire width, it is thought to have abutted revetment Wall A at its upper, interior edge. It

was composed of “chalk and rubbish” with a slope of approximately 21° in Field IV Section EE N of the NW Gate (G. R. H. Wright 2002:ill. 58). This rampart was not identified to the S of the NW Gate as seen in Field IV Section FF (ill. 59), but instead has been suggested to consist simply of a filling on top of the “augmented rampart” or “Glacis B” behind Wall A.⁴⁸ At the same time as construction of the “Glacis A” rampart a **fortification wall** (Wall B/2) was constructed, which was probably set into the rampart if its lower courses did not themselves, in fact, rest upon a stone core. Wall B/2 (locus 72.106B) was built approximately 3 m wide of stone. Although it has been suggested that wall 7287 seen in Section EE is to be considered part of a tower associated with this fortification wall, the basis for this remains unclear as no floors can be seen in section behind the wall; it is instead likely that the small remains of this wall were no more than a **retaining wall** within the rampart, such as in similar walls found at Jericho. Wall B/2 appears to have experienced the site wide destruction at the end of Stratum XVI after which time it was replaced with Wall B/1 (locus 72.106A), a 1.75 m wide stone wall (Campbell 2002:109).

The gate, referred to as either the N or NW Gate, was another prominent feature of the late MB II defenses of Shechem (Campbell 2002:110ff.). It was revealed by Sellin’s expedition to have been constructed with fieldstone foundations and a superstructure of red and pinkish-white mudbricks which measured 38 x 38 x 10–12 cm. Although these remains were once preserved to a combined height of 2 m, the mudbrick superstructure has not survived during the past century of exposure. The gate, which conformed to the

⁴⁸Section FF is not a complete record of the fortifications in this area. However, the excavators have not always treated this section in this light throughout their report (i.e., as secondary to the more complete representations of the site’s sequence of fortifications) and, therefore, there is confusion concerning the exact sequence of fortifications, particularly in Stratum XV, in their report. In my opinion the assertion of the existence of only a single rampart based on Section FF is misleading, since it is possible that two ramparts with slopes comparable to those seen in Section EE were actually present below the levels reached (G. R. H. Wright 2002:ill. 58).

well known **six-pier gate** type, had overall dimensions of 18.3 m wide (with an accompanying passage of equal length) and was 16.8 m wide along its exterior (NW) elevation while only 16.2 m wide on the interior (SE). Campbell notes that the difference in the width of these two elevations resulted from the gate conforming to the curve of the wall (p. 110). If this was the basis for its construction in this manner, it was wholly a subjective decision on the part of the builders given that it would have made no difference to the integrity and/or function of the gate if it had been inserted with a square plan into the curving wall, as it did not matter at other sites (e.g., Ashkelon, Megiddo, etc.). Ironically, the spaces between the piers conform to exactly the opposite principle with the widest being the most interior of the three; their dimensions from the interior to exterior are 3.0, 2.9, and 2.8 m respectively (see G. R. H. Wright 2002:ill. 49); one would have expected the widest space to have been between the most exterior piers. Each of these piers projected about 2 m and they were lined with massive limestone orthostats. Although no doorsockets were recovered, it is not necessary to suggest as Campbell does that sliding doors were used, as a means of securing the door, which he also suggests was the case even for doors with evidence of door posts such as at Ebla (p. 111).

Although the gate in its final state (i.e., at the end of the MB II (IIC)) appeared to have been symmetrical, the results of the Joint Expedition's work have demonstrated that the gate was probably not originally built like this (Campbell 2002:110). This realization was arrived at following the discovery of a flagstone surface that was associated with the gate's earliest construction, but was built over by a lateral wall on the N side of the passage which made the recesses between the piers on the N side, as deep as those on the S side of the gate. This, Campbell suggested, may have been part of the renovation of the gate when the refurbished building 7200 was bonded to the gate. But given the numerous examples of six-pier gates where no such sequence of events is attested, and given the fact that the duration of elapsed time before the construction of the lateral wall cannot be

established, it is quite possible that what have been detected are merely constructional sub-phases within the original gate's main building phase in Stratum XVI.

Although the evidence for a **ramp** leading up to the gate, which rested 5 m above the bottom of revetment Wall A, from outside the settlement remains unclear (Campbell 2002:112f.), the suggestion that some ramp did lead up to the gate's entrance is warranted. Contrary to Ussishkin's proposal (1989), the exterior of Wall A was completely exposed in antiquity and the disparity in elevation between the gate and the bottom of the "fosse" around the site was considerable (about 5 m). As Campbell himself notes, there are several reasons why Ussishkin's suggestion that Wall A was merely intended to support the fill around the site cannot be maintained. First, the original excavator noted a ramp "along the wall", which it may be deduced was intended to account for disparity between the height of the town and the elevation outside. Second, there is no ceramic evidence to support a fill completely burying Wall A which would date to the late MB and no later. Third, as Campbell observed, Wall A is capable of supporting the fill behind it and standing as it does despite its steep face and, therefore, a fill was not structurally necessary. Fourth, the dressing of the face of the stones used in Wall A is further proof that they were exposed in antiquity. Finally, if a fill existed up to the elevation of the drains which pour from the wall in the NW area, as Ussishkin suggested, then these very large drains (see above) would have compromised the defenses in this part of the settlement.

End MB II (IIC) (Stratum XV)

Following what appears to have been a site wide destruction, which brought Stratum XVI to a close, the site was refortified by the addition of an inset-offset **fortification wall**, Wall B, which was identified in Fields I, III, and IV (Campbell 2002:118). It was previously identified around the site by Welter and Sellin who traced the bricks on top of the wall (p. 123). The bricks in this wall appear to measure from 35–

43 x 35–43 x 15–16 cm in size (p. 150). This fieldstone wall, which ranged in width from 3.25 to 3.75 m, was built in most places at the crest of the remains of the earlier “augmented” rampart (p. 123). In Fields I and III Wall B was accompanied by a thinner wall running parallel to its interior face at distances ranging from 1.75 to 7 m from it (p. 133). Campbell has suggested that these walls were intended to support battlements on top of Wall B.

In Field IV Wall B, designated Wall B1, was built atop the ruins of Wall B2 with its foundation trench cutting into “Glacis A” (Campbell 2002:118ff.); it has been suggested that much of the interior face of Wall B1 to the N of the gate had “fallen away”, thus accounting for its being half as wide as Wall B elsewhere on the tell (p. 119). Wall B was never reached S of the gate. Contemporary with Wall B/1, according to the Joint Expedition, was the construction of a 4 m fieldstone extension of the elevation of revetment Wall A (locus 7210), which was identified to the N of the gate. This was then followed almost immediately by a massive leveling of the space between Wall A and Wall B upon which complexes 7200 to the N of the gate and 7300 to the S of the gate, were said to have been constructed.⁴⁹ But the first phase of Wall B was brought to a close by a destruction, evident in Field IV, which resulted in a meter of destruction debris on the inside of Wall B1 (locus 72.106). The first phase of the fortifications of Stratum XV, characterized by Wall B, was followed by the construction during the second phase of a new wall (locus 7275B) detected both to the N and S of the NW Gate (p. 121). This stone

⁴⁹ While Campbell has argued based on Dever’s excavations that the leveling of the area inside Wall A in Field IV S of the gate occurred in Stratum XVI and not XV, as he claimed it did to the N of the gate (ibid., 123), the basis for this is not verifiable. Both strata are designated as late MB II (IIC) and without any subphasing of the ceramics of this period no argument can be made for its date on the basis of ceramics. Furthermore, the reconstruction of the line of the original rampart (“Glacis 7333A”) behind Wall A is entirely hypothetical as it is based only on the very distant extrapolation of sloping lines encountered in two probes at a distance of more than 6 m from the inside of Wall A! A rampart with a slope comparable to that revealed in Dever’s excavations to the N of the gate would have meant that Wall A projected no more than 3 m above the rampart rather than more 6 m.

wall was only 0.85 m wide and, at least in Section EE, appears to lean inward. Some time after its construction the building complexes 7200 and 7300 were abandoned and following this abandonment a new wall (locus 7275A) was added parallel to Wall E (locus 7275B) about 2.5 m away from it. These two walls were also detected to the N and S of the NW Gate, thus constituting a casemate system of defense (Wall E) in the third and final phase of Stratum XV's defenses (p. 123). The three destructions that followed each of these three phases in Field IV were identified securely within the latest phase of the MB II (IIC), Stratum XV, without any ceramic evidence for placing them within the LB. The results concerning Wall B in Field III are confusing owing to the fact that the Joint Expedition attempted to continue earlier exploration in this area. Since the identification of the earlier Wall A is not certain in this field,⁵⁰ it is not possible to assert with confidence the relationship of Wall B to the earlier rampart's construction.

The E Gate, which was of the **four-pier type** and has been dated to a late phase of the MB, was built on the E side of the site (Campbell 2002:131ff.).⁵¹ The E elevation (outside) of the gate was 18.2 m across, the W elevation (inside) was 17.8 m wide. The N elevation of the N tower measured 13.3 m while the S elevation of the S tower was 13.8 m (p. 133). Based on ill. 13 (G. R. H. Wright 2002) the gate's inner piers project 1.8 m into the passage and the outer piers 1.6 m with passages between both sets of piers of narrowing at the most to approximately 3.35 m in width. The structure was preserved to a height of 5.64 m. As expected both of the gate's towers featured chambers designated guardrooms by Campbell. Two phases of this gate are attributed to the MB. The earliest phase of this gate, which was built into the earliest rampart ('C rampart'), was followed,

⁵⁰ It has been suggested that Wall A should be identified with wall 655 (see ill. 44, G. R. H. Wright 2002), but this cannot be confirmed.

⁵¹ The E Gate was mostly excavated by Sellin and Welter, though the Joint Expedition (1956) was able to excavate part of the S tower of the gate (Campbell 2002:131).

presumably, by the raising of the original limestone orthostats to the level of the gate after renovations were completed. The increase in elevation was approximately 2 m. All pottery found in association with the E Gate was late MB II (IIC) in date. Like the rest of the site the gate was destroyed during the destruction of the site in the late MB II. Campbell has even suggested that a chunk from the surface of “the orthostat at the front of the south inner pier” which was “tilted 29 degrees off vertical” may suggest that it was “inflicted by a battering ram” (Campbell 2002:137). While it is difficult to verify such a claim, this would be the only known archaeological evidence for the use of the battering ram in the MB to date. Evidence of two articulated skeletons and the bones of four others were discovered amidst the ash and fallen bricks on the steps inside the gate (pp. 137, 139); these remains are related to the final MB destruction of Shechem.

According to Campbell the LB fortification system (Stratum XIV), which is evident in Fields I and IV appears to have relied upon reuse of the late MB II (IIC) fortifications, but evidently decreased the overall size of the settlement (p. 169ff.). Wall A was reused and a new wall was constructed above the remains of wall B system. The E Gate was reused with new guardrooms being added.

SHILOH, TEL (KH. SEILUN)**MR** 1775.1626

References: (Buhl and Holm-Nielson 1969; Finkelstein, et al. 1993; Lederman 1993; Lederman and Finkelstein 1993; Finkelstein and Lederman 1993a;b).

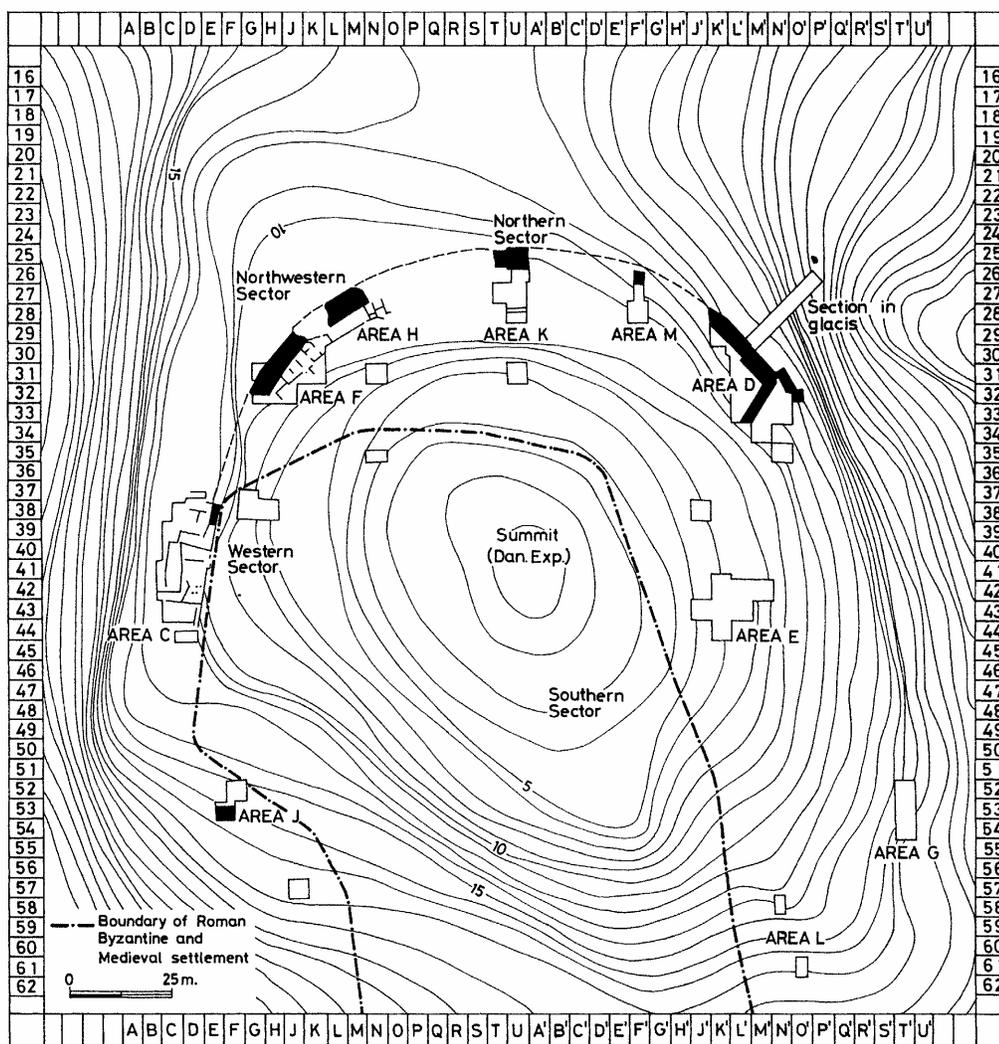
Plans: Site (Finkelstein, et al. 1993:fig. 1.5); Area C (Lederman 1993:fig. 2.1, 2.3); Area D (Lederman and Finkelstein 1993:fig. 3.1, 3.3); Area H-F (Finkelstein and Lederman 1993a:fig. 4.10); Area K (fig. 5.7); Schematic (Finkelstein 1988:fig. 66).

Sections: Area C (Lederman 1993:fig. 2.5); Area D (Lederman and Finkelstein 1993:fig. 3.9); Areas H-F (Finkelstein and Lederman 1993a:fig. 4.11); Area K (Finkelstein and Lederman 1993b:fig. 5.8).

Photos: Area C (Lederman 1993:figs. 2.8, 13–14); Area D (Lederman and Finkelstein 1993:figs. 3.2, 4–8); Areas H-F (Finkelstein and Lederman 1993a:figs. 4.2–4, 7–8, 12–13, 18).

The site of Shiloh is located in the hill country about 17 km SSE of Shechem. Various expeditions to Shiloh by have uncovered the remains of the late MB II (IIC) defenses (Buhl and Holm-Nielson 1969; Finkelstein, et al. 1993), but the most coherent results come from the last expedition by I. Finkelstein, S. Bunimovitz and Z. Lederman. While Shiloh seems to have been occupied during the MB II (IIB), a conclusion based on ceramic evidence, the site was only fortified during the late MB II (IIC). Remains of the late MB II (IIC) fortifications of Shiloh were exposed in trenches in Areas C, D, H-F, J, K, and M. Perhaps the most important observation concerning the MB defenses of Shiloh is that they were not of uniform construction around the entire site. Instead, it is clear that certain areas were considered more vulnerable than others to attack and, therefore, the construction of its defenses varied substantially between these areas.

Figure 92. Plan of Shiloh showing MB fortifications. Reprinted, by permission, from I. Finkelstein (1993:fig. 1.5).



Area C. Excavation in Area C on the w side of the site revealed portions of an offset-inset **fortification wall** (E381) built of fieldstones on bedrock over 2 m wide. Preserved to a height of 2.5 m, the wall was dated to the late MB II (IIC, Stratum VII) (Lederman 1993:17ff.). A clay **glacis** was laid between the outer face of the fortification wall and a **retaining wall** of a single course of fieldstones set directly on the bedrock.

Area D. The construction of the wall and glacis were further examined in Area D on the site's NE side where a section trench over 20 m long was excavated (Lederman and

Finkelstein 1993:35ff.). Here the **core wall** of the rampart constructed of large fieldstones directly on bedrock (L301) was exposed. This wall, preserved to 6.7 m high and 3.8 m wide, is described as having a ‘saw-tooth’ design, meaning a series of insets rather than an alternating offset-inset construction. No remains of a mudbrick superstructure were found on its top surface, though the employment of such a building technique in a wall which was not intended to be seen suggests that this wall served as the foundation for a mudbrick superstructure with the same ‘saw-tooth’ construction. We may, therefore, conclude that this mudbrick wall may have been as much as 3.8 m wide in Area D. The interior of the wall seems to have served as a fill (417) for subsequent construction inside the town wall. This fill was bounded on the SE by another large wall (M332) which connected to the interior of L301 and the continuation of the perimeter wall, here designated N321. It was only about 3 m thick and did not continue the ‘saw-tooth’ technique. This portion of the wall connected to the outer face of L301 creating an offset like that found in Area C.

The rampart and glacis were the largest outside wall L301 in Area D (Lederman and Finkelstein 1993:35ff.). Although Finkelstein has not distinguished the rampart from the glacis, it is possible to suggest that the lower three layers of the five which he designated as part of Glacis 723 should be identified as the **rampart** upon which the glacis was then laid. The first step in the construction of the rampart was the erection of a **retaining wall** (M291) along the existing 15° slope of the bedrock outside the wall. Clay was then deposited on both sides and above this retaining wall. Above this a layer of gray ash was then added with another layer of reddish-brown earthen fill nearly one meter thick deposited on this. The **glacis**, which was also attested in other areas, was then added which consisted of a chalky material and small stones. Alternating layers of this material and a *terra rosa* soil created fingers of the chalky material which were imbedded within these soil layers. The glacis featured a slope of about 28° and a width of about 20 m.

Thus, along the 175 m of the E side, if the rampart extended this entire length (with a cross section of 20 x 7 m) its volume would have been approximately 12,250 m³ (cp. 14,000 cu. m in, Finkelstein, et al. 1993:379). The volume of the core wall in this same area would have been 4,455 m³.

Areas H and F. On the NW side of the site the late MB II (IIC) casemate-type **fortification wall** was excavated in Areas H and F, L281 and J291 respectively, where it was found to be 4.8 to 5 m thick (Finkelstein and Lederman 1993a:49–62). Here again the wall (i.e., its foundation) was constructed of fieldstones on bedrock, though its outside line is hard to follow due to later robbing of the wall. Inside the wall in Area H a number of store rooms were excavated. The only evidence for a glacis was detected in a small part of Area F. In Area F ash was found which indicates that the site was destroyed at the end of the MB.

Area J. On the SW side of the site in Upper Area J the late MB II (IIC) **fortification wall** was again detected, built in the same fashion and about the same width as the wall in Areas H and F (Finkelstein and Lederman 1993b). While no MB gate has been located, the excavators have suggested that it may have been located in lower Area J on the SW side of the site where another portion of the late MB II (IIC) **glacis** was detected. The composition of this glacis was similar to that of the glacis in Area D (Finkelstein and Lederman 1993b:69).

Area K. In Area K the MB II (IIC) **fortification wall** (U251) was again located and seems to have been nearly 5.25 m wide, though much of its E end was robbed. Here the wall featured an offset-inset construction. No remains of the glacis were detected in this part of the mound, perhaps because bedrock was just below the surface. As in Areas F and M store rooms were built inside the town wall in Area K.

Area M. Between Areas D and K, the same **fortification wall** was also partially exposed in Area M. The defenses of Shiloh for the remaining 390 m of its perimeter may, therefore, have consisted of such defenses with an average width between 2 and 3.8 m.

SHIMRON, TEL (SEMUNIEH)

MR 1699.2340

References: (Raban 1982; Portugali 1982; Kotter 1986:126f., 381ff.).

Plans: Site (Raban 1982:fig. g; Portugali 1982:figs. 3–6, 9); S Gate (Raban 1982:fig. k); N Gate (ibid., fig. j).

Sections: NA.

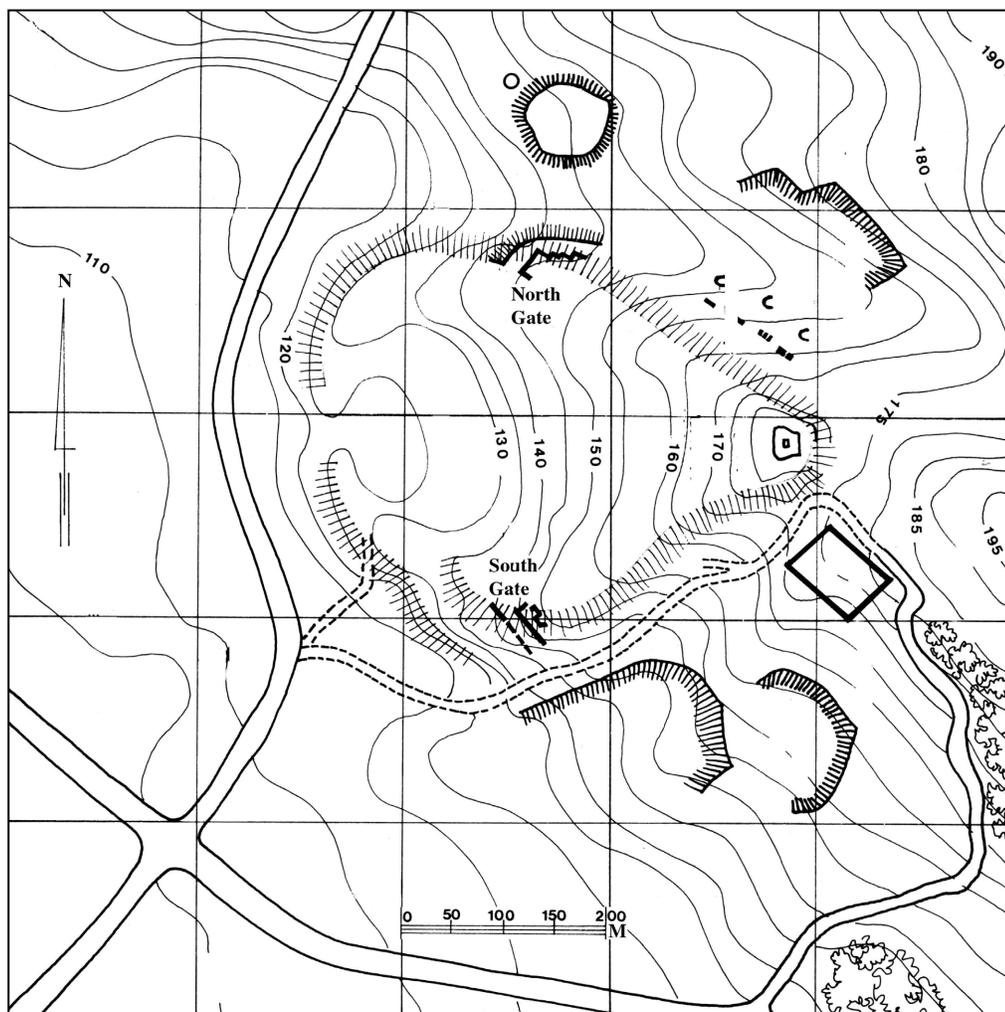
Photos: Ramparts (Raban 1982:figs. a-b); S Gate(fig. h); N Gate (fig. f); SE Rampart (fig. i).

Tel Shimron is located 10 km to the NE of Tel Yoqne'am in the Jezreel Valley. The site was between 15 and 20 ha during the MB I–II (IIA–B) (Raban 1982; Portugali 1982:183; see also Kotter 1986:126f.). It features a high upper town on its E side and a large lower town encircled by ramparts to the W. Two gates were identified on the N and S sides of the lower town (Figure 93 below).

The **ramparts** run a counter-clockwise course from the S edge of the upper town to the W around to the N side of the upper town, a circuit of about 1,200 m (Raban 1982:fig. g). According to Raban these ramparts may have been created against walls built of limestone that were identified in places along the ramparts or these may have simply been the foundations of the fortification wall which crowned the ramparts (p. 71). It is also possible that these remains had functioned as both the core of the rampart and the wall's foundation. In any case, it is clear that in many places the rampart was laid directly upon the limestone bedrock and was on average raised to a height of 20 m. On the S side of the site the core of the rampart was made of red bricks covered crushed basalt and then black earth (p. 74). In most places it appears that the rampart was

protected by a **glacis** of crushed limestone. The acropolis also featured its own **glacis** composed of chipped limestone (p. 71), which was no more than 150 m long.

Figure 93. Plan of Tel Shimron (after Raban 1982:fig. g).



The locations of two gates were established from a survey of the site. On the S side of the site the E half of a **six-pier gate** was exposed on the surface at the base of the rampart (Raban 1982:73, fig. k). It was approximately 20 m long. Attached to it on the E were the remains of its E tower. A 25 m stretch of the town wall with interior buttresses, which were 2 m wide and 1 m apart, was attached to the gate to its E, but unfortunately its width is not reported (p. 73). The N Gate was not really preserved; it would have necessitated a sharp turn to the E upon exit due to the surrounding topography.

According to A. Kempinski the fortifications of this site may date to the MB II (IIB–C) (1992d:183).

SHUSHA, TEL ABU*

MR 1634.2246

References: (Israel Antiquities Authority 1977).

Plans: NA.

Sections: NA.

Photos: NA.

All ceramics collected at Abu Shusha were MB IIA in date (Israel Antiquities Authority 1977). According to Broshi and Gophna the site's gross size was 1.75 ha and it was enclosed by a **rampart** (1986).

SHUWEIKET ER-RAS, KHIRBET*

MR 1536.1942

References: (Zertal 1993).

Plans: NA.

Sections: NA.

Photos: NA.

The site of Shuweiket er-Ras is located in the western foothills approximately 27 km NW of Shechem. It has been identified as a fortified MB II (IIB) settlement with a **wall** and “huge **earthen rampart**” (Zertal 1993:1312); it is noted to have been around 3 ha (Broshi and Gophna 1986).

TA‘ANACH (TELL TA‘ANNEK)**MR** 171.214**References:** (Lapp 1964; 1967; 1969).**Plans:** Site (Lapp 1969:fig. 1); SW 7–7 (Lapp 1969:fig. 11).**Sections:** SW 1–28 and 29 (Lapp 1964:fig. 2); SW 7–1 to 9–1 (Lapp 1967:fig. 6); SW 7–7 (Lapp 1969:fig. 10); NW 9–1 (Lapp 1964:fig. 4).**Photos:** NW 9–1 (Lapp 1964:fig. 5); SW 7–7 (Lapp 1969:figs. 12–14)

Ta‘anach is located about 8 km to the SE of Megiddo. The site appears to have been well-fortified during the EB II–III. The fortifications of this phase have been identified on the s and w sides of the site and belong to four major phases (Lapp 1969:5ff.). Although there may have been some occupation of the site during the early MB II (IIB), the site does not appear to have been fortified until the late MB II (IIC). These defenses were first exposed during excavations led by P. Lapp when they were excavated in NW 9–1 on the w side of the site (1964:15), in SW 1–28 and 29 on the s side of the site (*ibid.*), and in SW 7–7 and SW 8–1 also on the w side of the site (1969:4).

These fortifications were built above the remains of the EB II–III fortifications and consisted of two main phases with which a series of glacis were associated (Lapp 1969:16ff.). The first main phase of the defenses of Ta‘anach have been dated roughly to the early sixteenth century B.C. by Lapp (p. 16). The defenses in this period consisted of a poorly constructed fieldstone **fortification wall** with perhaps some exterior buttresses (118) built directly atop the remains of the EB wall as revealed in SW 7–7 and 8–7 (pp. 16f.). Whether or not the wall featured a mudbrick superstructure remains uncertain. Associated with this wall was the earliest **rampart** which was built of “strips of *huwwar* and clayey brown earth...representing the ‘sandwich method’” identified with the poorly preserved remains of Glacis 29 in NW 9–1 (1964:15, fig. 4) but better preserved as Glacis 69 in SW 9–1 (1967:13).

The second main phase of the MB II (IIC) fortifications, which dated roughly to the end of the sixteenth century B.C., saw the construction of a **casemate wall** (1969:16, 19f.), with which two later glacis were associated. The casemate wall was a total of 4.6 m wide with exterior and interior walls of 1.75 m and 1.5 to 2.25 m respectively (ibid., 20). Associated with this casemate wall was the construction of a **second rampart** consisting of “brown stony rubble” covered by horizontally deposited layers of earth (1964:15). This was identified as Glacis 15 in NW 9–1, Glacis 67 in SW 9–1 (1967:13), and perhaps layer 53 in SW 8–7 (1969:19). This glacis was retained by a small fieldstone **revetment wall** preserved in NW 9–1 (no. 33 in fig. 4, 1964). A third and **final glacis** was built consisting of a one-meter thick “layer of yellow-white *huwwar*” limestone deposited over top of the second glacis and perhaps built against the outer wall of the West Building (ibid., 15). This was identified with Glacis 64 in SW 9–1 (1967:13). This glacis was damaged by later LB occupation (1964:15). On the s side of the site (SW 1–28 and 1–29) two glacis, which probably correspond with the first and second glacis, could be identified (ibid.). The circumference of the late MB II (IIC) fortifications may have been as much as 840 m around the site enclosing an area of approximately 3.8 ha. No gates have thus far been identified.

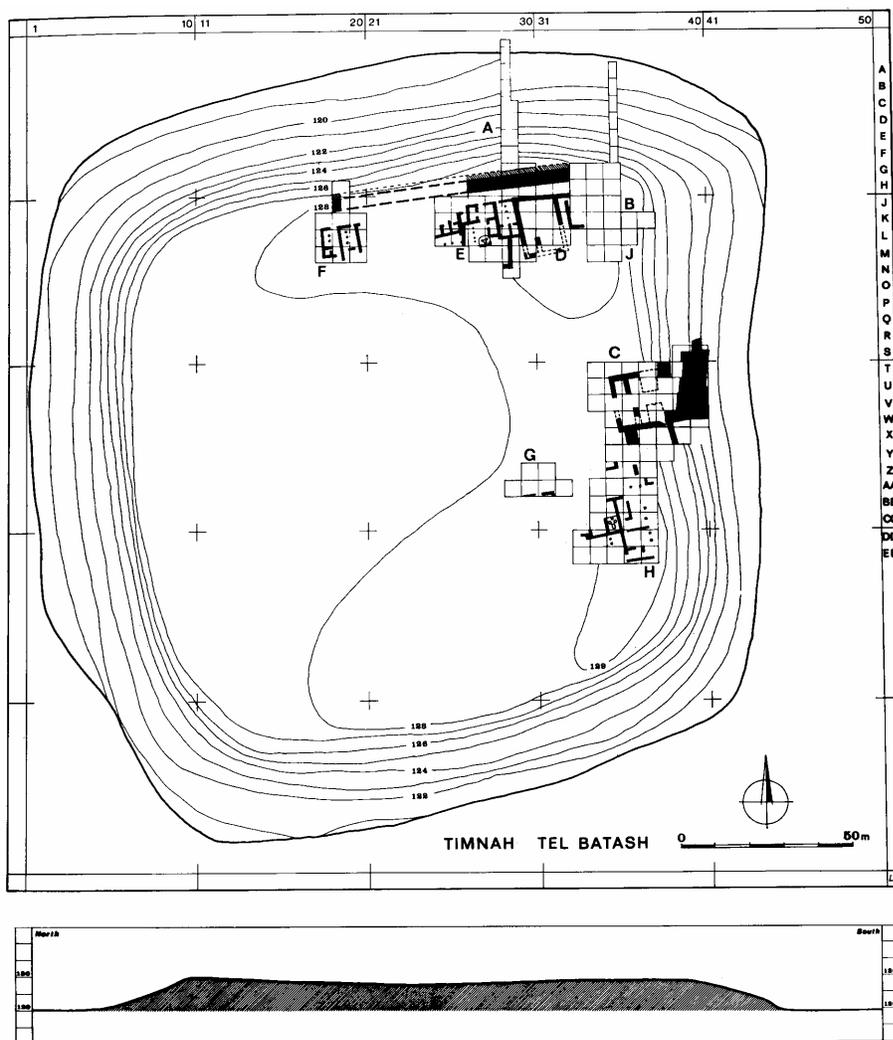
The casemate wall of the late MB II (IIC) continued in use into the LB I, though only after a site-wide destruction and no new defenses were constructed until the Iron Age (1969:33).

TIMNAH (TEL BATASH)**MR** 141.132**References:** (A. Mazar 1997b).**Plans:** Site (A. Mazar 1997b:fig. 2), Area A (P/S 1), Area B (P/S 9).**Sections:** Area A (A. Mazar 1997b: P/S 8), Area B (P/S 24–27, figs. 6–8).**Photos:** Site aerial (A. Mazar 1997b:photos 1, 3), Area A (photo 7), Area B (P/S 23–26).

Tel Batash, Amihai Mazar suggests, took its shape from the initial, rectilinear plan of the MB fortress that was first built during MB II (IIB) on the S bank of the Nahal Sorek (A. Mazar 1997b). The rampart and wall dated to MB II (IIB–C), Strata XII–XI, at Tel Batash were excavated in areas A and B on the N side of the mound (see Figure 94 below). In Area A a step trench 40 m x 5 m was excavated on the N slope. This step trench revealed only three layers belonging to the construction of the **rampart** (183, 186, 191), which can be seen in the section. On one of these layers traces of lime were detected indicating that it was probably plastered. Excavation of the fosse detected at the foot of the slope did not reveal its full dimensions, since work stopped 2.1 m below the level of the plain (A. Mazar 1997b:21–23). A larger exposure of the rampart was made in Area B where an initial trench was lengthened to the N with mechanical equipment. Mazar has suggested that “the rampart had suffered from severe erosion” leaving only the lower portion, which was preserved to a height of 4.5 m. The majority of the rampart was composed of alternating layers of pebbles and soil employed in what Mazar refers to as “constructional ‘triangles’” deposited against the mudbrick town wall (B863). The use of this technique was intended to reinforce the earthwork by sloping the layers back towards the wall instead of away from it. This technique is also attested in Gezer’s late MB II (IIC) rampart. That the rampart was built after some type of short-lived settlement on the site during the early MB II (IIB) is evident from the MB sherds found in the rampart’s fill (A. Mazar 1997b:34–38). The entire circuit of the ramparts was about 600 m long. If we

assume a maximal height of 6 m and a possible width of up to 25 m of exterior rampart and another 25 m as the width of the interior rampart then the volume of the earthen rampart would have been no more than 90,000 m³ (cp. figure of 140,000 cubic m A. Mazar 1997b:250).

Figure 94. Plan and profile of Timnah (Tel Batash). Reprinted, by permission, from A. Mazar (1997b:fig. 2).



In addition to the rampart, in Area B a portion of a well-fortified mudbrick building termed the “citadel” by Mazar was uncovered. Two rooms of this structure (725 and 1205), built against the inside of the 2.4 m wide, mudbrick **fortification wall** were excavated. The w wall of the structure (B922) was exposed with a width of 3.5 m (wider

than the fortification wall) and preserved 4 m high revealing why Mazar has referred to this structure as a citadel. The two rooms exhibited two phases of occupation associated with two separate floors assigned to Stratum XII (1114 and 1211) and XI (725 and 1205) respectively. The plaster floor (B725) in the N room was traced up the inside of the fortification wall (here designated B774). Unfortunately, no significant material culture was found in this structure, which Mazar concludes is evidence that the inhabitants had time to remove their possessions. As the architecture would seem to suggest, a citadel or tower seems to have occupied the NE corner of the settlement overlooking the Nahal Sorek. The citadel fell out of use during the LB I when floors were laid over the stumps of its walls (A. Mazar 1997b:249–252).

Although no gates have been excavated at Batash nor can their locations be determined based on the topography of the site, Kempinski, has suggested that four gates, one on each side, provided access to the site like at Qatna (1992a). But the small size of Batash makes this reconstruction unnecessary, not to mention that a gate on the site's N side would have run straight into the Nahal Sorek thereby reducing its usefulness. Instead I suggest that only two gates, one on the E and another on the W, provided direct access to the route along the Sorek which led inland to the E or W to the coast.

‘UMAYRI, TELL EL-

MR 2342.1420

References: (Clark 2000; 2002)

Plans: Site (Herr 2000:fig. 2.1); Field B (Clark 2000:fig. 4.9).

Sections: Field B schematic section (Clark 2000:figs. 4.3, 4.11; 2002:fig. 4.4).

Photos: Site aerial (Herr 2000:fig. 2.2); Field B (Clark 2000:figs. 4.1, 4.8, 4.10, 4.12; 2002:figs. 4.5–4.7).

Tell el-'Umayri is located in the highlands of Transjordan about 38 km E of Jericho. Recent excavations at Tell el-'Umayri have revealed that the settlement was

fortified during the late MB II (IIC), Phase 12 at the site (Clark 2000:64ff.; 2002:49ff.). The fortifications included an **earthen rampart** with a 25° to 30° slope perhaps originally 35°, built directly on bedrock on the w side of the site. Excavation of the rampart revealed that the bedrock had been leveled in preparation for the building of the rampart. The rampart raised the defenses 5 m above the area to the site's w with the addition of 3 m of earth atop the slope (Clark 2002:50). The surface of the rampart may have been provided with a **glacis** composed of crushed nari (Clark 2000:66). About 8 m down the slope from the foot of the rampart along the bedrock a 6 m wide and 5 m deep **fosse** was cut down into the bedrock. The farthest face of this fosse was not worked. It is not known how long this fosse stretched to the N or S (ibid., 65). No remains of these elements of the fortification system have been found on the E side of the site where the slope is thought to have provided greater defense of the settlement.

No LB fortifications have been identified. The next fortifications are those of the Iron I period (Phase 11B). It appears that an earthquake ca. 1200 B.C. may have damaged the MB rampart (Clark 2002:51).

‘URMA, KHIRBET*

MR 18050.17265

References: (Finkelstein 1988; 1993a).

Plans: NA.

Sections: NA.

Photos: Site (Finkelstein 1988:fig. 44).

Khirbet ‘Urma is located in the hills of southern Samaria 8 km SE of Shechem (for location see Finkelstein 1988:fig. 54). It has been identified as a fortified late MB II (IIC) settlement (1993a:1313) of about 1.5 ha in size (1988:159).

YAVNEH-YAM**MR** 1212.1479**References:** (Kaplan 1969; 1993).**Plans:** Site (Kaplan 1993:1504).**Sections:** Area A (Kaplan 1993:1506; Herzog 1986:fig. 48).**Photos:** Area A (Kaplan 1993:1506); Area H (p. 1505).

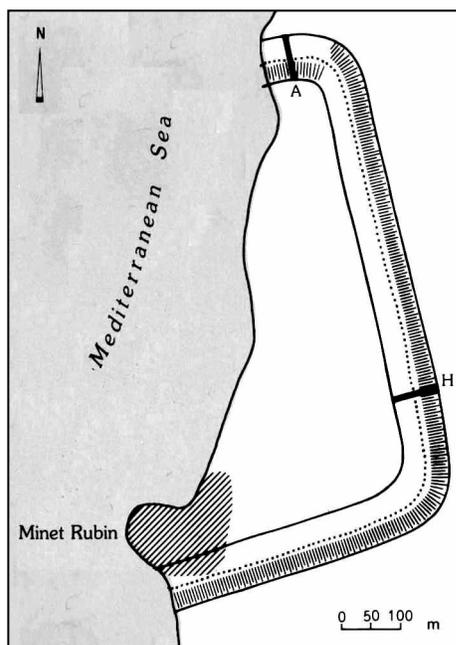
The site of Yavneh-Yam is located 32 km N of Ashkelon on the Mediterranean coast. Although there is some question regarding how large the settlement was during the MB I (IIA), it appears to have at least featured some occupation towards the end of this period. The site expanded during the MB II (IIB–C) with the construction of a massive earthen rampart, parts of which survived on the N, E, and S sides of the site (Figure 95). Excavations were conducted at Yavneh-Yam from 1967 to 1969 by Jacob Kaplan with the intention of studying “the method of construction of the enclosure and its ramparts” (Kaplan 1993).⁵²

Although Kaplan has reconstructed the site’s layout as defined by its surviving ramparts as a square enclosure (800 x 800 m) comparing it with the square enclosure at Qatna (Tell Mishrife), it is more likely that the original enclosure was more akin to the enclosures of nearby sites such as Ekron and Tell el-‘Ajjul. It seems most reasonable to assume that most of the length of the S rampart has survived and that we lack therefore only the rampart running N on the W side of the site and only the W ends of the N and S ramparts. Presuming that far less erosion has occurred than has been suggested, the original enclosure, which while featuring straight sides would have been a rectangle transected by the coast, would have measured 800 m N-S on its east side, with 575 m E-W

⁵²Despite discussion of the rampart of Yavneh-Yam in three separate publications this summary, taken from the *NEAEHL*, is identical to those published in Kaplan’s overview of MB fortification types (Kaplan 1975:4–6) and his summary in the *EAEHL* (1978).

on its S side, and a small portion of rampart of approximately 125 m long on its N; if the W side was enclosed (875 m long) then the ramparts were about 2,375 m long enclosing a gross area of perhaps 21.3 ha (rather than the 64 ha originally cited by Kaplan 1993). After subtracting the area occupied by the exterior slope of the ramparts the inhabitable area was approximately 16.9 ha.

Figure 95. Plan of Yavneh-Yam and course of MB ramparts (after Kaplan 1969:1504).



Two areas of the **rampart** were excavated by Kaplan: Area A where a section was cut through the rampart's N side and Area H, a depression in the rampart at the S end of the E side where three superimposed gates were revealed. Since no final publications of Kaplan's excavation are available it seems appropriate to retain Kaplan's brief summary of the rampart as they are without losing his observations.

The rampart was found to be constructed as follows: first, the whitish sand covering virgin soil was leveled along the rampart's proposed alignment. A layer of *hamra*, 12 cm thick, was then laid as a bedding for the rampart core, constructed of light-brown, pounded earth. In the final stage, the core was encased by a sheath of *hamra*, built up from the base on both sides of the core, toward the top. The glacis was in two layers: the lower layer, of heavy clay soil

approximately 60–70 cm thick, extends from the top of the rampart down to virgin soil. The second, covering layer, of crushed *kurkar* 50 cm thick, was probably intended to prevent the damp clay soil from desiccating and pulverizing. At a later stage, an additional glacis was laid over the crushed *kurkar* layer. This new glacis was constructed in two parts: the lower, about 3 m high was in the form of a retaining wall inclined about 45 degrees; from that point, and up to the top, the rampart was paved with stone and raked to approximately a 30-degree angle (Kaplan 1993:1505).

Although Kaplan has suggested that two separate glacis were constructed, in the absence of published sections and a more detailed report it is possible to argue that this was a single **glacis** which consisted of three separate elements, each of which were added in succession, the first of clay, the second of crushed *kurkar* and the last of stone. Thus far we have no basis (i.e., from published findings) for distinguishing separate phases in the construction of this rampart. From Kaplan's very schematic plans it appears that the rampart measured about 75 m wide at its base.

In Area H three successive gates belonging to the MB I (IIA) (though probably dated to late MB I/IIA or early MB II/IIB) through LB I were excavated (see fig. 48 in Herzog 1986 for plan). Gate III, the earliest gate, was a typical **six-pier gate** built of mudbricks (see Table 6 in chapter three for dimensions). Gate II was built above Gate III but only featured two pairs of piers (i.e., **four-pier gate**). But Gate II also featured 2.4 m thick walls and a staircase that led to an upper story in the E tower. The exteriors of Gates III and II both of which are dated to the MB were protected by rubble walls. A final **gate**, Gate I, was built during the LB I above Gate II. Only half of this structure was exposed which consisted of two rooms and a supporting wall. Several 'anchor' walls, three to the N and two to the S, were found outside of the gate towers. Kaplan has suggested that these walls, the earliest of which were contemporary with Gate III, were intended to "anchor" the gate in the ramparts and he concluded from this that the gate was a later addition to a pre-existing rampart (Kaplan 1969:121). However, as demonstrated in chapter three this interpretation is unnecessary (see chapter three, section A.4.a), and these walls can be

understood as simply terrace walls attaching the fortification wall to the gate system. Another gate system was encountered in the middle of the E rampart N of Area H during a sounding made there, but no further details have been published concerning this structure.

Though the presence of MB I (IIA) sherds on the “lowest floor in one of the [gate] chambers” indicates that its earliest use could have been in the MB I (IIA), the existence of only three phases of gate construction which were in use from the MB I (IIA) to the LB I are suggestive of a shorter (i.e., ca. 1800–1525 B.C.) rather than longer period of use (i.e., ca. 1925–1525 B.C.). Furthermore, based upon the rectilinear layout of the fortifications and the six-pier gate built with this rampart, the structure should probably be dated to the late MB I (IIA) at the earliest, and more probably to the transitional MB I–II (IIA–B),⁵³ as a Tel Dan and possibly Hazor. But only publication and analysis of the ceramic evidence from the rampart itself will allow us to be more certain of the date of the gate and the enclosure.

YOQNE’AM, TEL

MR 1604.2289

References: (Ben-Tor and Zarzecki 1988–1989; 1993a; Ben-Tor, et al. 1996).

Plans: Site (Ben-Tor, et al. 1996:plan III.2).

Sections: NA.

Photos: Site aerial (Ben-Tor, et al. 1996:photo III.1); Area A (Ben-Tor and Zarzecki 1988–1989:fig. 164).

Tel Yoqne’am is located in the Jezreel Valley about 10 km NW of Megiddo. Ceramic evidence from Tel Yoqne’am suggests that the site was continuously occupied from at least EB I through the start of the MB (Ben-Tor 1993a:2). A cave burial dated to the early MB I (IIA) suggests that the site was also occupied during an early phase of this

⁵³ A. Mazar has also suggested an MB II (IIB) date for the gate and rampart (1990:227f., n. 7).

period designated Stratum XXIIIC (Ben-Tor 1997b:811). But the earliest evidence for the fortification of the site are the remains of two fortifications systems which based upon their ceramics have been ascribed to Strata XXIIIB–A (MB I/IIA), which were founded upon bedrock in Area A on the NW side of the site (Ben-Tor, et al. 1996:2).

Strata XIIIB–A

The first MB **fortification wall** (Stratum XXIIIB) was built 2.4 m wide with mudbricks (Ben-Tor and Zarzecki 1988–1989:195). This first wall was determined to have been founded on bedrock, which led Ben-Tor to suggest that the construction of the rampart eradicated the architectural remains of earlier periods on the site (1993a:811). It is interesting to note that the first wall, though built on bedrock, also featured a stone foundation. During a later renovation of the defenses another **fortification wall**, 3 m wide and featuring a **tower**, was built during Stratum XXIIIA. This wall overlaid the earlier MB I (IIA) wall in Area A1 and like the earlier wall featured a stone foundation of a single course and a mudbrick superstructure. But this new, wider wall was built to accommodate the settlement's size and therefore was built further out so that its outer face was founded upon the earlier glacis outside the original wall. This wall was preserved to a height of almost 3 m and featured a unique construction in that stone courses were used between brick courses. This wall was also identified in Area A4 where it was preserved to a height of more than 2.5 m (1988–1989:196). Based upon the published plans of the site and the location of the LB remains in Area A1 (see fig. on p. 808 in Ben-Tor 1993a) it is possible to suggest that these walls were located at about the 90 m contour line, or no less than 10 m above the plain to the N. If this is a reliable reconstruction of the location of the MB II walls, then it is possible that this wall was 830 m long and enclosed a space of about 4.7 ha.

In addition to the wall, the slope of the site was reinforced with a **glacis** built upon bedrock and detected in Areas A1 and A4 (Ben-Tor 1993a:811). This glacis abutted the

foot of the first MB II (IIB) town wall at the top of the slope and was retained at its foot by a mudbrick **revetment wall** built on bedrock 4.5 m thick (Ben-Tor and Zarzecki 1988–1989:196).

Stratum XXII

During the start of MB II (IIB) the Stratum XXIIIA wall was replaced by a 1.5 m wide mudbrick **fortification wall** in Stratum XXII (Ben-Tor 1993a:810). A **tower** was apparently built against its interior face, though the exterior face of the wall was badly damaged due to erosion on the slope of the site.

Stratum XXI

The following settlement at Yoqne'am during the late MB II (IIC) was, interestingly enough, unfortified according to Ben-Tor (1993a:810).

ZEROR (KH. ET-TELL DHURUR)

MR 1476.2038

References: (Ohata 1967;1970; Kochavi, et al. 1979).

Plans: Site (Ohata 1970:pl. 1; Kochavi, et al. 1979:fig. 13); Area A IV (Ohata 1970:pl. 9); Area D (Ohata 1970:pl. 11; Kochavi, et al. 1979:figs. 15f.).

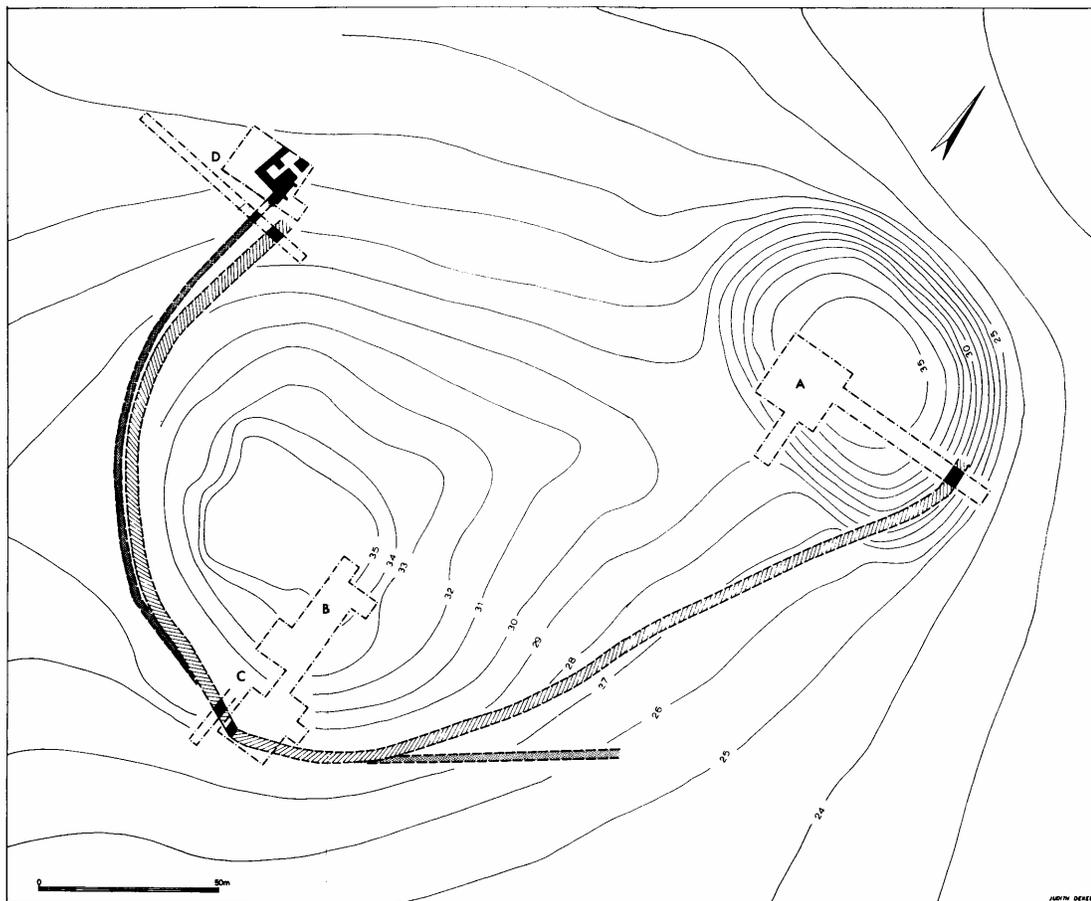
Sections: Area A IV (Ohata 1970:pl. 9:2f., 6); Areas C and D (pl. 12).

Photos: Area C (Ohata 1970:pl. 45), Area D (pls. 49f.).

Tel Zeror is located on the coastal plain about 12 km SSE from Tel Mevorakh. The site was founded during the MB I (IIA). The MB settlement was limited to this period, as no remains dated to the MB II (IIB–C) have been identified. The site's MB I (IIA) defenses consisted of the remains of two fortification walls, a tower, a rampart, and a fosse. Prior to excavation it was not possible to discern any of these elements from the site's contours. But fortification walls were discovered in Areas A, C, and D. Trench IV in Area A was laid across the defenses on the E side of the site, but more specifically across the defenses on the E side of the acropolis. In Area C Trench D1–5 ran N-S across

the S fortifications. In Area D an E-W trench was excavated across the wall and fosse on the NW side of the site.

Figure 96. Plan of Tel Zeror and its MB fortifications. Reprinted, by permission, from M. Kochavi et al. (1979:fig. 13).



Two walls are attested for the MB I (IIA) town defenses. Both of these phases were revealed in Areas C and D. The first **fortification wall** (W1) in Area C was 2.5 m wide and seems to have been constructed on an **earthen rampart** at 26.2 m ASL (Ohata 1970:49ff.).⁵⁴ The rampart is said to have been 20 m wide, but since its excavation was not completed and the trench was not extended far enough N, a complete description of

⁵⁴In the absence of useful and consistent loci references in the final reports for the Zeror excavations, loci references for Area D are adapted from Kochavi *et al* (1979: fig. 15).

the rampart in this area is not possible (see section, Ohata 1970:pl. 12). The rampart was also detected in Area A, although the first wall was not exposed there (pp. 43ff.). In Areas A and C earthen piles, pits dug into the rampart and filled with distinct material, were apparently dug into the rampart according to the excavator in order to stabilize the rampart. But given the miniscule slope the rampart in both area and the fact that the pits were dug into a flat surface, it is difficult to accept this suggestion. In Area D the evidence that the first fortification wall (W1) was built on a small earthen rampart is much clearer than in Area C (pp. 57f.). Here the rampart was composed of reddish sandy soil about 1.9 m thick and it was preserved about 1.4 m high. The wall itself was almost 2 m wide. Along with the rampart the remains of a rectangular **tower** can also be associated with the first town wall in Area D (pp. 60f.). Unfortunately, it was not completely excavated so its full dimensions were not established.

The earth for the rampart upon which the fortification wall (W1) was built in Area D is assumed to have been taken from the **fosse** dug about 18 m in front of it (Ohata 1970:59f., pl. 12). The fosse was approximately 10 to 12.5 m wide with an outer scarp of 58° and an inner slope of 43°. It was excavated down to the water table at about 20 m ASL which would make the fosse between 4 and 5 m deep. The fosse did not seem to have been cut into bedrock, but without excavation of the lowest levels of the fosse it is impossible to be certain whether or not this is true. It is uncertain whether the fosse ran around the rest of the settlement (i.e., on the S, E, and N sides).

The remains of the first wall in Area C were used to level the area for the construction of a second **fortification wall** at a later stage of the MB I (IIA), raising the base of the new wall to 28 m ASL and infilling the fosse below with remaining rubble (Ohata 1970:49ff.). Ohata has speculated that a fosse associated with the second wall might have existed farther to the S of the excavated trench but this has not been verified. It was impossible to determine the complete width of the second wall in this area, though

it was preserved as much as 5 m wide. The second wall was also identified in Area A (pp. 43ff.). It was built of mudbrick, eight courses of which were preserved to a height of 1.5 m, on a foundation of a single course of stones. It was estimated to be about 3 m thick. This wall fell out of use at the start of the MB II (IIB), when the site was abandoned (pp. 52f.). In Area D the second wall was built about 8 m inside the first wall, which is clear from the small structure on the w side of the wall into which the wall was cut when it was built (pp. 66, pl. 12:). Having perhaps realized the insufficient protection provided by the first wall, the second wall was built much thicker, 4.3 m wide, and was preserved to a height of 3.6 m. None of the walls in Area D were built upon stone foundations like those in Area A and C.

ZUREKIYEH, 'AIN (POLEG EAST FORT)

MR 1382.1833

References: (Gophna and Ayalon 1982; Gophna 1993b:1195f.).

Plans: Site (Gophna 1993b:fig. 2); Area A (fig. 3); Area B (fig. 4).

Sections: Area B (Gophna 1993b:fig. 5).

Photos: NA.

Survey excavations of 'Ain Zurekiyeh, located only 3.5 km ESE from Tel Poleg along the Nahal Poleg, has revealed two phases of an early MB I (IIA) fort occupying only 0.4 ha. The plan of the fort appears to have been approximately square, although the lines of the walls conform to the contours of the *kurkar* ridge. Its **fortification walls** were 3.2 m wide and constructed of mudbrick on stone foundations. Excavations in Areas A and B during salvage operations exposed 18 and 16 m sections of this wall on the N and E sides of the site, respectively (Gophna and Ayalon 1980:147; 1993b:1194–1195). In Area A the stone foundations were built directly on the *kurkar* bedrock with its inner and outer elevations faced with large *kurkar* blocks and the space between them filled with *kurkar* rubble and smaller stones (Gophna and Ayalon 1982:69). Two phases of this wall,

W1012 and W1011, were identified, but no occupational surfaces associated with either phase could be identified (pp. 69ff.). In Area B a single phase of a wall (W1014) of comparable thickness and construction to that of the earlier phase in Area A (W1012) was identified (pp. 72). But here the mudbrick superstructure survived to a height of five courses (60 cm) built of *hamra* mudbricks without mortar. Occupational levels on the inside of the wall remained intact in Area B. The estimated circumference of the walls is about 250 m. Based upon ceramics from the site the excavators have suggested that the site was occupied in the earliest phase of the MB I (IIA) contemporary with the “Pre-Palace” phase at Aphek, prior to the occupation of Tel Poleg (p. 77). No evidence of a rampart has been revealed, although the slope outside the wall in Area B to the E was approximately 32°.

3. EGYPT

AVARIS (TELL ED-DA‘BA)

Lat. Long.: 30°47’15” N, 31°49’20” E

References: (Bietak, et al. 1994; Bietak 1996:esp. pp. 63ff.; Bietak, et al. 2001; 2001:esp. pp. 352f.).

Plans: Site (Bietak, et al. 2001:fig. 1); ‘Ezbet Helmi (Bietak, et al. 2001:figs. 12, 33); Area H/I (Bietak, et al. 1994:figs. 7f.).

Sections: NA.

Photos: Area H/I (Bietak, et al. 1994:pls. 2–3A).

Tell ed-Da‘ba, identified with MB Avaris, is located along the Pelusiac branch of the Nile in the eastern Egyptian Delta. Although excavations have provided a thorough understanding of the settlement from the Middle Kingdom through the Eighteenth Dynasty, only one sounding has been made of the site’s fortifications. Furthermore, the remains of the fortification wall of Avaris are limited to the end of the Hyksos period

when the settlement had expanded westward into this area and, therefore, nothing is known of the site's fortifications during the earlier part of the MB.

Stratum D/2 (Area H/I Stratum V)

The town's Hyksos **fortification wall** was excavated in 'Ezbet Helmi on the west side of the Tell ed-Da'ba on the west bank of the present river course (Bietak, et al. 1994:27–31). This mudbrick town wall dates to the late Hyksos period (Strata D/2, local Stratum V) and featured two building phases (Bietak, et al. 1994:28). In the earliest phase the wall was 6.2 m (12 cubits) wide and its exterior face featured a sloped footing at the base of the wall of 78° to 80°. The wall was buttressed on the exterior at regular intervals of approximately 18.1 m (35 cubits) by square towers 5.3 m long (10 cubits) which projected approximately 3.6 m (7 cubits) from the wall. The towers were clearly built as part of the original phase of construction with solid mudbrick foundations. The wall was preserved up to 1.3 m high. During a second phase of Stratum V, this wall was expanded to a width of 8.5 m (16 cubits) (*ibid.*, 29).

During this period an orchard was located just inside the wall as suggested by the tree pits excavated there, and it is believed that the Pelusiac branch of the Nile ran on the north side of the wall when the wall was in use (Bietak, et al. 1994:30). Although only a 50 m stretch of this wall has been exposed (*ibid.*, 28), based on a magnetometry survey the wall can be traced for about 280 m to the NE (Bietak, et al. 2001:48, fig. 33). There is no evidence to suggest that the wall rested upon a rampart. In fact, the original wall appears to have been built upon a foundation of yellow sand (Bietak, et al. 1994:28).

In addition to the wall a **bastion** whose preliminary dimensions appear to be 39.5 x 26 m (75 x 50 cubits) was built in Area H/II 100 m to the south (Bietak 1996:63f.). It may have been comparable in function to the later Eighteenth Dynasty bastion constructed in Area H/I. This structure has been referred to as the Hyksos Citadel.

Dynasty 18

At the start of Dynasty 18 the wall's function appears to have been slightly altered (Bietak, et al. 1994:30f.). The construction of a large structure, referred to as the "Große Platform", which served as the foundation for a large building, cut into the inner face of the wall, though, not destroying it (Bietak 1996:68). Bietak has suggested identifying this structure as a bastion (70.5 x 47 m) comparable with those along the ramparts at Avaris (ibid., 70, see also fig. 58).

BIBLIOGRAPHY

- Adams, Robert McCormick
1965 *Land Behind Baghdad: A History of Settlement on the Diyala Plains*. University of Chicago Press, Chicago.
1981 *Heartland of Cities: Surveys of Ancient Settlement and Land Use on the Central Floodplain of the Euphrates*. University of Chicago Press, Chicago.
- Aeneas Tacticus (Aineias the Tactician)
ed. 1990 *How to Survive under Siege* [orig. 4th cent. B.C. Greek]. Translated by D. Whitehead. Clarendon Ancient History Series. Clarendon Press, Oxford.
- Aharoni, Yohanan
1993 Megiddo: The Neolithic Period to the End of the Bronze Age. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 1003–12. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Ahituv, Shmuel
1984 *Canaanite Toponyms in Ancient Egyptian Documents*. Magnes Press, Jerusalem.
- Albright, William Foxwell
1922 Palestine in the Earliest Historical Period. *Journal of the Palestine Oriental Society* 2:110–38.
1923 Some Archaeological and Topographical Results of a Trip through Palestine. *Bulletin of the American Schools of Oriental Research* 11:3–14.
1926 The Historical Background of Genesis XIV. *Journal of the Society of Oriental Research* 10:231–69.
1935 Palestine in the Earliest Historical Period. *Journal of the Palestine Oriental Society* 15:193–234.
1938a The Chronology of a South Palestinian City, Tell el-‘Ajjul. *American Journal of Semitic Languages and Literature* 55:337–59.
1938b *The Excavation of Tell Beit Mirsim II: The Bronze Age*. Annual of the American Schools of Oriental Research 17. American Schools of Oriental Research, New Haven.
1960 *The Archaeology of Palestine*. 2nd ed. Penguin, Harmondsworth, UK.
1964 The Eighteenth-Century Princes of Byblos and the Chronology of Middle Bronze. *Bulletin of the American Schools of Oriental Research* 176:38–46.
1965 Further Light on the History of Middle-Bronze Byblos. *Bulletin of the American Schools of Oriental Research* 179:38–43.
1966 Remarks on the Chronology of Early Bronze IV-Middle Bronze IIA in Phoenicia and Syria-Palestine. *Bulletin of the American Schools of Oriental Research* 184:26–35.
- Alex, Michael and Werner Wolfner
1984 Mittlere Jahrensnierschläge und Variabilität. In *Tübinger Atlas des Vorderen Orients*. vol. A IV 4. Dr. Ludwig Reichert Verlag, Wiesbaden.

- al-Maqdissi, Michel
 2001 Kurzbericht über die syrischen Ausgrabungen in Mišrife-Qatna. *Mitteilungen der deutschen Orient-Gesellschaft* 133:141–55.
- Alt, Albrecht
 1954 Beziehungen zu Ägypten in den Briefen von Mari? *Zeitschrift des deutschen Palästina-Vereins* 70:130–4.
- Amiran, Ruth
 1970 *Ancient Pottery of the Holy Land: From Its Beginnings in the Neolithic Period to the End of the Iron Age*. English ed. Rutgers University Press.
- Amiran, Ruth and Abraham Eitan
 1965 A Canaanite-Hyksos City at Tell Nagila. *Archaeology* 18:113–23.
 1993 Nagila, Tel. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 1079–81. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Archi, Alfonso
 1998 The Regional State of Nagar According to the Texts of Ebla, ed. M. Lebeau, pp. 1–15. Subartu 4/2. Brepols, Turnhout.
- Arns, Raimund, et al.
 1984 Ausgrabungen in Tall Bi‘a 1982 und 1983. *Mitteilungen der deutschen Orient-Gesellschaft* 116:15–63.
- Artzy, Michal and Ezra Marcus
 1991 The MBIIA Coastal Settlement at Tel Nami. *Michmanim* 5:5*–16*.
- Ashbee, Paul and Ian W. Cornwall
 1961 An Experiment in Field Archaeology. *Antiquity* 35:129–34.
- Astour, Michael C.
 1992 An Outline of the History of Ebla (Part 1). In *Eblaitica: Essays on the Ebla Archives and Eblaite Language* 3, eds. C. H. Gordon and G. A. Rendsburg, pp. 3–82. Eisenbrauns, Winona Lake, IN.
 2002 A Reconstruction of the History of Ebla (Part 2). In *Eblaitica: Essays on the Ebla Archives and Eblaite Language* 4, eds. C. H. Gordon and G. A. Rendsburg, pp. 57–195. Eisenbrauns, Winona Lake, IN.
- Atkinson, R. J. C.
 1961 Neolithic Engineering. *Antiquity* 35:292–9.
- Avi-Yonah, Michael (ed.)
 1975 *Encyclopedia of Archaeological Excavations in the Holy Land*. 4 vols. Israel Exploration Society and Massada Press, Jerusalem.
- Badawy, Alexander M.
 1964 Preliminary Report on the Excavations by the University of California at Askut. *Kush* 12:47–53.
 1965 Askut: A Middle Kingdom fortress in Nubia. *Archaeology* 18:124–31.
 1966 Archaeological Problems Relating to the Egyptian Fortress at Askut. *Journal of the American Research Center in Egypt* 5:23–7.
- Badre, Leila
 1997a BEY 003 Preliminary Report: Excavations of the American University of Beirut Museum. *Bulletin d'Archéologie et d'Architecture Libanaises* 2:6–94.
 1997b Kamid el-Loz. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 3. ed. E. M. Meyers, pp. 265–6. Oxford University Press, New York.
 2002 The Bronze Age of Beirut: Major Results. *ARAM* 13–14:1–26.
- Badre, Leila and Eric Gubel
 1999–2000 Tell Kazel, Syria: Excavations of the AUB Museum 1993–1998, Third Preliminary Report. *Berytus Archaeological Studies* 44.

- Badre, Leila; Eric Gubel; Michel al-Maqdissi and Hélène Sader
 1990 Tell Kazel, Syria. Excavations of the AUB Museum 1985–1987. Preliminary Reports. *Berytus Archaeological Studies* 38:10–124.
- Badre, Leila and Jean-Paul Thalmann
 1996 Les découvertes archéologiques du centre-ville de Beyrouth. *Comptes rendus de l'Académie des inscriptions et belles-lettres* 1996/1:87–97.
- Bahat, Dan
 1993 Beth-Shemesh (Giv'at Sharett). In *NEAEHL*, vol. 1. ed. E. Stern, pp. 253–4. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Baramki, Dimitri C.
 1966 *The Archaeological Museum of the American University of Beirut*. American University of Beirut, Beirut.
- Barnett, Richard D.
 1963 Xenophon and the Wall of Media. *Journal of Hellenic Studies* 83:1–26.
- Bar-Yosef, Ofer; Avraham Negev and David Ussishkin
 1993 The Kefar Monash Hoard. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 614. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Van Beek, Gus W.
 1992 The Rammed Earth Revetment at Tell Jemmeh. *Eretz-Israel* 23:4*–9*.
 1993 Jemmeh, Tell. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 667–74. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Beitzel, Barry J.
 1992 Travel and Communication (OT World). In *The Anchor Bible Dictionary*, vol. 6. ed. D. N. Freedman, pp. 644–8. 1st ed. Doubleday, New York.
- Ben-Tor, Amnon
 1992 The Early Bronze Age. In *The Archaeology of Ancient Israel*, ed. A. Ben-Tor, pp. 81–125. Translated by R. Greenberg. Yale University Press, New Haven.
 1993a Hazor. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 594–606. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1993b Jokneam. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 805–11. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1993c Qashish, Tel. In *NEAEHL*, vol. 4. ed. E. Stern, pp. 1200–3. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1997a Hazor. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 3. ed. E. M. Meyers, pp. 1–5. Oxford University Press, New York.
 1997b Yoqne'am. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 5. ed. E. M. Meyers, pp. 381–3. Oxford University Press, New York.
- Ben-Tor, Amnon; M. Avissar and Y. Portugali (eds.)
 1996 *Yoqne'am I: The Late Periods*. Qedem Reports 3. Institute of Archaeology, Hebrew University of Jerusalem.
- Ben-Tor, Amnon and Ruhama Bonfil
 1987–1988 Tel Qashish, 1984/1985 Seasons. *Excavations and Surveys in Israel* 6:106–8.
 1997 *Hazor V, An Account of the Fifth Season of Excavations, 1968*. Israel Exploration Society, The Hebrew University, Jerusalem.
- Ben-Tor, Amnon; Yuval Portugali and Miriam Avissar
 1981 The First Two Seasons of Excavations at Tel Qashish, 1978–1979. *Israel Exploration Journal* 31/3–4:137–64.
- Ben-Tor, Amnon and A. Zarzecki
 1988–1989 Tel Yoqne'am 1988. *Excavations and Surveys in Israel* 7–8:195–6.

- Bertemes, Frenz
 1986 Die „Mittelbronzezeitliche“ Stadtmauer am Osthand des Tell Kamid el-Loz. In *Kamid el-Loz 1977–81*, pp. 77–100. Saarbrücker Beiträge zur Altertumskunde 36.
- Betts, Alison V. G. (editor)
 1998 *The Harra and the Hamad: Excavations and Explorations in Eastern Jordan, Volume 1*. Sheffield Archaeological Monographs 9. J. R. Collis, Sheffield.
- Betts, Alison V. G., et al.
 1996 Studies of the Bronze Age Occupation in the Wadi al-‘Ajib, Southern Hauran. *Levant* 28:27–39.
- Bienkowski, Piotr
 1989 The Division of Middle Bronze IIB–C in Palestine. *Levant* 21:169–79.
- Bietak, Manfred
 1996 *Avaris: The Capital of the Hyksos, Recent Excavations at Tell el-Dab‘a*. British Museum Press, London.
 2001 Dab‘a, Tell ed-. In *Oxford Encyclopedia of Ancient Egypt*, vol. 1. ed. D. B. Redford, pp. 351–4. Oxford University Press, New York.
 2002 Relative and Absolute Chronology of the Middle Bronze Age: Comments on the Present State of Research. In *The Middle Bronze Age in the Levant: Proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th–26th of January 2001*. ed. M. Bietak, pp. 29–42. Contributions to the Chronology of the Eastern Mediterranean 3. M. Bietak and H. Hunger, general eds. Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- Bietak, Manfred; Josef Dorner; Irmgard Hein and Peter Jánosi
 1994 Neue Grabungsergebnisse aus Tell el-Dab‘a und ‘Ezbet Helmi im östlichen Nildelta (1989–1991). *Ägypten und Levante* 4:9–80.
- Bietak, Manfred; Josef Dorner and Peter Jánosi
 2001 Ausgrabungen in dem Palastbezirk von Avaris. Vorbericht Tell el-Dab‘a/‘Ezbet Helmi 1993–2000. *Ägypten und Levante* 11:27–119.
- Biran, Avraham
 1980 Two Discoveries at Tel Dan. *Israel Exploration Journal* 30:89–98.
 1981 The Discovery of the Middle Bronze Age Gate at Dan. *Biblical Archaeologist* 44/3:139–44.
 1984 The Triple-Arched Gate of Laish at Tel Dan. *Israel Exploration Journal* 34/1:1–19.
 1990 The Middle Bronze Age Ramparts of Tel Dan [In Hebrew]. *Eretz-Israel* 21:56–65.
 1993 Dan. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 323–32. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1994 *Biblical Dan*. Israel Exploration Society, Jerusalem.
 2000 Tel Dan—1996. *Hadashot Arkhaeologiyot—Excavations and Survey in Israel* 20:1*–2*.
- Biran, Avraham, et al.
 1996 *Dan I: A Chronicle of the Excavations, the Pottery Neolithic, the Early Bronze Age and the Middle Bronze Age Tombs*. Annual of the Nelson Glueck School of Biblical Archaeology. Hebrew Union College-Jewish Institute of Religion, Jerusalem.
- Bluard, Christine
 1997 Recherches sur le périmètre externe (chantier H). In *Tell Beydar, Three Seasons of Excavations (1992–1994)*, eds. M. Lebeau and A. Suleiman, pp. 179–91. Subartu 3. Brepols, Turnhout.

- Boas-Vedder, Ir. Diny
 2001 Appendix 2. Jerusalem: The Wall from the MB II Period. In *Excavations by Kathleen M. Kenyon in Jerusalem 1961–1967, Volume III: The Settlement in the Bronze and Iron Ages*. ed. M. L. Steiner, pp. 137–53. Copenhagen International Series 9. Sheffield Academic Press, Ltd., London.
- Boehmer, Rainer Michael
 1972 *Die Kleinfunde von Boghaköy*. Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft 87. Gebr. Mann Verlag, Berlin.
- Borger, Rykle
 1981 *Assyrische-babylonische Zeichenliste*. 2nd ed. Alter Orient und Altes Testament 33A. Verlag Butzon und Bercker Kevelaer, Vluyn.
- Bounni, Adnan
 1997 Kazel, Tell al-. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 3. ed. E. M. Meyers, pp. 275–6. Oxford University Press, New York.
- Bourke, Stephen J.
 1989 The Transition from the Middle to Late Bronze Age in Syria: The Evidence from Tell Nebi Mend. *Levant* 25:155–95.
 1997 Pre-classical Pella in Jordan: A Conspectus of Ten Year's Work (1985–1995). *Palestine Exploration Quarterly* 129:94–115.
- Bourke, Stephen J., et al.
 1998 Preliminary Report on the University of Sydney's Sixteenth and Seventeenth Seasons of Excavations at Pella (Tabaqat Fahl) in 1994/95. *Annual of the Department of Antiquities of Jordan* 42:179–211.
- Bradbury, Jim
 1985 *The Medieval Archer*. St. Martin's Press, New York.
- Braemer, Frank
 1984 Prospections archaéologiques dans le Hawran (Syrie). *Syria* 61:219–50.
 1993 Prospections archaéologiques dans le Hawran (Syrie) III. *Syria* 70/1–2:117–65.
- Braidwood, Robert J.
 1937 *Mounds in the Plain of Antioch: An Archeological Survey*. The University of Chicago. Oriental Institute Publications 48. University of Chicago Press, Chicago.
- Bretschneider, Joachim
 1997 Untersuchungen an der äußeren Wallanlage (Feld H). In *Tell Beydar, Three Seasons of Excavations (1992–1994)*, eds. M. Lebeau and A. Suleiman, pp. 193–207. Subartu 3. Brepols, Turnhout.
- Bretschneider, Joachim and K. Van Leerberghe
 1997 Kranzhügel-Städte und Keilschrift-Archive. *Antike Welt* 4:289–96.
- Broshi, Magen and Ram Gophna
 1986 Middle Bronze Age II Palestine: Its Settlement and Population. *Bulletin of the American Schools of Oriental Research* 261:73–90.
- Bryce, Trevor
 1998 *The Kingdom of the Hittites*. 1st ed. Clarendon Press, Oxford.
- Buccellati, Giorgio
 1979 The Fourth Season: Introduction and the Stratigraphic Record. In *Terqa Preliminary Report 10*. pp. 87. Bibliotheca Mesopotamica. Undena Publications, Malibu, CA.

- 1998 Urkesh as Tell Mozan: Profiles of the Ancient City. In *Urkesh and the Hurrians: Studies in Honor of Lloyd Cotsen. Urkesh/Mozan Studies 3*, vol. 26. eds. G. Buccellati and M. Kelly-Buccellati, pp. 11–34. Bibliotheca Mesopotamica. Udena Publications, Malibu, CA.
- Buccellati, Giorgio and Marilyn Kelly-Buccellati
- 1978 Terqa Preliminary Report No. 6: The Third Season—Introduction and the Stratigraphic Record. *Syro-Mesopotamian Studies* 2.6:1–36.
- 1983 Terqa: The First Eight Seasons. *Annales Archéologiques Arabes Syriennes* 33:47–67.
- 1988 *Mozan 1: The Soundings of the First Two Seasons*. Bibliotheca Mesopotamica 20. Udena Publications.
- 1997a Mozan, Tell. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 4. ed. E. M. Meyers, pp. 60–3. Oxford University Press, New York.
- 1997b Terqa. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 5. ed. E. M. Meyers, pp. 188–90. Oxford University Press, New York.
- 1997c Urkesh: The First Hurrian Capital. *Biblical Archaeologist* 60/2:77–94. Buchanan, Briggs
- 1966 *Catalogue of Ancient Near Eastern Seals in the Ashmolean Museum, Vol. 1: Cylinder Seals*. Clarendon Press, Oxford.
- 1981 *Early Near Eastern Seals in the Yale Babylonian Collection*. Yale University Press, New Haven.
- Buhl, Marie-Louise and Svend Holm-Nielson
- 1969 *Shiloh, the Danish Excavations at Tall Sailun, Palestine in 1926, 1929, 1932, and 1963: The Pre-Hellenistic Remains*. Archaeological-Historical Series I, 12. National Museum of Denmark, Copenhagen.
- Bullard, Reuben G.
- 1970 Geological Studies in Field Archaeology. *Biblical Archaeologist* 33/4:98–132.
- Bunimovitz, Shlomo
- 1983 Glacis 10014 and Gezer's Late Bronze Age Fortifications. *Tel Aviv* 10:61–70.
- 1989 *The Land of Israel in the Late Bronze Age: A Case Study of Socio-Cultural Change in a Complex Society*. Ph.D., Tel Aviv University.
- 1992 Middle Bronze Age Fortifications in Palestine as a Social Phenomenon. *Tel Aviv* 19/2:221–33.
- 1993 The Changing Shape of Power in the Bronze Age. In *Biblical Archaeology Today, 1990, Supplement*, eds. A. Biran and J. Aviram, pp. 142–9. Israel Exploration Society, Jerusalem.
- 1995 On the Edge of Empires—Late Bronze Age (1500–1200 BCE). In *The Archaeology of Society in the Holy Land*, ed. T. E. Levy, pp. 320–31. Facts On File, New York.
- Bunimovitz, Shlomo and Zvi Lederman
- 1993 Beth-Shemesh. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 249–53. 2nd-English ed. Israel Exploration Society, Jerusalem.
- 2003 Tel Beth Shemesh, 2001–2003. *Israel Exploration Journal* 53/2:233–7.
- Bunnens, Guy L. and Arlette Roobaert
- 1988 Le mur de enceinte (Area K). In *Mozan 1: The Soundings of the First Two Seasons*, vol. 20. eds. G. Buccellati and M. Kelly-Buccellati, pp. 61–4. Bibliotheca Mesopotamica. Udena Publications, Malibu, CA.

- Burke, Aaron Alexander
 forthcoming Review of *Shechem III: The Stratigraphy and Architecture, Vols. I and II* (2002). Edward F. Campbell and George R. H. Wright, eds. *Journal of Near Eastern Studies*.
- Cahill, Jane; Gary Lipton (Lipovich) and David Tarler
 1988 Tell el-Hammah, 1988. *Israel Exploration Journal* 38:191–4.
- Cahill, Jane and David Tarler
 1993 Hammah, Tell el-. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 561–2. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Callaway, Joseph
 1993 Ai. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 39–45. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Callot, Olivier
 1986 La région nord du Palais royal d'Ougarit. In *Comptes rendus de l'Académie des inscriptions et belles-lettres*, pp. 735–55, Paris.
- Calvet, Yves
 2002 Early Middle Bronze Age Sites in the Area of Salamiyah (Syria). In *The Middle Bronze Age in the Levant: Proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th–26th of January 2001*. ed. M. Bietak, pp. 103–12. Contributions to the Chronology of the Eastern Mediterranean 3. M. Bietak and H. Hunger, general eds. Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- Campbell, Edward F.
 2002 *Shechem III, The Stratigraphy and Architecture of Shechem/Tell Balatah, Volume I: Text*. American Schools of Oriental Research Archaeological Reports 6. Scholars Press, Atlanta.
- Casana, Jesse
 2003 *From Alalakh to Antioch: Settlement, Land Use and Environmental Change in the Amuq Valley of Southern Turkey*. Ph.D. dissertation, Near Eastern Languages and Civilizations, University of Chicago.
- Cecchini, S. M. and Stefania Mazzoni
 1998 *Tell Afis (Siria): The 1988–1992 Excavations at the Acropolis*. Seminari di Orientalistica 2. Gardini Editori e Stampatori, Pisa.
- Cerulli, Tiziano
 2000 Appendix G: Analysis of Mudbrick Samples from Tell es-Sultan (Jericho). In *Excavations at Jericho, 1998: Preliminary Reports on the Second Season of Archaeological Excavations and Surveys at Tell es-Sultan, Palestine*. eds. N. Marchetti and L. Nigro, pp. 349–54. Quaderni di Gerico 2. Università di Roma «La Sapienza», Rome.
- Chang, Kwang-Chih
 1976 *The Archaeology of Ancient China*. Revised ed. Yale University Press, New Haven.
 1986 *The Archaeology of Ancient China*. 4th revised ed. Yale University Press, New Haven.
- Charlton, Thomas H. and Deborah L. Nichols
 1997 The City-State Concept. In *The Archaeology of City-States: Cross-Cultural Approaches*, eds. D. L. Nichols and T. H. Charlton, pp. 1–14. Smithsonian Institution Press, Washington, D.C.
- Christaller, Walter
 1933 *Die Zentralen Orte in Süddeutschland*. Karl Zeiss, Jena.

- Clark, Douglas R.
 2000 Field B: The Western Defense System. In *Madaba Plains Project 4: The 1992 Season at Tall al-'Umayri and Subsequent Studies*, eds. L. G. Herr, et al., pp. 59–94. Andrews University, Berrien Springs, MI.
 2002 Field B: The Western Defense System. In *Madaba Plains Project 5: The 1994 Season at Tall al-'Umayri and Subsequent Studies*, eds. L. G. Herr, et al., pp. 48–116. Andrews University, Berrien Springs, MI.
- Clarke, Sommers
 1916 Ancient Egyptian Frontier Fortresses. *Journal of Egyptian Archaeology* 3:155–79.
- Cohen, Susan L.
 2002a *Canaanites, Chronology, and Connections: The Relationship of Middle Bronze IIA Canaan to Middle Kingdom Egypt*. Studies in the Archaeology and History of the Levant 3. Eisenbrauns, Winona Lake, IN.
 2002b Middle Bronze Age IIA Ceramic Typology and Settlement in the Southern Levant. In *The Middle Bronze Age in the Levant: Proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th–26th of January 2001*. ed. M. Bietak, pp. 113–31. Contributions to the Chronology of the Eastern Mediterranean 3. M. Bietak and H. Hunger, general eds. Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- Coleson, Joseph Edward
 1982 *Yaqqim-Addu of Sagaratum: The Correspondence of a District Governor in the Kingdom of Mari*. Ph.D. dissertation, Department of Near Eastern and Judaic Studies, Brandeis University.
- Collon, Dominique
 1982 *The Alalakh Cylinder Seals: A New Catalogue of the Actual Seals Excavated by Sir Leonard Woolley at Tell Atchana, and from neighbouring sites on the Syrian-Turkish Border*. BAR International Series 132.
- Cooley, Robert E. and Gary D. Pratico
 1997 Dothan. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 2. ed. E. M. Meyers, pp. 171. Oxford University Press, New York.
- Cooper, Jerrold S. (ed.)
 1986 *Sumerian and Akkadian Royal Inscriptions I: Presargonic Inscriptions*. Translation Series 1. American Oriental Society, New Haven.
- Cotterell, B. and J. Kamminga
 1990 *Mechanics of Pre-Industrial Technology*. Cambridge.
- Courtois, Jacques-Claude
 1973 Prospection archéologique dans la Moyenne vallée de l'Oronte. *Syria* 50:53–99.
- Covello-Paran, K.
 1999 Tel Hazor, the Eastern Spur. *Hadashot Arkhaeologiyot—Excavations and Survey in Israel* 107:1*–2*.
 forthcoming Tel Hazor—Areas Q (The Eastern Spur) and Area N.
- Cremaschi, Mauro; Luca Trombino and Antonio Sala
 forthcoming The Geoarchaeology of Tell Mishrife. In *Excavating Qatna I: Preliminary Report on the 1999 and 2000 Campaigns of the Joint Syrian-Italian-German Archaeological Research Project at Tell Mishrife*, eds. M. al-Maqdissi, et al., pp. 9–12.
- Culican, W. and Thomas L. McClellan
 1983 El-Qitar 1982–1983: A Preliminary Report. *Abr-Nahrain* 22:29–63.

- Curvers, Hans H. and Glenn M. Schwartz
 1997 Umm el-Marra: A Bronze Age Urban Center in the Jabbul Plain, Western Syria. *American Journal of Archaeology* 101/2:201–27.
- Czichon, Rainer M. and Peter Werner
 1998 *Tall Munbaqa-Ekalte I: Die Bronzezeitlichen Kleinfunde*. Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft 97. Saarbrücker Druckerei und Verlag, Saarbrücken.
- Dalley, Stephanie
 1984 *Mari and Karana: Two Old Babylonian Cities*. Longman, New York.
- Dalokay, Y.
 1969 *Lehmflachdachbauten in Anatolien*. Ph.D. dissertation, Fakultät für Bauwesen der Technischen Universität Carolo-Wilhelmina zu Braunschweig.
- Damerji, Muayad Said Basim
 1987 *The Development of the Architecture of Doors and Gates in Ancient Mesopotamia*. Translated by T. Takase and Y. Okada. Kokushikan University, Tokyo.
- Damluji, Salma Samar (ed.)
 1992 *The Valley of Mud Brick Architecture: Shibam, Tarim & Wadi Hadramut*. Garnet Publishing Ltd., Reading, UK.
- Dayan (Nevo), Y.
 1963 *Archaeological Survey of the Hulah Valley, Dan*.
- Van De Mierop, Marc
 1997 *The Ancient Mesopotamian City*. Clarendon, Oxford.
- Delougaz, Pinhas
 1990 Khafajah Mound B. In *Old Babylonian Public Buildings in the Diyala Region*. eds. H. Hill, T. Jacobsen and P. Delougaz, pp. 207–12. Oriental Institute Publications 98. University of Chicago Press, Chicago.
- Deshayes, J.
 1960 *Les outils de bronze de l'Indus au Danube*. Bibliothèque archéologique et historique 71. 2 vols, Paris.
- Dever, William G.
 1973a The Gezer Fortifications and the “High Place”: An Illustration of Stratigraphic Methods and Problems. *Palestine Exploration Quarterly* 105:61–70.
 1973b Tower 5017 at Gezer—A Rejoinder. *Israel Exploration Journal* 23:23–6.
 1974a *Gezer II: Report of the 1967–70 Seasons in Fields I and II*. Annual of the Nelson Glueck School of Biblical Archaeology, 2. Hebrew Union College, Jerusalem.
 1974b The MB IIC Stratification in the Northwest Gate Area at Shechem. *Bulletin of the American Schools of Oriental Research* 216:31–51.
 1976 The Beginning of the Middle Bronze Age in Syria-Palestine. In *Magnalia Dei, The Mighty Acts of God: Essays on the Bible and Archaeology in Memory of G. Ernest Wright*, eds. F. M. Cross, W. E. Lemke and P. D. Miller, Jr., pp. 3–38. Doubleday, Garden City, NY.
 1977 Palestine in the Second Millennium BCE: The Archaeological Picture. In *Israelite and Judaeon History*, eds. J. H. Hayes and J. M. Miller, pp. 70–120. Trinity Press International, Philadelphia.
 1980 New Vistas on the EB IV (“MB I”) Horizon in Syria-Palestine. *Bulletin of the American Schools of Oriental Research* 237:35–64.
 1985 Relations Between Syria-Palestine and Egypt in the “Hyksos” Period. In *Palestine in the Bronze and Iron Ages: Papers in Honour of Olga Tufnell*, ed. J. N. Tubb. Institute of Archaeology, London.

- 1986 *Gezer IV: The 1969–1971 Season in Field VI, the “Acropolis”*. Annual of the Nelson Glueck School of Biblical Archaeology, 4. Hebrew Union College, Jerusalem.
- 1987 The Middle Bronze Age: The Zenith of the Urban Canaanite Era. *Biblical Archaeologist* 50:148–77.
- 1990a ‘Hyksos’, Egyptian Destructions, and the End of the Palestinian Middle Bronze Age. *Levant* 22:75–81.
- 1990b Review of *Tell el-Fâr‘ah II, I; 2. Le Bronze moyen stratigraphie des vestiges du Bronze moyen II*. *Paléorient* 15/2:154–8.
- 1992a The Chronology of Syria-Palestine in the Second Millennium BCE: A Review of Current Issues. *Bulletin of the American Schools of Oriental Research* 288:1–26.
- 1992b Palestine, Archaeology of (Bronze–Iron Ages). In *The Anchor Bible Dictionary*, vol. 5. ed. D. N. Freedman, pp. 109–14. 1st ed. Doubleday, New York.
- 1993a Gezer. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 496–506. 2nd-English ed. Israel Exploration Society, Jerusalem.
- 1993b The Rise of Complexity in the Land of Israel in the Early Second Millennium B.C.E. In *Biblical Archaeology Today, 1990, Supplement*, eds. A. Biran and J. Aviram, pp. 98–109. Israel Exploration Society, Jerusalem.
- 1995 Social Structure in the Early Bronze IV Period in Palestine. In *The Archaeology of Society in the Holy Land*, ed. T. E. Levy, pp. 282–96. Facts On File, New York.
- 1997 Akko. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 1. ed. E. M. Meyers, pp. 54–5. Oxford University Press, New York.
- Dever, William G.; Hubert Darrell Lance and George Ernest Wright
1970 *Gezer I: Preliminary Report of the 1964–66 Seasons*. Nelson Glueck School of Biblical Archaeology, 1. Hebrew Union College, Jerusalem.
- Dornemann, Rudolph H.
1978 Tell Hadidi: Bronze Age City on the Euphrates. *Archaeology* 31:20–6.
1979a Tell Hadidi: A Millennium of Bronze Age City Occupation—Euphrates Valley, Syria. In *Archaeological Reports from the Tabqa Dam Project*, vol. 44. ed. D. N. Freedman, pp. 113–51. Annual of the American Schools of Oriental Research. ASOR, Cambridge, MA.
1979b Tell Hadidi: An Important Center of the Mitannian Period and Earlier. In *Le Moyen Euphrate: Actes du Colloque de Strasbourg 10–12 mars 1977*, ed. J.-C. Margueron, pp. 217–34, Strasbourg.
- 1983 *The Archaeology of Transjordan in the Bronze and Iron Ages*. Milwaukee Public Museum, Milwaukee.
- 1985 Salvage Excavations at Tell Hadidi in the Euphrates Valley. *Biblical Archaeologist* 48/1:49–59.
- Dorsey, David A.
1991 *The Roads and Highways of Ancient Israel*. Johns Hopkins University Press, Baltimore.
- Dossin, Georges
1938 Signaux lumineux au pays de Mari. *Revue d'assyriologie et d'archéologie orientale* 35:174–86.
- Dothan, Moshe
1973 The Foundation of Tel Mor and Ashdod. *Israel Exploration Journal* 23:1–17.
1976 Akko: Interim Excavation Report First Season, 1973/4. *Bulletin of the American Schools of Oriental Research* 224:1–48.

- 1982 *Ashdod IV: Excavation of Area M: Fortifications of the Lower City*. 'Atiqot (English) 15. Israel Exploration Society, Jerusalem.
- 1993a Acco (Tel Acco). In *NEAEHL*, vol. 1. ed. E. Stern, pp. 16–24. 2nd-English ed. Israel Exploration Society, Jerusalem.
- 1993b *Ashdod V Excavation of Area G: The Fourth through Sixth Seasons of Excavations, 1968–1970*. 'Atiqot (English) 23.
- 1993c Esur, Tel. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 426–8. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Dothan, Moshe and Avner Raban
- 1980 The Sea Gate of Ancient Akko. *Biblical Archaeologist* 43/1:35–9.
- 1984 Tel Akko. *Israel Exploration Journal* 34:189–91.
- Dothan, Trude and Seymour Gitin
- 1993 Mique, Tel (Ekron). In *NEAEHL*, vol. 3. ed. E. Stern, pp. 1051–9. 2nd-English ed. Israel Exploration Society, Jerusalem.
- 1997 Mique, Tel. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 4. ed. E. M. Meyers, pp. 30–5. Oxford University Press, New York.
- Dunand, Maurice
- 1939 *Les Fouilles de Byblos I: 1926–1932*. Paul Geuthner, Paris.
- 1949–1950 Rapport préliminaire sur les fouilles de Byblos en 1948. *Bulletin du Musée de Beyrouth* 9:53–64.
- 1954 *Les Fouilles de Byblos II: 1933–1938*. P. Geuthner, Paris.
- 1955a Rapport préliminaire sur les fouilles de Byblos en 1950. *Bulletin du Musée de Beyrouth* 12:7–12.
- 1955b Rapport préliminaire sur les fouilles de Byblos en 1951. *Bulletin du Musée de Beyrouth* 12:13–20.
- 1955c Rapport préliminaire sur les fouilles de Byblos en 1952. *Bulletin du Musée de Beyrouth* 12:21–3.
- 1956a Rapport préliminaire sur les fouilles de Byblos en 1954. *Bulletin du Musée de Beyrouth* 13:73–8.
- 1956b Rapport préliminaire sur les fouilles de Byblos en 1955. *Bulletin du Musée de Beyrouth* 13:79–86.
- 1961 Rapport préliminaire sur les fouilles de Byblos en 1959. *Bulletin du Musée de Beyrouth* 16:81–5.
- 1964 Rapport préliminaire sur les fouilles de Byblos en 1961. *Bulletin du Musée de Beyrouth* 17:25–8.
- 1967 Rapport préliminaire sur les fouilles de Byblos en 1965. *Bulletin du Musée de Beyrouth* 20:21–6.
- 1968 *Byblos: Its History, Ruins and Legends*. 2nd ed. Translated by H. Tabet, Beirut.
- Dunayevsky, Immanuel and Aharon Kempinski
- 1990 The Eastern Rampart of Hazor [In Hebrew]. 'Atiqot 10:23–8.
- Dunham, Dows (ed.)
- 1967 *Second Cataract Forts II: Uronarti Shalfak Mirgissa*. Museum of Fine Arts, Boston.
- Dunham, Dows and Jozef M. A. Janssen (eds.)
- 1960 *Second Cataract Forts I: Semna Kumba*. Museum of Fine Arts, Boston.
- Eames, Samantha and Maria Schroder (eds.)
- 1997 *A Middle Bronze Age Landscape: Occupation and Resource Management in Wadi el-'Ajib, al-Mafraq*. Studies in the History and Archaeology of Jordan 6. Jordan Press Foundation, Amman.
- Edelstein, Gershon
- 1993 Rephaim, Nahal (The Manahat Excavations). In *NEAEHL*, vol. 4. ed. E. Stern, pp. 1281–2. 2nd-English ed. Israel Exploration Society, Jerusalem.

- Edelstein, Gershon and Zvi Greenhut
1989 Manahat—1987/1988. *Excavations and Surveys in Israel* 7/8:117–23.
- Edelstein, Gershon and Yanir Milevski
1990 Manahat—1989. *Excavations and Surveys in Israel* 9:148–50.
- Edzard, Dietz O.
1981 Neue Erwägungen zum Brief des Enna-Dagan von Mari (TM.75.G.2367). *Studi Eblaiti* 4:89–97.
- Eichler, Seyarre, et al.
1984 Ausgrabungen in Tall Munbaqa 1983. *Mitteilungen der deutschen Orient-Gesellschaft* 116:65–93.
- Einwag, Berthold
2002 The Early Middle Bronze Age in the Euphrates Valley: The Evidence from Tuttul/Tell Bi‘a. In *The Middle Bronze Age in the Levant: Proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th–26th of January 2001*. ed. M. Bietak, pp. 143–61. Contributions to the Chronology of the Eastern Mediterranean 3. M. Bietak and H. Hunger, general eds. Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- Eisenberg, Emanuel
1993 Kitan, Tel. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 878–81. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Eisenberg, Emanuel and Gershon Edelstein
1993 Rephaim, Nahal. In *NEAEHL*, vol. 4. ed. E. Stern, pp. 1277–80. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Eitan, A.
1972 Tell Beit Mirsim G–F—The Middle Bronze IIA Settlement. *Bulletin of the American Schools of Oriental Research* 208:19–24.
- Emery, Walter B. (ed.)
1965 *Egypt in Nubia*. London.
- Emery, Walter B.; H. S. Smith and Alan R. Millard
1979 *The Fortress of Buhen: the Archaeological Report*. Egypt Exploration Society, London.
- Engberg, Robert M.
1939 *The Hyksos Reconsidered*. Studies in Ancient Oriental Civilization 18. University of Chicago Press, Chicago.
- Eph‘al, Israel
1996 *Siege and Its Ancient Near Eastern Manifestations* [In Hebrew]. Magnes Press, Jerusalem.
1997 Ways and Means to Conquer a City, Based on Assyrian Queries to the Sungod. In *Assyria 1995: Proceedings of the 10th Anniversary Symposium of the Neo-Assyrian Text Corpus Project, Helsinki, September 7–11, 1995*, eds. S. Parpola and R. M. Whiting, pp. 49–53. The Neo-Assyrian Text Corpus Project, Helsinki.
- Esse, Douglas L.
1991 *Subsistence, Trade, and Social Change in Early Bronze Age Palestine*. Studies in Ancient Oriental Civilization 50. University of Chicago Press, Chicago.
- Falconer, Steven E.
1987 *Heartland of Villages: Reconsidering Early Urbanism in the Southern Levant*. Ph.D. dissertation, University of Arizona.

- 1994 Village Economy and Society in the Jordan Valley: A Study of Bronze Age Rural Complexity. In *Archaeological Views from the Countryside: Village Communities in Early Complex Societies*, eds. G. M. Schwartz and S. E. Falconer, pp. 121–42. Smithsonian Institution Press, Washington, D.C.
- 2001 The Middle Bronze Age. In *The Archaeology of Jordan*, eds. B. MacDonald, R. Adams and P. Bienkowski, pp. 271–89. Sheffield Academic Press, Sheffield.
- Falconer, Steven E. and Bonnie Magness-Gardiner
 1993 Hayyat, Tell el-. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 591–3. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Faris, Nabih Amin and Robert Potter Elmer (eds.)
 1945 *Arab Archery: An Arabic Manuscript of About A.D. 1500 "A Book on the Excellence of the Bow & Arrow" And the Description Thereof*. Princeton University Press, Princeton.
- Fathy, Hassan
 1969 *Gourna: A Tale of Two Villages*. Ministry of Culture, Cairo.
- Figulla, H. H.
 1967 *Old Babylonian Naditu Records*. Cuneiform Texts from Babylonian Tablets in the British Museum. British Museum, London.
- Finkbeiner, Uwe
 1997 Fortifications of Prehellenistic Beirut; The Archaeological Site BEY 020. *National Museum News* 15:7–9.
- Finkbeiner, Uwe and Thomas Leisten
 1999–2000 Emar and Balis 1996 and 1998: A Preliminary Report of the Joint Syrian-German Excavations with the Collaboration of Princeton University. *Berytus Archaeological Studies* 44:5–57.
- Finkbeiner, Uwe and Hélène Sader
 1997 BEY 020 Preliminary Report of the Excavations 1995. *Bulletin d'Archéologie et d'Architecture Libanaises* 2:114–66.
- Finkelstein, Israel
 1988 *The Archaeology of the Israelite Settlement*. Israel Exploration Society, Jerusalem.
 1992 Middle Bronze Age 'Fortifications': A Reflection of Social Organization and Political Formations. *Tel Aviv* 19/2:201–20.
 1993a Samaria (Region): The Southern Samaritan Hills Survey. In *NEAEHL*, vol. 4. ed. E. Stern, pp. 1313–4. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1993b The Sociopolitical Organization of the Central Hill Country in the Second Millennium B.C.E. In *Biblical Archaeology Today, 1990 Supplement*, eds. A. Biran and J. Aviram, pp. 292–306. Israel Exploration Society, Jerusalem.
 1996a The Archaeology of the United Monarchy: an Alternative View. *Levant* 28:177–87.
 1996b The Territorial-Political System of Canaan in the Late Bronze Age. *Ugarit-Forschungen* 28:221–55.
- Finkelstein, Israel; Shlomo Bunimovitz and Zvi Lederman
 1993 *Shiloh: The Archaeology of a Biblical Site*. Monograph Series 10. Emery and Claire Yass Archaeology Press, Tel Aviv.

- Finkelstein, Israel and Zvi Lederman
 1993a Areas H-F: Middle Bronze III Fortifications and Storerooms. In *Shiloh: The Archaeology of a Biblical Site*, eds. I. Finkelstein, S. Bunimovitz and Z. Lederman, pp. 49–64. Monograph Series 10. Emery and Claire Yass Archaeology Press, Tel Aviv.
 1993b Excavation Results in Areas E, G, J, K, L and M. In *Shiloh: The Archaeology of a Biblical Site*, eds. I. Finkelstein, S. Bunimovitz and Z. Lederman, pp. 65–78. Monograph Series 10. Emery and Claire Yass Archaeology Press, Tel Aviv.
- Finkelstein, Israel; David Ussishkin and Baruch Halpern
 2000 *Megiddo III: The 1992–1996 Seasons*. Graphit Press Ltd., Jerusalem.
- Fischer, Peter M.
 1997 Tall Abu al-Kharaz: The Swedish Jordan Expedition 1995–1996, Sixth and Seventh Season Preliminary Excavation Report. *Annual of the Department of Antiquities of Jordan* 41:129–44.
 1998 Tall Abu al-Kharaz: The Swedish Jordan Expedition 1997, Eighth Season Preliminary Excavation Report. *Annual of the Department of Antiquities of Jordan* 42:213–23.
 2000 A Synthesis of Ten Campaigns at Tell Abu al-Kharaz, Jordan Valley: The Early, Middle, Late Bronze and Iron Ages. In *Proceedings of the First International Congress on the Archaeology of the Ancient Near East, Rome May 18th–23rd 1998*, vol. 1. eds. P. Matthiae, et al., pp. 447–70. Università degli Studi di Roma “La Sapienza”, Rome.
- Fischer, Peter M. and Moain Sadeq
 2000 Tell el-‘Ajjul 1999: A Joint Palestinian-Swedish Field Project, First Season Preliminary Report. *Ägypten und Levante* 10:211–26.
- Fisher, Clarence S.
 1905 *Excavations at Nippur, Part I*. G. E. Stechert & Co., New York.
 Flanagan, James W.; David W. McCreery and Khair N. Yassine
 1994 Tell Nimrin: Preliminary Report on the 1993 Season. *Annual of the Department of Antiquities of Jordan* 38:205–44.
- Fortin, Michel
 1981 *Military Architecture in Cyprus during the Second Millennium B.C.* Ph.D., Bedford College, University of London.
 1983 Recherches sur l’architecture militaire de l’âge du bronze a Chypre. *Echos du monde classique (Classical Views)* 27/2:206–19.
 1989 La soi-disant forteresse d’Enkomi I (Chypre) à la fin du bronze moyen et au début du bronze récent. In *Transition: le monde Egeen du bronze moyen au bronze récent, Actes de la deuxième Rencontre égéenne internationale de l’Université de Liège*. ed. R. Laffineur, pp. 239–49. Aegaeum 3. Université de l’Etat à Liège, Liège.
 1995 A Cluster of Middle Cypriot III-Late Cypriot I Fortified Sites on the Ayios Sozomenos Plateau. In *Klados: Essays in Honour of J. N. Coldstream*, ed. C. Morris, pp. 87–102. University of London, London.
- Foster, Benjamin R.
 1982 The Siege of Armanum. *Journal of the Ancient Near Eastern Society* 14:27–36.
- Frayne, Douglas
 1990 *Old Babylonian Period (2003–1595 BC)*. The Royal Inscriptions of Mesopotamia, Early Periods 4. University of Toronto Press, Toronto.
 1993 *Sargonic and Gutian Periods (2334–2113 BC)*. The Royal Inscriptions of Mesopotamia, Early Periods 2. University of Toronto Press, Toronto.

- 1997 *Ur III Period (2112–2004 BC)*. The Royal Inscriptions of Mesopotamia, Early Periods 3/2. University of Toronto Press, Toronto.
- Free, Joseph P.
1958 The Fifth Season at Dothan. *Bulletin of the American Schools of Oriental Research* 152:10–8.
- Fritz, Volkmar
1995 *The City in Ancient Israel*. Sheffield Academic Press, Ltd., Sheffield.
- Fritz, Volkmar and Aharon Kempinski
1983 *Ergebnisse der Ausgrabungen auf Hirbet el-Mšāš (Tel Masos) 1972–75*. Abhandlung des Deutschen Palästinavereins. 3 vols. Otto Harrassowitz, Wiesbaden.
- Fugmann, Ejnar
1958 *Hama, fouilles et recherches 1931–1938, vol. II/1, L'architecture des périodes pré-hellénistiques*. Foundation Carlsberg, Copenhagen.
- Funk, Robert W.
1968 The History of Beth-Zur with Reference to its Defenses. In *The 1957 Excavations at Beth-Zur*. eds. O. R. Sellers, et al., pp. 4–17. *Annual of the American Schools of Oriental Research* 38.
1993 Beth-Zur. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 259–61. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Gal, Zvi and Moshe Kochavi
2000 Area B Stratigraphy, Architecture and Tombs. In *Aphek-Antipatris I: Excavation of Areas A and B, The 1972–1976 Seasons*, eds. M. Kochavi, P. Beck and E. Yadin, pp. 59–92. Emery and Claire Yass Publications in Archaeology, Tel Aviv.
- Galili, Ehud and Jacob Sharvit
1998 Ancient Coastal Installations and the Tectonic Stability of the Israeli Coast in Historical Times. In *Coastal Tectonics*, vol. 146. eds. I. S. Stewart and C. Vita-Finzi, pp. 378. Geological Society Special Publication. The Geological Society, London.
- Garfinkel, Yosef
2001 Warrior Burial Customs in the Levant During the Early Second Millennium. In *Studies in the Archaeology of Israel and Neighboring Lands in Memory of Douglas L. Esse*. ed. S. R. Wolff, pp. 143–61. *Studies in Ancient Oriental Civilization* 59. Eisenbrauns, Winona Lake, IN.
- Garstang, John
1930 Jericho. Sir Charles Marston's Expedition of 1930. *Palestine Exploration Fund Quarterly Statement*:123–32.
1931 The Walls of Jericho: The Marston-Melchett Expedition of 1931. *Palestine Exploration Fund Quarterly Statement*:186–96.
- Garstang, John and J. B. E. Garstang
1940 *The Story of Jericho*. Hodder and Stoughton, London.
- Gasche, Hermann; James A. Armstrong; Steven W. Cole and Vahe G. Gurzadyan
1998 *Dating the Fall of Babylon: A Reappraisal of Second-Millennium Chronology*. Mesopotamian History and Environment II:4. University of Ghent/Oriental Institute of the University of Chicago, Ghent.
- Gasche, Hermann and Roland Paeppe
1980 The Surrounding Wall of Abu Habbah (Sippar) in Relation to that of Tell ed-Der and to the Regional Fluvial System. In *Tell ed-Der III: Sounding at Abu Habbah (Sippar)*, ed L. de Meyer, pp. 37–52. Peeters, Leuven.

- Geva, Shulamit
 1982 *Tell Jerishe: The Sukenik Excavations of the Middle Bronze Age Fortifications*. Qedem 15. Institute of Archaeology, Hebrew University of Jerusalem, Jerusalem.
- Gianessi, Deborah
 1998 Architecture and Stratigraphy. In *Tell Afis (Siria): The 1988–1992 Excavations at the Acropolis*, vol. 2. eds. S. M. Cecchini and S. Mazzoni, pp. 101–21. Seminari di Orientalistica. Gardini Editori e Stampatori, Pisa.
- Gibson, McGuire
 1964 *The Mace, the Axe, and the Dagger in Ancient Mesopotamia*. M.A. thesis, Oriental Languages and Civilizations, University of Chicago.
- Gibson, McGuire, et al.
 2002 First Season of Syrian-American Investigations at Hamoukar, Hasekeh Province. *Iraq* 64:45–68.
- Gibson, McGuire; Richard L. Zettler and James A. Armstrong
 1983 The Southern Corner of Nippur: Excavations during the 14th and 15th Seasons. *Sumer* 39:170–90.
- Gittlen, Barry Melvin
 1992 The Late Bronze Age “City” at Tel Miqne/Ekron. *Eretz-Israel* 23:50*–3*.
- Glock, Albert Ernest
 1968 *Warfare in Mari and Early Israel*. Ph.D. dissertation, University of Michigan.
 1993 Taanach. In *NEAEHL*, vol. 4. ed. E. Stern, pp. 1428–33. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Glock, Alice (ed.)
 1988 *Miniscule Monuments of Ancient Art: Catalogue of Near Eastern Stamp and Cylinder Seals Collected by Virginia E. Bailey*. The New Jersey Museum of Archaeology, Madison, NJ.
- Goetze, Albrecht
 1962 Two Ur-Dynasty Tablets Dealing with Labor. *Journal of Cuneiform Studies* 16:13–6.
- Gonen, Rivka
 1975 *Weapons of the Ancient World*. Cassell’s Introducing Archaeology Series. Peli Press Ltd., Jerusalem.
 1987 Megiddo in the Late Bronze Age: Another Reassessment. *Levant* 19:83–100.
 1992 The Late Bronze Age. In *The Archaeology of Ancient Israel*, ed. A. Ben-Tor, pp. 211–57. Translated by R. Greenberg. Yale University Press, New Haven.
- Gophna, Ram
 1973 The Middle Bronze Age II Fortifications at Tel Poleg [In Hebrew]. *Eretz-Israel* 11:111–9.
 1977 Fortified Settlements from the Early Bronze and Middle Bronze II at Tel Poran [In Hebrew]. *Eretz-Israel* 13:87–90, 293*.
 1979 A Middle Bronze Age II Village in the Jordan Valley. *Tel Aviv* 6/1–2:28–33.
 1992a Early Bronze Age Fortification Wall and Middle Bronze Age Rampart at Tel Poran. *Tel Aviv* 19/2:267–73.
 1992b The Intermediate Bronze Age. In *The Archaeology of Ancient Israel*, ed. A. Ben-Tor, pp. 126–58. Yale University Press, New Haven.
 1993a Far‘ah, Tell el- (South). In *NEAEHL*, vol. 2. ed. E. Stern, pp. 441–4. 2nd-English ed. Israel Exploration Society, Jerusalem.

- 1993b Poleg, Nahal. In *NEAEHL*, vol. 4. ed. E. Stern, pp. 1193–5. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Gophna, Ram and Etan Ayalon
 1980 Survey of the Central Coastal Plain, 1978–1979: Settlement Pattern of the Middle Bronze Age IIA. *Tel Aviv* 7:147–51.
 1982 A Fortified Middle Bronze Age IIA Site at ‘Ain Zurekiyeh in the Poleg Basin. *Tel Aviv* 9:69–78.
- Gophna, Ram and Pirhiya Beck
 1981 The Rural Aspect of the Settlement Pattern of the Coastal Plain in the Middle Bronze Age II. *Tel Aviv* 8:45–80, Pls. 8–14.
- Gophna, Ram and Juval Portugali
 1988 Settlement and Demographic Processes in Israel’s Coastal Plain from the Chalcolithic to the Middle Bronze Age. *Bulletin of the American Schools of Oriental Research* 269:11–28.
- Gore, Rick
 2001 Ancient Ashkelon. *National Geographic* 199/1:66–93.
- Grant, Elihu
 1931 *Ain Shems Excavations (Palestine) 1928–1931: Part I*. Haverford College, Haverford, PA.
 1934 *Rumeileh being Ain Shems Excavations (Palestine): Part III*. Haverford College, Haverford, PA.
- Grant, Elihu and George Ernest Wright
 1938 *Ain Shems Excavations (Palestine): Part IV (Pottery)*. Haverford College, Haverford, PA.
 1939 *Ain Shems Excavations (Palestine): Part V (Text)*. Biblical and Kindred Studies 8. Haverford College, Haverford, PA.
- Grayson, A. Kirk
 1987 *Assyrian Rulers of the Third and Second Millennia BC (to 1115 BC)*. The Royal Inscriptions of Mesopotamia, Assyrian Periods 1. University of Toronto Press, Toronto.
- Greenberg, Raphael
 1996 The Early Bronze Age Levels. In *Dan I: A Chronicle of the Excavations, the Pottery Neolithic, the Early Bronze Age and the Middle Bronze Age Tombs*, ed. A. Biran, pp. 85–160. Annual of the Nelson Glueck School of Biblical Archaeology. Hebrew Union College-Jewish Institute of Religion, Jerusalem.
- Gregori, Barbara
 1986 “Three-Entrance” City-Gates of the Middle Bronze Age in Syria and Palestine. *Levant* 18:83–102.
- Guardata, F. Baffi
 1990 Tell Touqan, une ville paléosyrienne. *Annales Archéologiques Arabes Syriennes* 40:64–75.
 1994 Tell Tuqan (Siria): campagna di scavi 1993. La porta urbana di Sud-Est. *Orient-Express* 1994/1:14–5.
 2000 Les tombes du Bronze Moyen dans le secteur des fortifications à Ebla. In *Proceedings of the First International Congress on the Archaeology of the Ancient Near East, Rome May 18th–23rd 1998*, vol. 2. eds. P. Matthiae, et al., pp. 55–78. Università degli Studi di Roma “La Sapienza”, Rome.
- Guy, P. L. O.
 1931 *New Light from Armageddon: Second Provisional Report (1927–29) on the Excavations at Megiddo in Palestine*. Oriental Institute Communications 9. University of Chicago Press, Chicago.

- Hachmann, Rolf
 1991 Kamid el-Loz 1963–1981: German Excavations in Lebanon, Part I. *Berytus Archaeological Studies* 37.
- Haines, Richard C.
 1971 *Excavations in the Plain of Antioch II*. Oriental Institute Publications 95. University of Chicago Press, Chicago.
- Hall, Gerald; Sam McBride and Alwyn Riddell
 1973 Architectural Study (Äsvan 1968–1972 Interim Report). *Anatolian Studies* 23:245–69.
- Hall, Harry Reginald
 1923 The Hittites and the Egyptians. In *Anatolian Studies Presented to Sir William Mitchell Ramsay*, pp. 165–85. Manchester University Press, London.
- Hallo, William W. (ed.)
 1992–2002 *The Context of Scripture*. 3 vols. Brill, Leiden.
- Hammond, Philip C.
 1968 Hebron. *Revue Biblique* 75:253–8.
- Harif, Amos
 1978 Middle Kingdom Architectural Elements in Middle Bronze Age Megiddo. *Zeitschrift des deutschen Palästina-Vereins* 94/2:24–31.
- Harvey, Stephen P.
 2001 Tribute to a Conquering King. *Archaeology* 54/4:52–5.
- Hawkins, J. D.
 1997 Carchemish. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 1. ed. E. M. Meyers, pp. 423–4. Oxford University Press, New York.
- Heltzer, Michael
 1982 *The Internal Organization of the Kingdom of Ugarit*. Ludwig Reichert Verlag, Wiesbaden.
- Herbordt, Suzanne; Kay Kohlmeyer; Wido Ludwig and Eva Strommenger
 1982 Ausgrabungen in Tall Bi‘a 1981. *Mitteilungen der deutschen Orient-Gesellschaft* 114:79–101.
- Herr, Larry G. (ed.)
 2000 *Madaba Plains Project 4: The 1992 Season at Tall al-‘Umayri and Subsequent Studies*. Madaba Plains Project. Andrews University, Berrien Springs, MI.
- Herzog, Ze‘ev
 1984a Tel Gerisa—1981/1982. *Excavations and Surveys in Israel* 1 (1982):28–31.
 1984b Tel Gerisa, 1983. *Israel Exploration Journal* 34:55–6.
 1986 *Das Stadttor in Israel und in der Nachbarländern*. Translated by M. Fischer. Philipp von Zabern, Mainz.
 1989 Middle and Late Bronze Age Settlements (Strata XVII–XV). In *Excavations at Tel Michal, Israel*, eds. Z. Herzog, G. R. Rapp and O. Negbi, pp. 29–42. Publications of the Institute of Archaeology, 8. University of Minnesota Press, Minneapolis.
 1990 Tel Gerisa—1986. *Excavations and Surveys in Israel* 7–8 (1988/89):60–2.
 1991 Tel Gerisa—1988. *Excavations and Surveys in Israel* 9 (1989/1990):51–2.
 1992 Cities. In *The Anchor Bible Dictionary*, vol. 1. ed. D. N. Freedman, pp. 1031–43. 1st ed. Doubleday, New York.
 1993a Gerisa, Tel. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 480–4. 2nd-English ed. Israel Exploration Society, Jerusalem.

- 1993b Michal, Tel. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 1036–41. 2nd-English ed. Israel Exploration Society, Jerusalem.
- 1997a *Archaeology of the City: Urban Planning in Ancient Israel and Its Social Implications*. Monograph Series 13. Emery and Claire Yass Archaeology Press, Jerusalem.
- 1997b Gerisa, Tel. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 2. ed. E. M. Meyers, pp. 394–6. Oxford University Press, New York.
- Herzog, Ze'ev; George Robert Rapp and Ora Negbi
1989 *Excavations at Tel Michal, Israel*. Publications of the Institute of Archaeology 8. University of Minnesota Press, Minneapolis.
- Heusch, Jan-Christoph
1979 Tall Habuba Kabira im 3. und 2. Jahrtausend—die Entwicklung der Baustuktur. In *Le Moyen Euphrate: Actes du Colloque de Strasbourg 10–12 mars 1977*, ed. J.-C. Margueron, pp. 159–99, Strasbourg.
- Holland, Thomas A.
1976 Preliminary Report on Excavations at Tell es-Sweyhat, Syria, 1973–4. *Levant* 8:36–70.
1977 Preliminary Report on Excavations at Tell es-Sweyhat, Syria, 1975. *Levant* 9:36–65.
- Hölscher, Uvo
1941 *The Excavation of Medinet Habu III: The Mortuary Temple of Ramses III, Part 1*. Oriental Institute Publications 54. University of Chicago Press, Chicago.
1951 *The Excavation of Medinet Habu IV: The Mortuary Temple of Ramses III, Part 2*. Oriental Institute Publications 55. University of Chicago Press, Chicago.
- Horsnell, Malcolm John Albert (ed.)
1999 *The Year-Names of the First Dynasty of Babylon II, The Year-Names Reconstructed and Critically Annotated in the Light of Their Exemplars*. McMaster University Press, Hamilton, ON.
- Hrouda, Barthel
1997 Isin. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 3. ed. E. M. Meyers, pp. 186–7. Oxford University Press, New York.
- Humbert, Jean-Baptiste
1993 Keisan, Tell. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 862–7. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Hütteroth, Wolf-Dieter and Kamal Abdulfattah
1977 *Historical Geography of Palestine, Transjordan and Southern Syria in the Late 16th Century*. Erlanger Geographische Arbeiten 5. Fränkischen Geographischen Gesellschaft, Erlangen.
- Ibrahim, Moawiyah M.
1989 Sahab. In *Archaeology of Jordan II. 2, Field Reports: Surveys and Sites L–Z*, eds. Homés-Fredericq and J. B. Hennessey, pp. 516–20. Akkadica Supplementum 7. Peeters, Leuven.
1997 Sahab. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 4. ed. E. M. Meyers, pp. 450–2. Oxford University Press, New York.
- Ilan, David
1995 The Dawn of Internationalism—The Middle Bronze Age. In *The Archaeology of Society in the Holy Land*, ed. T. E. Levy, pp. 297–319. Facts On File, New York.
- Ilan, David; Norma Franklins and Rachel S. Hallote
2000 Area F. In *Megiddo III: The 1992–1996 Seasons*, eds. I. Finkelstein, D. Ussishkin and B. Halpern, pp. 75–103. Graphit Press Ltd., Jerusalem.

- Ingholt, Harald (ed.)
 1940 *Rapport préliminaire sur sept campagnes de fouilles a Hama en Syrie (1932–1938)*. Ejnar Munksgaard, Copenhagen.
- Invernizzi, Antonio
 1992 *Dal Tigri all’Eufrate II: Babilonesi e Assiri*. Studi e Materiali di Archeologia 6. Casa Editrice Le Lettere, Turin.
- Ismail, Farouk; Walther Sallaberger; Philippe Talon and Karel Van Lerberghe (eds.)
 1996 *Administrative Documents from Tell Beydar (Seasons 1993–1995)*. Subartu 2. Brepols, Turnhout.
- Israel Antiquities Authority
 1977 Tel Abu Shusha. *Hadashot Archaeologiyot* 61–62:60–1.
- Jaroš-Deckert, B.
 1984 *Grabung in Asasif 1963–1970. Das Grab des Jnj-jtf.f. Die Wandmalereien der XI. Dynastie*. Archäologische Veröffentlichungen 12. Philipp von Zabern, Mainz am Rhein.
- Jarry, Marc
 1939 Sur une blessure mortelle causée par une flèche de bronze a Ugarit. *Syria* 20:293–5.
- Joffe, Alexander H.
 1997 Palestine: Palestine in the Bronze Age. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 4. ed. E. M. Meyers, pp. 212–7. Oxford University Press, New York.
- Kaplan, Jacob
 1967 “The Fortifications of Jaffa in the Hyksos Period”. at Fourth World Conference of Jewish Studies.
 1969 Yavne-Yam. *Israel Exploration Journal* 19:120–1.
 1971 Mesopotamian Elements in the Middle Bronze II Culture of Palestine. *Journal of Near Eastern Studies* 30:293–307.
 1972a The Archaeology and History of Tel-Aviv—Jaffa. *Biblical Archaeologist* 35:66–95.
 1972b *The Fortifications of Palestine in the MB II Period* [In Hebrew]. Publications of the Jaffa Museum 4. Jaffa Museum, Jaffa.
 1975 Further Aspects of the Middle Bronze Age II Fortifications in Palestine. *Zeitschrift des deutschen Palästina-Vereins* 91:1–17.
 1993 Yavneh-Yam. In *NEAEHL*, vol. 4. ed. E. Stern, pp. 1504–6. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Kaplan, Jacob and Haya Ritter-Kaplan
 1993 Jaffa. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 655–9. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Karageorghis, Vassos and Christine E. Morris (eds.)
 2001 *Defensive Settlements of the Aegean and the Eastern Mediterranean after c. 1200 B.C.: Proceedings of an International Workshop held at Trinity College Dublin, 7th–9th May, 1999*. Nicosia, Cyprus.
- Karam, Naji
 1997 BEY 013 rapport préliminaire. *Bulletin d’Archéologie et d’Architecture Libanaises* 2:107–9.
- Keegan, John
 1976 *The Face of Battle*. Viking Press, New York.
 1993 *A History of Warfare*. Vintage Books, New York.
- Kelly-Buccellati, Marilyn
 1990 Three Seasons of Excavation at Tell Mozan. In *Tall al-Hamidiya 2*. eds. S. Eichler, et al., pp. 119–32. Orbis biblicus et orientalis, series archaeologica 6. Vandenhoeck & Ruprecht, Göttingen.

- Kelso, James Leon
- 1968 *The Excavation of Bethel*. Annual of the American Schools of Oriental Research 39. ASOR, Cambridge.
 - 1993 Bethel. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 192–4. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Kemp, Barry J.
- 1972 Fortified Towns in Nubia. In *Man, Settlement and Urbanism*, eds. P. J. Ucko, R. Tringham and G. W. Dimbleby, pp. 651–6, London.
 - 1983 Old Kingdom, Middle Kingdom and Second Intermediate Period c. 2686–1552 BC. In *Ancient Egypt: A Social History*, eds. B. G. Trigger, et al., pp. 71–182. Cambridge University Press, Cambridge.
 - 1991 *Ancient Egypt: Anatomy of a Civilization*. Routledge, New York.
 - 2000 Soil (including mud-brick architecture). In *Ancient Egyptian Materials and Technology*, eds. P. T. Nicholson and I. Shaw, pp. 78–103. Cambridge University Press, Cambridge.
- Kempinski, Aharon
- 1972 Review of *Gezer I, Preliminary Report of the 1964–66 Seasons* by W. G. Dever, H. D. Lance, and G. E. Wright. *Israel Exploration Journal* 22:183–6.
 - 1974 Tell el-‘Ajjul—Beth Aglayim or Sharuhem? *Israel Exploration Journal* 24/3–4:145–52.
 - 1987a *Excavations at Kabri: Preliminary Report of the 1986 Season* [In Hebrew]. Institute of Archaeology, Dept. of Antiquities, Israel Exploration Society, Tel Aviv.
 - 1987b Middle Bronze Age Fortifications [In Hebrew]. In *Excavations at Kabri: Preliminary Report of the 1986 Season*, ed. A. Kempinski. Institute of Archaeology, Dept. of Antiquities, Israel Exploration Society, Tel Aviv.
 - 1989 *Megiddo: A City-State and Royal Centre in North Israel*. *Materialien zur Allgemeinen und Vergleichenden Archäologie* 40. Verlag C. H. Beck, Munich.
 - 1991a The Earthen Rampart and Fortification [In Hebrew]. In *Excavations at Kabri: Preliminary Report of the 1990 Season 5*, eds. A. Kempinski and W.-D. Niemeier, pp. 24–6. Tel Aviv University, Tel Aviv.
 - 1991b Kabri—1990. *Excavations and Surveys in Israel* 10:76–7.
 - 1992a Dan and Kabri—A Note on the Planning of Two Cities [In Hebrew]. *Eretz-Israel* 23:76–81.
 - 1992b Fortifications, Public Buildings, and Town Planning in the Early Bronze Age. In *The Architecture of Ancient Israel: From the Prehistoric to the Persian Periods*, eds. A. Kempinski and R. Reich, pp. 68–80. English ed. Israel Exploration Society, Jerusalem.
 - 1992c Middle and Late Bronze Age Fortifications. In *The Architecture of Ancient Israel: From the Prehistoric to the Persian Periods*, eds. A. Kempinski and R. Reich, pp. 127–42. English ed. Israel Exploration Society, Jerusalem.
 - 1992d The Middle Bronze Age. In *The Archaeology of Ancient Israel*, ed. A. Ben-Tor, pp. 159–210. Translated by R. Greenberg. Yale University Press, New Haven.
 - 1992e Urbanization and Town Plans in the Middle Bronze Age II. In *The Architecture of Ancient Israel: From the Prehistoric to the Persian Periods*, eds. A. Kempinski and R. Reich, pp. 121–6. English ed. Israel Exploration Society, Jerusalem.
 - 1993a Kabri. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 839–41. 2nd-English ed. Israel Exploration Society, Jerusalem.

- 1993b Masos, Tel. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 986–9. 2nd-English ed. Israel Exploration Society, Jerusalem.
- 2002a Area C. In *Tel Kabri: The 1986–1993 Excavation Seasons*. ed. A. Kempinski, pp. 35–54. Monograph Series 20. Emery and Claire Yass Archaeology Press, Tel Aviv.
- 2002b *Tel Kabri: The 1986–1993 Excavation Seasons*. Monograph Series 20. Emery and Claire Yass Archaeology Press, Tel Aviv.
- Kempinski, Aharon and Wolf-Dietrich Niemeier (eds.)
- 1991 *Excavations at Kabri: Preliminary Report of the 1990 Season 5* [In Hebrew]. Tel Aviv University, Tel Aviv.
- 1994 *Excavations at Kabri: Preliminary Report of the 1992–1993 Seasons, 7–8* [In Hebrew]. Tel Aviv University, Tel Aviv.
- Kendall, Timothy
- 1975 *Warfare and Military Matters in the Nuzi Tablets*. Ph.D. dissertation, Department of Mediterranean Studies, Brandeis University.
- Kenyon, Kathleen M.
- 1952 Excavations at Jericho, 1952. *Palestine Exploration Quarterly* 1952:62–82.
- 1958 Some Notes on the Early and Middle Bronze Age Strata at Megiddo. *Eretz-Israel* 5:51*–60*.
- 1966 *Amorites and Canaanites*. Israel Exploration Society, Jerusalem.
- 1967 *Jerusalem: Excavating 3000 Years of History*. Thames and Hudson, London.
- 1969 The Middle and Late Bronze Age Strata at Megiddo. *Levant* 1:25–60.
- 1973 Palestine in the Middle Bronze Age. In *History of the Middle East and the Aegean Region c. 1800–1380 B.C.*, vol. II:1. eds. I. E. S. Edwards, et al., pp. 77–116. 3rd ed. The Cambridge Ancient History. Cambridge University Press, Cambridge.
- 1974 *Digging Up Jerusalem*. Ernest Benn Ltd., London.
- 1979 *Archaeology in the Holy Land*. 4th ed. W. W. Norton and Co. Inc., New York.
- 1981 *Excavations at Jericho III: The Architecture and Stratigraphy of the Tell*. 2 vols. British School of Archaeology in Jerusalem, London.
- 1993 Jericho. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 674–81. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Kepinski-Lecomte, Christine (ed.)
- 1992 *Haradum I: Une ville nouvelle sur le Moyen-Euphrate (XVIII^e–XVII^e av. J.-C.)*. Éditions Recherche sur les Civilisations, Paris.
- Kern, Paul Bentley
- 1999 *Ancient Siege Warfare*. Indiana University Press, Bloomington, IN.
- Khadour, Muhammad; Antoine Suleiman and Dietrich Sürenhagen
- 1997 Gindaris. *American Journal of Archaeology* 101/1:118–9.
- Kienast, Burkhart
- 1980 Der Feldzugsbericht des Ennadagan in literarhistorischer Sicht. *Oriens Antiquus* 19:247–61.
- Klengel, Horst
- 1965–1970 *Geschichte Syriens im 2. Jahrtausend v. u. Z.* 3 vols. Akademie-Verlag, Berlin.
- 1987 Non-Slave Labour in the Old Babylonian Period: The Basic Outlines. In *Labor in the Ancient Near East*, ed. M. A. Powell, pp. 159–66. American Oriental Society, New Haven.
- 1992 *Syria 3000 to 300 BC: A Handbook of Political History*. Akademie Verlag, Berlin.

- Knapp, Arthur Bernard
 1989 Complexity and Collapse in the North Jordan Valley: Archaeometry and Society in the Middle–Late Bronze Ages. *Israel Exploration Journal* 39:129–48.
 1993 *Society and Polity at Bronze Age Pella: An Annales Perspective*. JSOT/ASOR monograph series 6. Sheffield Academic Press, Sheffield.
- Knudstad, James
 1966 Serra East and Dorginarti. *Kush* 14:165–86.
- Kochavi, Moshe
 1967 Tel Malhata. *Israel Exploration Journal* 17:272–3.
 1974 Tel Aphek. *Israel Exploration Journal* 24/3–4:261–2.
 1975 The First Two Seasons of Excavations at Aphek-Antipatris. *Tel Aviv* 2/4:17–42.
 1993 Malhata, Tel. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 934–6. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Kochavi, Moshe; Pirhiya Beck and Ram Gophna
 1979 Aphek-Antipatris, Tel Poleg, Tel Zeror and Tel Burga: Four Fortified Sites of the Middle Bronze Age IIA in the Sharon Plain. *Zeitschrift des deutschen Palästina-Vereins* 95:121–65.
- Kochavi, Moshe; Pirhiya Beck and Esther Yadin (eds.)
 2000 *Aphek-Antipatris I: Excavation of Areas A and B, The 1972–1976 Seasons*. Emery and Claire Yass Publications in Archaeology, Tel Aviv.
- Kolinski, Rafal
 2001 *Mesopotamian dimatu of the Second Millennium BC*. BAR International Series 1004. Archaeopress, Oxford.
- Van der Kooij, G. and Moawiyah M. Ibrahim
 1989 *Picking Up the Threads...A Continuing Review of the Excavations at Deir Alla, Jordan*. University of Leiden, Leiden.
- Korfmann, Manfred
 1972 *Schleuder und Bogen in Südwestasien; von den frühesten Belegen bis zum Beginn der historischen Stadtstaaten*. Antiquitas. Reihe 3, Abhandlungen zur Vor- und Frühgeschichte, zur klassischen und provinzial-römischen Archäologie und zur Geschichte des Altertums 13. R. Habelt, Bonn.
 1973 The Sling as a Weapon. *Scientific American* 229/Oct.:34–42.
- Kotter, Wade Ralph
 1986 *Spatial Aspects of the Urban Development of Palestine during the Middle Bronze Age*. Ph.D. dissertation. Department of Anthropology, University of Arizona.
- Kouchoukos, Nicholas
 1999 *Landscape and Social Change in Late Prehistoric Mesopotamia*. Ph.D., Yale University.
- Koucky, Frank L.
 forthcoming Early Maps and Records. In *Ashkelon I*, eds. L. E. Stager and J. D. Schloen. Eisenbrauns, Winona Lake, IN.
- Kraus, Fritz Rudolph
 1948 Ein Altakkadisches Festungsbild. *Iraq* 10/2:81–92.
- Kühne, Hartmut and Hans Steuerwald
 1979 Das Nordost-Tor von Tell Mumbaqaat. In *Le Moyen Euphrate: Actes du Colloque de Strasbourg 10–12 mars 1977*, ed. J.-C. Margueron, pp. 203–15, Strasbourg.
- Kuschke, A.; Siegfried Mittmann and Uwe Müller
 1976 *Archaeologische Survey in der nordlichen Biga, 1972*.

- Lagarce, Jacques
 1984 Remarques sur des ouvrages de soutènement et de défense à Ras Shamra et à Ras Ibn Hani. *Syria* 61:153–79.
- Lambert, Wilfred G.
 1990 Haram, Il-Halam and Aleppo. *Mari annales de recherches interdisciplinaires* 6:641–3.
- Lapp, Paul W.
 1964 The 1963 Excavations at Tell Ta’anek. *Bulletin of the American Schools of Oriental Research* 173:4–44.
 1967 The 1966 Excavations at Tell Ta’anek. *Bulletin of the American Schools of Oriental Research* 185:2–39.
 1969 The 1968 Excavations at Tell Ta’anek. *Bulletin of the American Schools of Oriental Research* 195:2–49.
- Lavee, Hanoch; Moshe Wieder and Israel Finkelstein
 1993 Micromorphological Investigation of the Middle Bronze Age Glacis. In *Shiloh: The Archaeology of a Biblical Site*. eds. I. Finkelstein, S. Bunimovitz and Z. Lederman, pp. 294–302. Monograph Series 13. Emery and Claire Yass Archaeology Press, Tel Aviv.
- Lawrence, A. W.
 1965 Ancient Egyptian Fortifications. *Journal of Egyptian Archaeology* 51:69–94.
- Lazzeri, Simona and Nicola Macchioni
 2000 Appendix E: Identification of the Wooden Species of Some Charcoals from the 1998 Excavations at Jericho. In *Excavations at Jericho, 1998: Preliminary Reports on the Second Season of Archaeological Excavations and Surveys at Tell es-Sultan, Palestine*. eds. N. Marchetti and L. Nigro, pp. 333–44. Quaderni di Gerico 2. Università di Roma «La Sapienza», Rome.
- Lebeau, Marc
 1997a Beydar. *American Journal of Archaeology* 101/1:111–2.
 1997b La situation géographique, la topographie et les périodes d’occupation de Tell Beydar. In *Tell Beydar, Three Seasons of Excavations (1992–1994)*. ed. A. Suleiman, pp. 7–19. Subartu 3. Brepols, Turnhout.
- Lebeau, Marc and Antoine Suleiman (eds.)
 1997 *Tell Beydar, Three Seasons of Excavations (1992–1994)*. Subartu 3. Brepols, Turnhout.
- LeBlanc, Steven A.
 2003 Prehistory of Warfare. *Archaeology* 56/3:18–25.
- Lederman, Zvi
 1985 “The Building Technique at Shiloh in the Middle Bronze Age II and the “Millo” of Shechem”. at Eleventh Archaeological Conference in Israel: Abstracts of Lectures, Jerusalem.
 1993 Area C: The Iron Age I Pillared Buildings and Other Remains. In *Shiloh: The Archaeology of a Biblical Site*, eds. I. Finkelstein, S. Bunimovitz and Z. Lederman, pp. 15–34. Monograph Series 10. Emery and Claire Yass Archaeology Press, Tel Aviv.
- Lederman, Zvi and Israel Finkelstein
 1993 Area D: Middle Bronze Age Stone and Earth Works, Late Bronze Age Dumped Debris and Iron Age I Silos. In *Shiloh: The Archaeology of a Biblical Site*, eds. I. Finkelstein, S. Bunimovitz and Z. Lederman, pp. 35–48. Monograph Series 10. Emery and Claire Yass Archaeology Press, Tel Aviv.

- Leemans, William F.
 1982 The Pattern of Settlement in the Babylonian Countryside. In *Societies and Languages of the Ancient Near East: Studies in Honour of I. M. Diakonoff*, ed. M. A. Dandamayev, pp. 246–9. Aris & Phillips, Warminster, England.
- Lehmann, Gunnar
 2002 *Bibliographie der archäologischen Fundstellen und Surveys in Syrien und Libanon*. Orient-Archäologie 9. Verlag Marie Leidorf GmbH, Berlin.
- Lehmann, Gunnar; Roland Lamprichs; Susanne Kerner and Reinhard Bernbeck
 1991 The 1990 Excavations at Abu Sneseh: Preliminary Report. *Annual of the Department of Antiquities of Jordan* 35:41–62.
- Lehmann, Gunnar and Tammi J. Schneider
 2000 Tell el-Far‘ah (South), 1999 and 2000. *Israel Exploration Journal* 50/3–4:258–61.
- Lenzen, Cherie J.
 1992 Irbid, Tell. In *The Anchor Bible Dictionary*, vol. 3. ed. D. N. Freedman, pp. 456–7. 1st ed. Doubleday, New York.
- Lenzen, Cherie J. and A. M. McQuitty
 1989 Irbid (Tell). In *Archaeology of Jordan II. 1, Field Reports: Surveys and Sites A–K*, eds. Homès-Fredericq and J. B. Hennessey, pp. 298–300. Akkadica Supplementum 7. Peeters, Leuven.
- Leonard, Albert
 1989 The Late Bronze Age. *Biblical Archaeologist* 52:4–39.
- Van Lerberghe, K. and Gabriela Voet
 2001 *Tell Beydar: Environmental and Technical Studies*. Subartu 6. Brepols, Turnhout.
- Lichtheim, Miriam
 1973–80 *Ancient Egyptian Literature*. 3 vols. University of California Press, Berkeley, CA.
- Littauer, Mary Aiken (ed.)
 2002 *Selected Writings on Chariots and Other Early Vehicles, Riding and Harness*. Culture and History of the Ancient Near East, 1566–2055 6. E. J. Brill, Leiden.
- Littauer, Mary Aiken and J. H. Crouwel
 1979 *Wheeled Vehicles and Ridden Animals in the Ancient Near East*. Handbuch der Orientalistik, Kunst und Archäologie I/B2 L.1. E. J. Brill, Leiden.
 1985 *Chariots and Related Equipment from the Tomb of Tut‘ankhamun*. Tut‘ankhamun Tomb Series 3, Oxford.
- Liverani, Mario
 1982 Ville et campagne dans le royaume d’Ugarit. Essai d’analyse économique. In *Societies and Languages of the Ancient Near East: Studies in Honour of I. M. Diakonoff*, ed. M. A. Dandamayev, pp. 250–8. Aris & Phillips, Warminster, England.
- Lönnquist, Minna Angelina
 2000 *Between Nomadism and Sedentism: Amorites from the Perspective of Contextual Archaeology*. Juutiprint, Helsinki.
- van Loon, Mauritis N. (ed.)
 1988 *Hammam et-Turkman I: Report on the University of Amsterdam’s 1981–1984 Excavations in Syria*. Publications de l’Institut historique-archéologique néerlandais de Stamboul 63. 2 vols. Nederlands Instituut voor Het Nabije Oosten, Leiden.

- 2001 *Selenkahiye: Final Report on the University of Chicago and University of Amsterdam Excavations in the Tabqa Reservoir, Northern Syria, 1967–1975*. Publications de l'Institut historique-archéologique néerlandais de Stamboul 91. Nederlands Instituut voor Het Nabije Oosten, Leiden.
- van Loon, Maurits N. and Diederik J. W. Meijer
1987 Hammam et-Turkman on the Balikh: First Results of the University of Amsterdam's 1986 Excavation. *Akkadica* 52:1–9.
- Loud, Gordon
1948 *Megiddo II: Season of 1935–1939*. Oriental Institute Publications 62. University of Chicago Press, Chicago.
- Ludwig, Wido; Eva Strommenger and Ruth Opificius
1970 Die Grabung auf dem Tell Habuba Kabira. *Mitteilungen der deutschen Orient-Gesellschaft* 102:30–58.
- Lyonnet, Bertille
1998 Le peuplement de la Djéziré occidentale au début du 3e millénaire, villes circulaires et pastoralisme: questions et hypothèses, pp. 179–93. Subartu 4/1. Brepols, Turnhout.
- Ma'ayeh, Farah S.
1960 Recent Archaeological Discoveries in Jorda: Tel Safut (Sweileh). *Annual of the Department of Antiquities of Jordan* 4–5:115.
- Macalister, R. A. Stewart
1912 *The Excavation of Gezer 1902–1905 and 1907–1909*. 3 vols. Palestine Exploration Fund, London.
1926 *Excavations on the Hill of Ophel, Jerusalem 1923–1925*. Annual of the Palestine Exploration Fund 4. Palestine Exploration Fund, Manchester, England.
- MacDonald, Eann; James Leslie Starkey and Lankester Harding
1932 *Beth-Pelet II: Prehistoric Fara, Beth-Pelet Cemetery*. British School of Archaeology in Egypt 52. British School of Archaeology in Egypt, London.
- Machule, Dittmar, et al.
1992 Ausgrabungen in Tall Munbaqa/Ekalte 1990. *Mitteilungen der deutschen Orient-Gesellschaft* 124:11–40.
- Machule, Dittmar; Mathias Benter; Rainer M. Czichon and Marta Luciana
1993 Ausgrabungen in Tall Munbaqa/Ekalte 1991. *Mitteilungen der deutschen Orient-Gesellschaft* 125:69–101.
- Machule, Dittmar; Mathias Benter; Rainer M. Czichon and Peter Werner
1996 Tall Munbaqa/Ekalte 1994. *Mitteilungen der deutschen Orient-Gesellschaft* 128:11–32.
- Machule, Dittmar, et al.
1986 Ausgrabungen in Tall Munbaqa 1984. *Mitteilungen der deutschen Orient-Gesellschaft* 118:67–146.
- Machule, Dittmar and Dieter Rentschaler
1971 Arbeiten in Mumbaqa und Beobachtungen in der Umgebung. *Mitteilungen der deutschen Orient-Gesellschaft* 103:48–58.
- Mackenzie, Duncan
1911 Excavations at Ain Shems (Beth-Shemesh). In *Annual of the Palestine Exploration Fund 1911*, pp. 41–94. Palestine Exploration Fund, Manchester, England.
1913 *Excavations at Ain Shems (Beth-Shemesh)*. Annual of the Palestine Exploration Fund 1912–1913. Palestine Exploration Fund, Manchester, England.

- Magness-Gardiner, Bonnie
 1994 Urban-Rural Relations in Bronze Age Syria: Evidence from Alalakh Level VII Palace Archives. In *Archaeological Views from the Countryside: Village Communities in Early Complex Societies*, eds. G. M. Schwartz and S. E. Falconer, pp. 37–47. Smithsonian Institution Press, Washington, D.C.
- Maier, Aren M.
 2000 Hamadiya North: A Rural MBII Settlement in the Beth She'an Valley. *'Atiqot* 39:31–42.
- Malamat, Abraham
 1992 Mari and Hazor: The Implication for the Middle Bronze Age Chronology. *Égypten und Levante* 3:121–3.
- Mallet, Joël
 1973 *Tell el-Far'ah (Région de Naplouse): L'installation du Moyen Bronze antérieure au rempart*. Cahiers de la Revue Biblique 14. J. Gabalda et C^{ie}, Éditeurs, Paris.
 1988 *Tell el-Fâr'ah II: Le bronze moyen, stratigraphie des vestiges du bronze moyen II*. Recherche sur les Civilisations 66. 3 vols. Éditions Recherche sur les Civilisations, Paris.
- Mallowan, Max E. L.
 1966 *Nimrud and Its Remains*. 3 vols. British School of Archaeology in Iraq, New York.
- Marchetti, Nicolò
 1998 L'Area A. Le fortificazioni e l'insediamento del bronzo medio II–III. In *Scavi a Gerico, 1997. Relazione preliminare sulla prima campagna di scavi e prospezioni archeologiche a Tell es-Sultan, Palestina*. eds. N. Marchetti and L. Nigro, pp. 118–97. Quaderni di Gerico 1. Università di Roma «La Sapienza», Rome.
 2000 Area A. The Middle Bronze II Public Building and Residential Quarter in the Lower Town. In *Excavations at Jericho, 1998: Preliminary Reports on the Second Season of Archaeological Excavations and Surveys at Tell es-Sultan, Palestine*. eds. N. Marchetti and L. Nigro, pp. 193–281. Quaderni di Gerico 2. Università di Roma «La Sapienza», Rome.
- Marchetti, Nicolò and Lorenzo Nigro (eds.)
 2000 *Excavations at Jericho, 1998: Preliminary Reports on the Second Season of Archaeological Excavations and Surveys at Tell es-Sultan, Palestine*. Quaderni di Gerico 2. Università di Roma «La Sapienza», Rome.
- Marchetti, Nicolò and Jehad Yasin
 2000 Area E. The South-Western Middle Bronze I–II Fortifications. In *Excavations at Jericho, 1998: Preliminary Reports on the Second Season of Archaeological Excavations and Surveys at Tell es-Sultan, Palestine*. eds. N. Marchetti and L. Nigro, pp. 181–92. Quaderni di Gerico 2. Università di Roma «La Sapienza», Rome.
- Marfoe, Leon
 1995 *The Prehistoric and Early Historic Context of the Site: Catalogue and Commentary*. Kamid el-Loz 13. Dr. Rudolf Habelt Verlag GMBH, Bonn.
 1998 *Settlement History of the Bīqā' up to the Iron Age*. Kamid el-Loz 14. Dr. Rudolf Habelt Verlag GMBH, Bonn.
- Margueron, Jean-Claude
 1982 Mari: rapport préliminaire sur la campagne de 1979. *Mari annales de recherches interdisciplinaires* 1:9–30.
 1983 Mari: rapport préliminaire sur la campagne de 1980. *Mari annales de recherches interdisciplinaires* 2:9–35.

- 1984 Mari: rapport préliminaire sur la campagne de 1982. *Mari annales de recherches interdisciplinaires* 3:7–39.
- 1987 État présent des recherches sur l’urbanisme de Mari–I. *Mari annales de recherches interdisciplinaires* 5:483–98.
- 1995 Emar, Capital of Ashtata in the Fourteenth Century BCE. *Biblical Archaeologist* 58/3:126–38.
- 1997a Larsa. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 3. ed. E. M. Meyers, pp. 331–3. Translated by N. W. Leinwand. Oxford University Press, New York.
- 1997b Mari. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 3. ed. E. M. Meyers, pp. 413–7. Translated by N. W. Leinwand. Oxford University Press, New York.
- 2000 Mari: derniers développements des recherches conduites sur le tell Hariri. In *Proceedings of the First International Congress on the Archaeology of the Ancient Near East, Rome May 18th–23rd 1998*, vol. 2. eds. P. Matthiae, et al., pp. 909–28. Università degli Studi di Roma “La Sapienza”, Rome.
- Marín, Juan Antonio Belmonte
- 2001 *Répertoire Géographique des Textes Cunéiformes, Band 12/2: Die Orts- und Gewässernamen der Texte aus Syrien im 2. Jt. v. Chr.* Beihefte zum Tübinger Atlas des Vorderen Orients. Dr. Ludwig Reichert Verlag, Wiesbaden.
- Marquis, Philippe
- 1995 Les fouilles du centre-ville, état d’avancement des travaux: mars à septembre 1995. *National Museum News* /2:10–1.
- Marsden, E. W.
- 1969 *Greek and Roman Artillery: Historical Development*. Oxford University Press, Oxford.
- 1971 *Greek and Roman Artillery: Technical Treatises*. Oxford University Press, Oxford.
- Matthiae, Paolo
- 1967 Mission archéologique de l’Université de Rome à Tell Mardikh. *Annales Archéologiques Arabes Syriennes* 17/1–2:25–43.
- 1968 Mission archéologique de l’Université de Rome à Tell Mardikh (1966). *Annales Archéologiques Arabes Syriennes* 18/1–2:5–20.
- 1970 Mission archéologique de l’Université de Rome à Tell Mardikh. Rapport sommaire sur la quatrième et la cinquième campagnes, 1967 et 1968. *Annales Archéologiques Arabes Syriennes* 20:55–72.
- 1977a *Ebla. Un impero ritrovato. Dai primi scavi alle ultime scoperte*. 1st ed. Einaudi, Turin.
- 1977b Le palais royal protosyrien d’Ebla: nouvelles recherches archéologiques à Tell Mardikh en 1976. *Comptes rendus de l’Académie des inscriptions et belles-lettres*. 1977:148–74.
- 1979 Sondages à Tell Touqan (Syrie), 1978. *Akkadica* 14:6–10.
- 1980a Campagne de fouilles à Tell Mardikh-Ebla en 1979: les tombes princières et le Palais de la ville basse à l’époque amorrhéene. *Comptes rendus de l’Académie des inscriptions et belles-lettres*. 1980:94–118.
- 1980b *Ebla: An Empire Rediscovered*. Translated by C. Holme. Hodder and Stoughton, London.
- 1982a Fouilles de 1981 à Tell Mardikh-Ebla et à Tell Touqan: nouvelles lumières sur l’architecture paléosyrienne du Bronze Moyen I–II. *Comptes rendus de l’Académie des inscriptions et belles-lettres*. 1982:299–331.

- 1982b The Western Palace of the Lower City of Ebla: A New Administrative Building of Middle Bronze I–II. *Archiv für Orientforschung. Beiheft* 19:121–9.
- 1983 Tell Tuqan bei Ebla. Eine neue, grosse altsyrische Stadt. *Antike Welt* 14:40–50.
- 1989–1990 Tell Tuqan. *Archiv für Orientforschung* 36–37:335–9.
- 1995a *Ebla. Un impero ritrovato. Dai primi scavi alle ultime scoperte*. 3rd ed. Einaudi, Turin.
- 1995b Tell Mardikh 1977–1996: vingt ans de fouilles et de découvertes. La renaissance d’Ebla amorrhéene. *Akkadica* 101:1–29.
- 1996 Tell Mardikh-Ebla (Siria), campagna di scavi 1995. *Orient-Express* 1996/3:84–7.
- 1997a Ebla. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 2. ed. E. M. Meyers, pp. 180–3. Oxford University Press, New York.
- 1997b Ebla and Syria in the Middle Bronze Age. In *The Hyksos: New Historical and Archaeological Perspectives*. ed. E. D. Oren, pp. 379–414. University Museum Monograph 96. The University Museum, University of Pennsylvania, Philadelphia.
- 1997c Tell Mardikh 1977–1996: vingt ans de fouilles et de découvertes. La renaissance d’Ebla amorrhéenne. *Akkadica* 101:1–29.
- 1998 Les fortifications de l’Ébla paléo-syrienne: fouilles à Tell Mardikh, 1995–1997. *Comptes rendus de l’Académie des inscriptions et belles-lettres* 1998/2:557–88.
- 2000 Nouvelles fouilles à Ébla (1998–1999): forts et palais de l’enceinte urbaine paléo-syrienne: fouilles Tell Mardikh. *Comptes rendus de l’Académie des inscriptions et belles-lettres* 2000/2:567–610.
- Mazar, Amihai
- 1990 *Archaeology of the Land of the Bible 10,000–586 BCE*. 1st ed. Anchor Bible Reference Library. Doubleday, New York.
- 1997a Area P. In *Hazor V, An Account of the Fifth Season of Excavations, 1968*, eds. A. Ben-Tor and R. Bonfil, pp. 353–86. Israel Exploration Society, The Hebrew University, Jerusalem.
- 1997b *Timnah (Tel Batash) I: Stratigraphy and Architecture*. Qedem 37. 2 vols. Institute of Archaeology, Hebrew University, Jerusalem.
- 1999 The 1997–1998 Excavations at Tel Rehov: Preliminary Report. *Israel Exploration Journal* 49:1–42.
- Mazar, Benjamin
- 1968 The Middle Bronze Age in Palestine. *Israel Exploration Journal* 18:65–97.
- 1970 Canaan in the Patriarchal Age. In *The World History of the Jewish People, Vol. 2*, ed. B. Mazar, pp. 169–87. Ancient Times (Patriarchs and Judges). Massada Publishing Company, Tel Aviv.
- Mazzoni, Stefania
- 1992 *Tell Afis e l’età del ferro*. Seminari di Orientalistica 2. Gardini Editori e Stampatori, Pisa.
- 1994 Afis. *American Journal of Archaeology* 98/1:146–9.
- 2002 Late Bronze Age Pottery Production in Northwestern Central Syria. In *Céramique de L’âge du Bronze en Syrie, I: La Syrie du sud et la vallée de l’Oronte*. eds. M. al-Maqdissi, V. Matoian and C. Nicolle, pp. 129–51. Bibliothèque archéologique et historique 161. Institut Français d’Archéologie du Proche-Orient, Beyrouth.

- McClellan, Thomas L.
 1984–85 El-Qitar: Second Season of Excavations, 1983–1984. *Abr-Nahrain* 23:39–72.
 1986 El-Qitar: Third Season of Excavation, 1984–1985. *Abr-Nahrain* 24:83–106.
- McLeod, Wallace
 1965 The Range of the Ancient Bow. *Phoenix* 19:1–14.
 1970 *Composite Bows From the Tomb of Tut‘ankhamun*. Tut‘ankhamun’s tomb series 3. Griffith Institute, Oxford.
 1972 The Range of the Ancient Bow: Addenda. *Phoenix* 26:78–82.
- Meijer, Diederik J. W.
 1988 Architecture and Stratigraphy. In *Hammam et-Turkman I: Report on the University of Amsterdam’s 1981–1984 Excavations in Syria*. ed. M. N. van Loon, pp. 69–127. Publications de l’Institut historique-archéologique néerlandais de Stamboul 63.
 1989 Hammam et-Turkman on the Balikh: First Results of the Fifth Campaign, 1988. *Akkadica* 64/65:1–12.
 1997 Hammam al-Turkman. *American Journal of Archaeology* 101/1:121–2.
 2001 Architecture and Stratigraphy. In *Selenkahiye: Final Report on the University of Chicago and University of Amsterdam Excavations in the Tabqa Reservoir, Northern Syria, 1967–1975*, ed. M. N. van Loon, pp. 25–105. Publications de l’Institut historique-archéologique néerlandais de Stamboul 91. Nederlands Instituut voor Het Nabije Oosten, Istanbul.
- Mendelssohn, K.
 1977 *The Riddle of the Pyramids*. New York.
- Mendenhall, George E.
 1992a The Amorite Migrations. In *Mari in Retrospect: Fifty Years of Mari and Mari Studies*, ed. G. D. Young, pp. 233–41. Eisenbrauns, Winona Lake, IN.
 1992b Amorites. In *The Anchor Bible Dictionary*, vol. 1. ed. D. N. Freedman, pp. 199–202. 1st ed. Doubleday, New York.
- du Mesnil du Buisson, Robert
 1926 Les ruines d’el Mishrifé au nord-est de Homs (Émèse). *Syria* 7:289–325.
 1927 L’ancienne Qatna ou les ruines d’el Mishrifé au nord-est de Homs (Émèse), deuxième campagne de fouilles, 1927. *Syria* 8:277–301.
 1932 Une campagne de fouilles a Khan Sheikhoun. *Syria* 13:171–88.
 1935a *Le site archéologique de Mishrifé-Qatna*. Collection de textes et documents d’orient. E. de Boccard, Paris.
 1935b Souran et Tell Masin. *Berytus Archaeological Studies* 2:121–34.
- Meyer, Jan-Waalke
 1996 Offene und geschlossene Siedlungen: Ein Beitrag zur Siedlungsgeschichte und historischen Topographie in Nordsyrien während des 3. und 2. Jts. v. Chr. *Altorientalische Forschungen* 23/1:132–70.
- de Meyer, Léon; Hermann Gasche and Roland Paepe (eds.)
 1971 *Tell ed-Der I: rapport préliminaire sur la première campagne (février 1970)*. Peeters, Leuven.
- Miglus, Peter and Eva Strommenger
 2002 *Tall Bi ‘a-Tuttul VIII: Stadtbefestigungen, Häuser und Tempel*. Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft 103. Saarbrücker Druckerei und Verlag, Saarbrücken.
- Millar, Fergus
 1993 *The Roman Near East, 31 BC–AD 337*. Harvard University Press, Cambridge, MA.

- Miller, R.
1983 Chisel-ended Arrowheads from Tell Hadidi, Syria. *Institute of Archaeology Bulletin London* 20:187–90.
- Miller, R.; E. McEwen and C. Bergman
1986 Experimental Approaches to Ancient Near Eastern Archery. *World Archaeology* 18/2:178–95.
- Minoff, Eli
1992 A Mace Head Mould from Tel Dan. *Eretz-Israel* 23:87*–9*.
- Miron, Eli
1992 *Axes and Adzes from Canaan*. Prähistorische Bronzefunde, pt. IX, vol. 19. Franz Steiner Verlag, Stuttgart.
- de Miroschedji, Pierre
1993 Far‘ah, Tell el- (North). In *NEAEHL*, vol. 2. ed. E. Stern, pp. 433–8. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Moorey, R. S.
1986 The Emergence of the Light, Horse-drawn Chariot in the Near East, c.2000–1500 BC. *World Archaeology* 18/2:196–215.
- Moortgat-Correns, Ursula
1972 *Die Bildwerke vom Djebelet el Beda in Ihrer räumlichen und zeitlichen Umwelt*. Walter de Gruyter, Berlin.
- Moran, William L.
1992 *The Amarna Letters*. Johns Hopkins University Press, Baltimore.
- Morris, Ellen Fowles
2001 *The Architecture of Imperialism: An Investigation into the Role of Fortresses and Administrative Headquarters in New Kingdom Policy*. Ph.D. dissertation, Asian and Middle Eastern Studies, University of Pennsylvania.
- Morris, Ian
1997 An Archaeology of Equalities? The Greek City-States. In *The Archaeology of City-States: Cross-Cultural Approaches*, eds. D. L. Nichols and T. H. Charlton, pp. 91–105. Smithsonian Institution Press, Washington, D.C.
- Mousli, Majed
1989/1990 Tall Safinat-Nouh. *Archiv für Orientforschung* 36–37:300–8.
- Müller, U.
1970 Kritische Bemerkungen zu den Straten XIII bis IX in Megiddo. *Zeitschrift des deutschen Palästina-Vereins* 86:50–86.
- Na‘aman, Nadav
1997 The Network of Canaanite Late Bronze Kingdoms and the City of Ashdod. *Ugarit-Forschungen* 29:599–625.
- Naumann, Rudolf
1971 *Architektur Kleinasiens von ihren Anfängen bis zum Ende der hethitischen Zeit*. 2nd ed. Verlag Ernst Wasmuth, Tübingen.
- Neev, David; N. Bakler and K. O. Emery
1987 *Mediterranean Coasts of Israel and Sinai: Holocene Tectonism from Geology, Geophysics, and Archaeology*. Taylor and Francis, New York.
- Neu, Erich
1995 *Das hurritische Epos der Freilassung, I. Untersuchungen zu einem zweisprachigem Textensemble aus Hattusa*. Studien zu den Bogazköy-Texten 32. Harrassowitz Verlag, Wiesbaden.
- Newberry, Percy E.
1893 *Beni Hasan*. Archaeological Survey of Egypt. Kegan Paul and Co., London.

- 1894 *Beni Hasan II*. Archaeological Survey of Egypt. Kegan Paul and Co., London.
- Newberry, Percy E. and F. L. Griffith
1895 *El Bersheh I*. Archaeological Survey of Egypt. Kegan Paul and Co., London.
- Nigro, Francesco
1998 Appendice A. Il parco archeologico per la conservazione e la valorizzazione di Tell es-Sultan, antica Gerico. In *Scavi a Gerico, 1997. Relazione preliminare sulla prima campagna di scavi e prospezioni archeologiche a Tell es-Sultan, Palestina*. eds. N. Marchetti and L. Nigro, pp. 205–29. Quaderni di Gerico 1. Università di Roma «La Sapienza», Rome.
- Nigro, Lorenzo
1997–1999 Yamkhad/Aleppo: Investigating the Second Millennium B.C. Capital of Northern Syria through Islamic, Byzantine and Classical Towns. In *Trails to the East: Essays in Memory of Paolo Cuneo*, vol. 1/2. eds. M. Calia, et al. Environmental Design.
- 2000 Area D. The Tell Fortifications in Front of the Spring. In *Excavations at Jericho, 1998: Preliminary Reports on the Second Season of Archaeological Excavations and Surveys at Tell es-Sultan, Palestine*. ed. L. Nigro, pp. 165–79. Quaderni di Gerico 2. Università di Roma «La Sapienza», Rome.
- 2002a The MB Pottery Horizon of Tell Mardikh/Ancient Ebla in a Chronological Perspective. In *The Middle Bronze Age in the Levant: Proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th–26th of January 2001*. ed. M. Bietak, pp. 296–328. Contributions to the Chronology of the Eastern Mediterranean 3. M. Bietak and H. Hunger, general eds. Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- 2002b The Middle Bronze Age Pottery Horizon of Northern Inner Syria on the Basis of the Stratified Assemblages of Tell Mardikh and Hama. In *Céramique de L'âge du Bronze en Syrie, I: La Syrie du sud et la vallée de l'Oronte*. eds. M. al-Maqdissi, V. Matoian and C. Nicolle, pp. 97–128. Bibliothèque archéologique et historique 161. Institut Français d'Archéologie du Proche-Orient, Beyrouth.
- Novák, Mirko
1995 Die Stadtmauergrabung. In *Ausgrabungen in Tell Chuera in Nordost-Syrien I: Vorbericht über die Grabungskampagnen 1986 bis 1992*. eds. W. Orthmann, et al., pp. 173–82. Vorderasiatische Forschungen der Max Freiherr von Oppenheim-Stiftung 2. Saarbrücker Druckerei und Verlag, Saarbrücken.
- Novák, Mirko and Peter Pfälzner
2000 Ausgrabungen in Tall Mišrife-Qatna 1999: Vorbericht der deutschen Komponente des internationalen Kooperationsprojektes. *Mitteilungen der deutschen Orient-Gesellschaft* 132:253–95.
- 2001 Ausgrabungen in Mišrife-Qatna 2000: Vorbericht der deutschen Komponente des internationalen Kooperationsprojektes. *Mitteilungen der deutschen Orient-Gesellschaft* 133:157–98.
- Oates, David
1973 Early Vaulting in Mesopotamia. In *Archaeological Theory and Practice*, ed. D. E. Strong, pp. 183–91. Seminar Press, London.
- 1985 Walled Cities in Northern Mesopotamia in the Mari Period. *Mari annales de recherches interdisciplinaires* 4:585–94.

- 1990 Innovations in Mud-Brick: Decorative and Structural Techniques in Ancient Mesopotamia. *World Archaeology* 21/3:389–406.
- Oates, David and Joan Oates
 2001 Archaeological Reconstruction and Historical Commentary. In *Excavations at Tell Brak, Vol. II: Nagar in the 3rd Millennium BC*, eds. D. Oates, J. Oates and H. McDonald, pp. 379–96. Oxbow Books, Oxford.
- Oates, David; Joan Oates and Helen McDonald
 1997 *Excavations at Tell Brak, Vol. I: The Mitanni and Old Babylonian Periods*. Oxbow Books, Oxford.
 2001 *Excavations at Tell Brak, Vol. II: Nagar in the 3rd Millennium BC*. Oxbow Books, Oxford.
- Ofer, Avi
 1993 Hebron. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 606–9. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Ohata, Kiyoshi
 1967 *Tel Zeror II: Report of the Excavation, Second Season, 1965*. Society for Near Eastern Studies, Tokyo.
 1970 *Tel Zeror III: Report of the Excavation, Third Season, 1966*. Society for Near Eastern Studies, Tokyo.
- del Olmo Lete, Gregorio and Joaquín Sanmartín
 2003 *A Dictionary of the Ugaritic Language in the Alphabetic Tradition*. Handbuch der Orientalistik, Section I: The Near and Middle East. 2 vols. Brill, Leiden.
- Opificius, Ruth
 1964 Befestigungen des Zweistromlandes im Beginn des zweiten Jahrtausends. *Baghdader Mitteilungen* 3:78–90.
- Oppenheim, A. Leo
 1954 The Archives of the Palace of Mari II: A Review Article. *Journal of Near Eastern Studies* 13/3:141–8.
 1977 *Ancient Mesopotamia: Portrait of a Dead Civilization*. Revised ed. University of Chicago Press, Chicago.
- Oredsson, Dag
 2000 *Moats in Ancient Palestine*. Coniectanea Biblica Old Testament Series 48. Almqvist & Wiksell International, Stockholm.
- Oren, Eliezer D.
 1975 The Pottery from the Achzib Defence System, Area D: 1963 and 1964 Seasons. *Israel Exploration Journal* 25:211–25.
 1993a Haror, Tel. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 580–4. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1993b Sera', Tel. In *NEAEHL*, vol. 4. ed. E. Stern, pp. 1329–35. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1996 The Middle Bronze Age Defence System at Tel Haror [In Hebrew]. *Eretz-Israel* 25:15–26.
 1997a Haror, Tel. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 2. ed. E. M. Meyers, pp. 474–6. Oxford University Press, New York.
 1997b The “Kingdom of Sharuhēn” and the Hyksos Kingdom. In *The Hyksos: New Historical and Archaeological Perspectives*. ed. E. D. Oren, pp. 253–83. University Museum Monograph 96. The University Museum, University of Pennsylvania, Philadelphia.
 1997c Sera', Tel. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 5. ed. E. M. Meyers, pp. 1–2. Oxford University Press, New York.

- Oren, Eliezer D. and M. A. Morrison
 1986 Land of Gerar Expedition: Preliminary Report for the Seasons of 1982 and 1983. In *Preliminary Reports of ASOR-Sponsored Excavations 1980–1984*, ed. W. E. Rast, pp. 57–87. Eisenbrauns, Winona Lake, IN.
- Oren, Eliezer D.; Y. Yekutieli; P. Nahzhoni and R. Feinsein
 1991 Tel Haror–1988. *Excavations and Surveys in Israel* 9:69–73.
- Orthmann, Winfried
 1976 Mumbaqaat 1974: Vorläufiger Bericht über die von der Deutschen-Orient-Gesellschaft mit Mitteln der Stiftung Volkswagenwerk unternommenen Ausgrabungen. *Mitteilungen der deutschen Orient-Gesellschaft* 106:25–44.
 1997 Chuera, Tell. *The Oxford Encyclopedia of Archaeology in the Near East* 1:491–2.
- Orthmann, Winfried, et al.
 1995 *Ausgrabungen in Tell Chuera in Nordost-Syrien I: Vorbericht über die Grabungskampagnen 1986 bis 1992*. Vorderasiatische Forschungen der Max Freiherr von Oppenheim-Stiftung 2. Saarbrücker Druckerei und Verlag, Saarbrücken.
- Orthmann, Winfried and Hartmut Kühne
 1974 Mumbaqaat 1973: Vorläufiger Bericht über die von der Deutschen-Orient-Gesellschaft mit Mitteln der Stiftung Volkswagenwerk unternommenen Ausgrabungen. *Mitteilungen der deutschen Orient-Gesellschaft* 106:53–97.
- von der Osten, Hans Henning
 1937 *The Alishar Hüyük: Seasons of 1930–1932 Part II*. Oriental Institute Publications 29. University of Chicago Press, Chicago.
 1956 *Svenska Syrienexpeditionen, 1952/3 I, Tell es-Salihiye*. Skrifter Utgivna av Svenska Institutet I Athen 4^o, IV. CVK Gleerup, Lund.
- Özgüç, Tahsin
 1997 Kaneš. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 3. ed. E. M. Meyers, pp. 266–8. Oxford University Press, New York.
- Paepe, Roland; Hermann Gasche and Léon de Meyer
 1978 Sounding B: The Surrounding Wall of Tell ed-Der in Relation to the Regional Fluvial System. In *Tell ed-Der II: Progress Reports (First Series)*, ed. L. de Meyer, pp. 1–35. Peeters, Leuven.
- Paley, Samuel M. and Yosef Porath
 1993 Hefer, Tel. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 609–14. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1997 Early Middle Bronze Age IIA Remains at Tel el-Ifshar, Israel: A Preliminary Report. In *The Hyksos: New Historical and Archaeological Perspectives*. ed. E. D. Oren, pp. 369–78. University Museum Monograph 96. The University Museum, University of Pennsylvania, Philadelphia.
- Paley, Samuel M.; Yosef Porath and Robert R. Stieglitz
 1984 Tel Hefer—1984. *Excavations and Surveys in Israel* 3:44–5.
- Parr, Peter J.
 1960 Excavations at Khirbet Iskander. *Annual of the Department of Antiquities of Jordan* 4–5:128–36.
 1968 The Origin of the Rampart Fortifications of Middle Bronze Age Palestine and Syria. *Zeitschrift des deutschen Palästina-Vereins* 84:18–45.
 1972 Settlement Patterns and Urban Planning in the Ancient Levant: The Nature of the Evidence. In *Man, Settlement and Urbanism*, eds. P. J. Ucko, R. Tringham and G. W. Dimbleby, pp. 805–10, London.

- 1983 The Tell Nebi Mend Project. *Annales Archéologiques Arabes Syriennes* 33:99–117.
- 1991 The Tell Nebi Mend Project: A Progress Report on the Institute of Archaeology's Excavations at Ancient Kadesh-on-the-Orontes in Syria. *Journal of the Ancient Chronology Forum* 4 (1990–1991):78–85.
- 1993 Tell Nebi Mend 1992. *Palestine Exploration Quarterly* 125/1:88.
- 1997 Nebi Mend, Tell. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 4. ed. E. M. Meyers, pp. 114–5. Oxford University Press, New York.
- Parrot, André
- 1958 *Mission archéologique de Mari II: Le palais*. Bibliothèque archéologique et historique 68. Institut Français d'Archéologie de Beyrouth, Paris.
- 1964 Les fouilles de Mari: treizième campagne (printemps 1963). *Syria* 41:3–24.
- Peilstocker, Martin
- 2003 "The Akko Plain (Israel) during the Middle Bronze Age—Urbanism in a Mediterranean Coastal Plain". Paper presented at Annual Meeting of the American Schools of Oriental Research, Atlanta, GA.
- Peltenburg, Edgar J.
- 1996 From Isolation to State Formation in Cyprus, 3500–1500 B.C. In *The Development of the Cypriot Economy: From the Prehistoric Period to the Present Day.*, eds. V. Karageorghis and D. Michaelides, pp. 17–43. Lithographica, Nicosia, Cyprus.
- Pennells, Ernest
- 1983 Middle Bronze Age Earthworks: A Contemporary Engineering Evaluation. *Biblical Archaeologist* 46/1:57–61.
- Peregrine, Peter N.; Andrew Bell; Matthew Braithwaite and Michael D. Danti
- 1997 Geomagnetic Mapping of the Outer Town. In *Subsistence and Settlement in a Marginal Environment: Tell es-Sweyhat, 1989–1995 Preliminary Report*. ed. R. L. Zettler. MASCA Research Papers in Science and Archaeology 14. University of Pennsylvania, Philadelphia.
- Petrie, William M. Flinders
- 1908 *Hyksos and Israelite Cities*. British School of Archaeology in Egypt 12. London.
- 1928 *Gerar*. British School of Archaeology in Egypt 43, London.
- 1931 *Ancient Gaza I*. British School of Archaeology in Egypt, London.
- 1932 *Ancient Gaza II*. British School of Archaeology in Egypt, London.
- 1933 *Ancient Gaza III*. British School of Archaeology in Egypt, London.
- 1934 *Ancient Gaza IV*. British School of Archaeology in Egypt, London.
- Petrie, William M. Flinders and Olga Tufnell
- 1930 *Beth-Pelet I (Tell Fara)*. British School of Archaeology in Egypt 48. British School of Archaeology in Egypt, London.
- Pettinato, Giovanni
- 1980 Bolletino militare della campagna di Ebla contro la città di Mari. *Oriens Antiquus* 19:231–45.
- 1981 *The Archives of Ebla: An Empire Inscribed in Clay*. Doubleday and Company, Inc., Garden City, NY.
- 1991 *Ebla: A New Look at History*. Translated by C. F. Richardson. Johns Hopkins University Press, Maryland.

- Peyronel, Luca
 2000 The MB II Fortress V at Tell Mardikh-Ebla (Syria): Preliminary Analysis of Architectural Context and Archaeological Materials. In *Proceedings of the First International Congress on the Archaeology of the Ancient Near East, Rome May 18th–23rd 1998*, vol. 2. eds. P. Matthiae, et al., pp. 1353–77. Università degli Studi di Roma “La Sapienza”, Rome.
- Pézard, Maurice
 1931 *Qadesh, mission archéologique à Tell Nebi Mend, 1921–1922*. Librairie Orientaliste. Paul Geuthner, Paris.
- Pfälzner, Peter
 1987a A Short Account of the Excavation of Tell Bderi 1985. *Annales Archéologiques Arabes Syriennes* 36–37:276–91.
 1987b A Short Account of the Excavation of Tell Bderi 1986. *Annales Archéologiques Arabes Syriennes* 36–37:292–303.
 1989–1990 Tall Bderi 1985–1987. *Archiv für Orientforschung* 36–37:212–21.
 1990 Tell Bderi: The development of a Bronze Age Town. In *The Near East in Antiquity: German Contributions to the Archaeology of Jordan, Palestine, Syria, Lebanon and Egypt*, ed. S. Kerner, pp. 63–79. Goethe-Institute, Amman.
- Philip, Graham
 1989 *Metal Weapons of the Early and Middle Bronze Ages in Syria-Palestine*. BAR International Series 526. 2 vols. Archaeopress, Oxford.
- Pinnock, Frances
 2001 The Urban Landscape of Old Syrian Ebla. *Journal of Cuneiform Studies* 53:13–33.
- Pitard, Wayne T.
 1987 *Ancient Damascus: A Historical Study of the Syrian City-State from Earliest Times until Its Fall to the Assyrians in 732 B.C.E.* Eisenbrauns, Winona Lake, IN.
 1998 Before Israel: Syria Palestine in the Bronze Age. In *The Oxford History of the Biblical World*, ed. M. D. Coogan, pp. 33–77. Oxford University Press, New York.
- Poidebard, R. P. Antoine
 1934 *Le trace de Rome dans le désert de Syrie: le limes de Trajan à la conquête arabe; recherches aériennes (1925–1932)*. Bibliothèque archéologique et historique 18. Paul Geuthner, Paris.
- Portugali, Yuval
 1982 A Field Methodology for Regional Archaeology. *Tel Aviv* 9:170–88.
- Posener, G.; Jean Bottéro and Kathleen M. Kenyon
 1971 Syria and Palestine c. 2160–1780 B.C. In *Early History of the Middle East*. pp. 532–94. The Cambridge Ancient History I:2. Cambridge University Press, Cambridge.
- Postgate, J. Nicholas
 1992 *Early Mesopotamia: Society and Economy at the Dawn of History*. Routledge, London.
- Powell, Marvin A. (ed.)
 1987 *Labor in the Ancient Near East*. American Oriental Society, New Haven.
 1990 Maße und Gewichte. In *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 7. ed. D. O. Edzard, pp. 457–517. Walter de Gruyter, Berlin.
- Prausnitz, Moshe W.
 1973 Akziv and Avdon: On the Planning of a Port and a Fortress City in the Plain of Acre [In Hebrew]. *Eretz-Israel* 11:219–23.

- 1975 The Planning of the Middle Bronze Age Town at Achzib and Its Defences. *Israel Exploration Journal* 25:202–10.
- 1993a Acco (Plain of Acco). In *NEAEHL*, vol. 1. ed. E. Stern, pp. 31. 2nd-English ed. Israel Exploration Society, Jerusalem.
- 1993b Bira, Tel. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 262–3. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Prausnitz, Moshe W. and Eilat Mazar
1993 Achzib. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 32–6. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Pritchard, James Bennett (ed.)
1969a *The Ancient Near East in Pictures Relating to the Old Testament*. 2nd ed. Princeton University Press, Princeton.
1969b *Ancient Near Eastern Texts Relating to the Old Testament*. 3rd ed. Princeton University Press, Princeton.
- Pumpelly, Raphael (ed.)
1908 *Explorations in Turkestan, Expedition of 1904: Prehistoric Civilizations of Anau, Origins, Growth, and Influence of Environment*. Carnegie Institution, Washington, D.C.
- Quenet, Philippe
1997 La séquence stratigraphique du IIIe millénaire (chantier G). In *Tell Beydar, Three Seasons of Excavations (1992–1994)*, eds. M. Lebeau and A. Suleiman, pp. 169–77. Subartu 3. Brepols, Turnhout.
- Raban, Avner
1982 *Nahalal Map (28) 16–23*. Archaeological Survey of Israel. Archaeological Survey of Israel, Jerusalem.
1991 The Port City of Akko in the MBII. *Michmanim* 5:17*–34*.
1993 Marine Archaeology. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 957–65. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Randall-Maciver, D and Charles Leonard Woolley
1911 *Buhen*. Eckley B. Coxe Junior Expedition to Nubia 7–8. University Museum, Philadelphia.
- Reade, Julian E.
1964 El-Mutabbaq and Umm Rus. *Sumer* 20:83–9.
1968 Tell-Taya (1967): Summary Report. *Iraq* 30/2:234–64.
- Redford, Donald B.
1992 *Egypt, Canaan, and Israel in Ancient Times*. Princeton University Press, Princeton.
- Reich, Ronny
1987 Four Notes on Jerusalem. *Israel Exploration Journal* 37/2–3:158–67. Reich, Ronny and Hannah Katzenstein
1992 Glossary of Architectural Terms. In *The Architecture of Ancient Israel: From the Prehistoric to the Persian Periods*, eds. A. Kempinski and R. Reich, pp. 311–22. English ed. Israel Exploration Society, Jerusalem.
- Reich, Ronny and Eli Shukron
1998 Jerusalem, the Gihon Spring [In Hebrew]. *Hadashot Archaeologiyot* 108:136–7.
1999a Jerusalem, the Gihon Spring. *Hadashot Arkhaeologiyot—Excavations and Survey in Israel* 109:63*–4*.
1999b Jerusalem, the Gihon Spring. *Hadashot Arkhaeologiyot—Excavations and Survey in Israel* 110:77*–8*.
1999c Light at the End of the Tunnel: Warren’s Shaft Theory of David’s Conquest Shattered. *Biblical Archaeology Review* 25/1:22–33, 72.

- Reisner, George A. (ed.)
 1931 *Mycerinus: The Temple of the Third Pyramid at Egypt*. Harvard University Press, Cambridge.
 1960 Egyptian Forts from Halfa to Semna. *Kush* 8:11–24.
- Renfrew, Colin
 1975 Trade as Action at a Distance: Questions of Integration and Communication. In *Ancient Civilization and Trade*, eds. J. A. Sabloff and C. C. Lamberg-Karlovsky, pp. 3–59. University of New Mexico Press, Albuquerque.
 1984 *Approaches to Social Archaeology*. Edinburgh.
- Renfrew, Colin and Paul Bahn
 2000 *Archaeology: Theories, Methods, and Practice*. 3rd ed. Thames and Hudson, New York.
- Richard, Suzanne
 1990 The 1987 Expedition to Khirbet Iskander and Its Vicinity: Fourth Preliminary Report. In *Preliminary Reports of ASOR-Sponsored Excavations 1983–87*. ed. W. E. Rast, pp. 33–58. BASOR Supplement 26. Johns Hopkins University Press, Baltimore.
 1993 Iskander, Khirbet. In *NEAEHL*, vol. 2. ed. E. Stern, pp. 649–52. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1997 Iskander, Khirbet. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 3. ed. E. M. Meyers, pp. 188–9. Oxford University Press, New York.
- Richard, Suzanne and Roger S. Boraas
 1984 Preliminary Report of the 1981–82 Seasons of the Expedition to Khirbet Iskander and its Vicinity. *Bulletin of the American Schools of Oriental Research* 254:63–87.
 1988 Khirbet Iskander, Jordan: 1984 Season. In *Preliminary Reports of ASOR-Sponsored Excavations 1982–85*. ed. W. E. Rast, pp. 107–30. BASOR Supplement 25. Johns Hopkins University Press, Baltimore.
- Ristvet, Lauren and Harvey Weiss
 forthcoming Tell Leilan Excavations 2002. *Orient-Express* 2004.
- Ritner, Robert K.
 1997 Execration Texts. In *The Context of Scripture I: Canonical Compositions from the Biblical World*, ed. W. W. Hallo, pp. 50–2. Brill, Leiden.
- Ronzevalle, P. L.
 1914 Le campe retranché d'El Mišrifé. *Mélanges de la Faculté Orientale (Beyrouth)* 7:109–26.
- Rosen, Arlene Miller
 1986 *Cities of Clay: The Geoarchaeology of Tells*. Prehistoric Archaeology and Ecology Series. University of Chicago Press, Chicago.
- Rowe, Alan
 1935 The 1934 Excavations at Gezer. *Palestine Exploration Fund Quarterly Statement* 1935:19–33.
- Rowton, Michael B.
 1974 Enclosed Nomadism. *Journal of the Economic and Social History of the Orient* 17:1–30.
- Saade, Gabriel
 1979–1980 A la recherche des villes et villages du royaume ougaritien. *Annales Archéologiques Arabes Syriennes* 29–30:215–30.
- Saghieh, Muntaha
 1983 *Byblos in the Third Millennium B. C.* Aris & Phillips, Warminster, UK.

- Sagona, Antonio G.
1986 An Early Bronze Age IV Tomb at El-Qitar, Syria. *Abr-Nahrain* 24:107–19.
- Sallaberger, Walther and Jason Ur
forthcoming Tell Beydar/Nabada in its Regional Setting. In *Third Millennium Cuneiform Texts from Tell Beydar (Seasons 1996–2002)*, eds. L. Milano, et al. Subartu 12. Brepols, Turnhout.
- Salonen, Erkki
1965 *Die Waffen der alten Mesopotamier, eine lexikalische und kulturgeschichtliche Untersuchung*. Studia Orientalia 33. Societas Orientalis Fennica, Helsinki.
- Sarie', di Issa
1998 Area C. The Middle Bronze I–II Earthen Rampart. In *Scavi a Gerico, 1997. Relazione preliminare sulla prima campagna di scavi e prospezioni archeologiche a Tell es-Sultan, Palestina*. eds. N. Marchetti and L. Nigro, pp. 103–15. Quaderni di Gerico 1. Università di Roma «La Sapienza», Rome.
- de Sarzec, E.
1894–1912 *Découvertes en Chaldée*. Paris.
- Sasson, Jack M.
1969 *The Military Establishment at Mari*. Studia Pohl 3. Pontifical Biblical Institute, Rome.
- Sauer, James A.
1986 Transjordan in the Bronze and Iron Ages: A Critique of Glueck's Synthesis. *Bulletin of the American Schools of Oriental Research* 263:1–26.
- Sauvaget, Jean
1929 L'enceinte primitive de la ville d'Alep. *Mélanges de l'Institut Français de Damas* 1:133–59.
- Schaeffer, Claude F. A.
1939 Les fouilles de Ras Shamra-Ugarit 10^e et 11^e campagnes (automne et hiver 1938–1939). *Syria* 20:277–92.
1948 *Statigraphie comparée et chronologie de l'Asie Occidentale (III^e et II^e millénaires), Vol. I: Syrie, Palestine, Asie Mineure, Chypre, Perse et Caucase*. Oxford.
1949 *Ugaritica II: nouvelles études relatives aux découvertes de Ras Shamra*. Mission des Ras Shamra 5. Institut français d'archéologie de Beyrouth, Paris.
1951 Reprise des recherches archéologiques à Ras Shamra-Ugarit sondages de 1948 et 1949 et campagne de 1950. *Syria* 28:1–21.
- Schloen, J. David
1997 Ashkelon. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 1. ed. E. M. Meyers, pp. 220–3. Oxford University Press, New York.
2001 *The House of the Father as Fact and Symbol: Patrimonialism in Ugarit and the Ancient Near East*. Studies in the Archaeology and History of the Levant 2. Eisenbrauns, Winona Lake, IN.
- Schmid, Hansjörg; Jan-Christoph Heusch; Kay Kohlmeyer and Eva Strommenger
1973 Habuba Kabira-Tall. *Mitteilungen der deutschen Orient-Gesellschaft* 105:38–67.
- Schmid, Hansjörg; Hans-Christian Kara; Eva Strommenger and Dietrich Sürenhagen
1971 Die Grabung auf dem Tell Habuba Kabira. *Mitteilungen der deutschen Orient-Gesellschaft* 103:8–37.

- Schniedewind, William M.
 1998 The Geopolitical History of Philistine Gath. *Bulletin of the American Schools of Oriental Research* 309:69–77.
- von Schuler, Einar; Hansjörg Schmid; Wido Ludwig and Eva Strommenger
 1969 Die Frühjahrskampagne 1969 in Habuba Kabira. *Mitteilungen der deutschen Orient-Gesellschaft* 101:37–64.
- Schulman, Alan R.
 1964 Siege Warfare in Pharaonic Egypt. *Natural History* 73/3:12–21.
 1982 The Battle Scenes of the Middle Kingdom. *Journal of the Society for the Study of Egyptian Antiquities* 12:165–83.
- Schumacher, Gottlieb
 1908 *Tell el-Mutesellim I: Bericht über die 1903–1905*. Leipzig.
- Schwartz, Glenn M.
 1988 *A Ceramic Chronology from Tell Leilan, Operation I*. Yale Tell Leilan Research 1. Yale University Press, New Haven.
- Schwartz, Glenn M.; Hans H. Curvers; S. Dunham and B. Stuart
 forthcoming A Third-Millennium BC Elite Tomb and Other New Evidence from Tell Umm el-Marra, Syria.
- Schwartz, Glenn M., et al.
 2000 Excavation and Survey in the Jabbul Plain, Western Syria: The Umm el-Marra Project 1996–1997. *American Journal of Archaeology* 104/3:419–62.
- Schwartz, Glenn M. and Harvey Weiss
 1992 Syria, ca. 10,000–2,000. In *Chronologies in Old World Archaeology*. ed. R. W. Ehrich, pp. Vol I:221–43; Vol II:185–202. 3rd ed. University of Chicago Press, Chicago.
- Scurlock, Jo Anne
 1989 Assyrian Battering Rams Revisited. *State Archives of Assyria Bulletin* 3/2:129–31.
- Seeden, Helga
 1986 Bronze Age Village Occupation in Busra: AUB Excavations on the Northwest Tell, 1983–1984. *Berytus Archaeological Studies* 34:11–81.
- Seeger, Joe D.
 1974 The Middle Bronze IIC Date of the East Gate at Shechem. *Levant* 6:117–30.
 1975 The MB II Fortifications at Shechem and Gezer: A Hyksos Retrospective. *Eretz-Israel* 12:34–45.
- Sellers, Orid Rogers
 1933 *The Citadel of Beth-Zur*. Westminster Press, Philadelphia.
- Sellers, Orid Rogers, et al.
 1968 *The 1957 Excavation at Beth-Zur*. Annual of the American Schools of Oriental Research 38. American Schools of Oriental Research, Cambridge, MA.
- Sellin, Ernst and Hans Steckeweh
 1941 Sichem. *Zeitschrift des deutschen Palästina-Vereins* 64:1–20.
- Sellin, Ernst and Carl Watzinger
 1913 *Jericho: die Ergebnisse der Ausgrabungen*. Leipzig.
- Serangeli, Flavia
 1978 Le liste di censo di Alalah IV. *Vicino Oriente* 1:99–131.
- van Seters, John
 1966 *The Hyksos: A New Investigation*. Yale University Press, New Haven.

- Seton-Williams, M. V.
 1980 Appendix: Tell Keisan, 1935–1936. In *Tell Keisan (1971–1976): une cité phénicienne en Galilée*, eds. J. Briend and J.-B. Humbert, pp. 381–92. Orbis biblicus et orientalis, series archaeologica 1. Editions universitaires, Freiburg.
- Shea, William H.
 1979 The Conquests of Sharuhén and Megiddo Reconsidered. *Israel Exploration Journal* 29/1:1–5.
- Shiloh, Yigal
 1984 *Excavations at the City of David I: 1978–1982, Interim Report of the First Five Seasons*. Qedem 19. The Hebrew University, Jerusalem.
- Sigrist, Marcel (ed.)
 1988 *Isin Year Names*. Institute of Archaeology Publications, Assyriological Series 2. Andrews University Press, Berrien Springs, MI.
 1990 *Larsa Year Names*. Institute of Archaeology Publications, Assyriological Series 3. Andrews University Press, Berrien Springs, MI.
- Sigrist, Marcel and Tohrú Gomi
 1991 *The Comprehensive Catalogue of Published Ur III Tablets*. CDL Press, Bethesda, MD.
- Singer, Itamar
 1983 The Middle Bronze Age Fortified Enclosure. In *Ergebnisse der Ausgrabungen auf Hirbet el-Mšāš (Tel Masos) 1972–75*, eds. V. Fritz and A. Kempinski, pp. 186–97. Abhandlung des Deutschen Palästinavereins. Otto Harrassowitz, Wiesbaden.
- Smith, G. Elliot
 1912 *The Royal Mummies*. Catalogue Général des Antiquités Égyptiennes du Musée du Caire 72, Paris.
- Smith, H. S.
 1966 Kor: Report on the Excavations of the Egypt Exploration Society at Kor, 1965. *Kush* 14:187–243.
- Smith, Robert H. and Timothy F. Potts
 1992 The Middle and Late Bronze Ages. In *Pella in Jordan 2: The Second Interim Report of the Joint University of Sydney and College of Wooster Excavations at Pella 1982–1985*, eds. Anthony W. McNicoll, et al., pp. 35–81. Mediterranean Archaeology Supplement 2. MEDITARCH, Sydney.
- Smith, Stuart Tyson
 1995 *Askut in Nubia: The Economics and Ideology of Egyptian Imperialism in the Second Millennium B.C.* Kegan Paul International, London.
- von Soden, Wolfram (ed.)
 1965–1981 *Akkadisches Handwörterbuch*. 3 vols. Otto Harrassowitz, Wiesbaden.
- van Soldt, Wilfred H.
 1996 Studies in the Topography of Ugarit (1): The Spelling of Ugaritic Toponyms. *Ugarit-Forschungen* 28:653–92.
 1997 Studies in the Topography of Ugarit (2): The Borders of Ugarit. *Ugarit-Forschungen* 29:683–703.
 1998 Studies in the Topography of Ugarit (3): Groups of Towns and Their Locations. *Ugarit-Forschungen* 30:703–44.
 1999 Studies in the Topography of Ugarit (4): Town Sizes and Districts. *Ugarit-Forschungen* 31:749–76.

- Spencer, A. Jeffrey
 1979 *Brick Architecture in Ancient Egypt*. Aris & Phillips, Ltd., Warminster, England.
 1994 Mud Brick: Its Decay and Detection in Upper and Lower Egypt. In *The Unbroken Reed: Studies in the Culture and Heritage of Ancient Egypt in Honour of A. F. Shore*, vol. 11. eds. C. Eyre, A. Leahy and L. M. Leahy, pp. 315–20. Occasional Publications. Egypt Exploration Society, London.
- Stager, Lawrence E.
 1985 The Archaeology of the Family in Ancient Israel. *Bulletin of the American Schools of Oriental Research* 260:1–35.
 1991a *Ashkelon Discovered: From Canaanites and Philistines to Romans and Moslems*. Biblical Archaeology Society, Washington, D.C.
 1991b The Massive Middle Bronze Fortifications—How did they Work? *Biblical Archaeology Review* 17/2:30.
 1992 The Periodization of Palestine from Neolithic through Early Bronze Times. In *Chronologies in Old World Archaeology*, ed. R. W. Ehrich, pp. Vol. I:22–41; Vol. II:6–60. University of Chicago Press, Chicago.
 1993 Ashkelon. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 103–12. 2nd-English ed. Israel Exploration Society, Jerusalem.
 1995 The Impact of the Sea Peoples in Canaan (1185–1050 BCE). In *The Archaeology of Society in the Holy Land*, ed. T. E. Levy, pp. 332–48. Facts On File, New York.
 1999 The Fortress-Temple at Shechem and the “House of El, Lord of the Covenant”. In *Realia Dei: Essays in Archaeology and Biblical Interpretation in Honor of Edward F. Campbell, Jr. at His Retirement*, eds. P. H. Williams, Jr. and T. Hiebert, pp. 228–49. Scholars Press, Atlanta.
 2001 Port Power in the Early and Middle Bronze Age: the Organization of Maritime Trade and Hinterland Production. In *Studies in the Archaeology of Israel and Neighboring Lands in Memory of Douglas L. Esse*, ed S. R. Wolff, pp. 625–38. *Studies in Ancient Oriental Civilization* 59. Eisenbrauns, Winona Lake, IN.
 2002 The MB IIA Ceramic Sequence at Tel Ashkelon and Its Implications for the “Port Power” Model of Trade. In *The Middle Bronze Age in the Levant: Proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th–26th of January 2001*. ed. M. Bietak, pp. 353–62. *Contributions to the Chronology of the Eastern Mediterranean* 3. M. Bietak and H. Hunger, general eds. Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- Starkey, James Leslie
 1934 Excavations at Tell el-Duweir, 1933–1935. *Palestine Exploration Fund Quarterly Statement* 1934:164–75.
- Stein, Diana L.
 1997 Alalakh. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 1. ed. E. M. Meyers, pp. 55–9. Oxford University Press, New York.
- Stein, Gil J.
 1991 Operation 4: The City Wall. *American Journal of Archaeology* 94/4:547–55.
- Steiner, Margreet L. (ed.)
 2001 *Excavations by Kathleen M. Kenyon in Jerusalem 1961–1967, Volume III: The Settlement in the Bronze and Iron Ages*. Copenhagen International Series 9. Sheffield Academic Press, Ltd., London.

- Steinkeller, Piotr
 1987 Battering Rams and Siege Engines at Ebla. *Nouvelles Assyriologiques Brèves et Utilitaires* 1987/2:14.
- Stern, Ephraim
 1984 *Excavations at Tel Mevorakh (1973–1976), Pt. 2: The Bronze Age*. Qedem 18. Institute of Archaeology, Hebrew University of Jerusalem, Jerusalem.
 1993 *NEAEHL*. English ed. 4 vols. Simon & Schuster, New York.
- Stewart, James R.
 1974 *Tell El 'Ajjul: The Middle Bronze Age Remains*. Studies in Mediterranean Archaeology 38. P. Åström Förlag, Göteborg.
- Stone, Elizabeth C.
 1997 City-States and Their Centers: The Mesopotamian Example. In *The Archaeology of City-States: Cross-Cultural Approaches*, eds. D. L. Nichols and T. H. Charlton, pp. 15–26. Smithsonian Institution Press, Washington, D.C.
- Stout, Margaret E.
 1977 Clay Sling-Bullets from Tell Sweyhat. *Levant* 9:63–5.
- Strommenger, Eva
 1976 Fünfter vorläufiger Bericht über die von der Deutschen Orient-Gesellschaft mit Mitteln der Stiftung Volkswagenwerk in Habuba Kabira unternommenen archäologischen Untersuchungen (Kampagnen 1974, 1974, 1975). *Mitteilungen der deutschen Orient-Gesellschaft* 108:5–22.
 1979 Ausgrabungen der Deutschen Orient-Gesellschaft in Habuba Kabira. In *Archaeological Reports from the Tabqa Dam Project*. ed. D. N. Freedman, pp. 63–78. Annual of the American Schools of Oriental Research 44. ASOR, Cambridge, MA.
 1980 *Habuba Kabira: Eine Stadt vor 5000 Jahren*. Verlag Philipp von Zabern, Mainz am Rhein.
 1981–1982 Tall Bi'a. *Archiv für Orientforschung* 28:210–2.
 1991 Ausgrabungen in Tall Bi'a 1990. *Mitteilungen der deutschen Orient-Gesellschaft* 123:7–34.
- Strommenger, Eva, et al.
 1986 Ausgrabungen in Tall Bi'a 1984. *Mitteilungen der deutschen Orient-Gesellschaft* 118:7–44.
- Suleiman, Antoine
 1983 Excavations at Ansari-Aleppo for the Seasons 1973–1980 [In Arabic]. *Annales Archéologiques Arabes Syriennes* 33/2:179–214.
 1985 Fouilles d'Alep (Al-Ansari). *Syria* 62:135.
 2003 The Northern Stratigraphical Sounding (Field G). In *Tell Beydar, 1995–1999 Seasons of Excavations. A Preliminary Report*, eds. M. Lebeau and A. Suleiman, pp. 301–13. Subartu 10. Brepols, Turnhout.
- Sürenhagen, Dietrich
 1999 Tell Gindaris and the Western Afrin Valley. *Annales Archéologiques Arabes Syriennes* 43:159–67.
- Tallon, Maurice, S. J.
 1956 Une nouvelle enceinte antique en Émésène. *Annales Archéologiques Arabes Syriennes* 6:51–62.
- Tefnin, Roland
 1978–1979 Tall Abu Danna. *Archiv für Orientforschung* 26:145–7.
 1979a Deux campagnes de fouilles au Tell Abou Danné (1975–1976). In *Le Moyen Euphrate: Actes du Colloque de Strasbourg 10–12 mars 1977*, ed. J.-C. Margueron, pp. 179–99, Strasbourg.

- 1979b Exploration archéologique au nord du lac de Djaboul (Syrie): une campagne de sondages sur le site d'Oumm el-Marra, 1978. *Annuaire de l'Institut de Philologie et d'Histoire orientales et slaves* 23:71–94.
- 1979c Tell Abou Danné, une ville fortifiée de l'âge du bronze du Syrie du nord. *Archéologia* 129:42–50.
- 1981–1982 Tall Abu Danna. *Archiv für Orientforschung* 28:201–2.
- 1983 Aperçu sur neuf campagnes de fouilles belges aux Tells Abou Danne et Oumm el-Marra (1975–1983). *Annales Archéologiques Arabes Syriennes* 33/2:141–52.
- Thalmann, Jean-Paul
- 1978 Tell 'Arqa (1978–1979) Rapport Provisoire. *Bulletin du Musée de Beyrouth* 30:61–75.
- 1991 L'âge du Bronze à Tell 'Arqa (Liban): Bilan et perspectives (1981–1991). *Berytus Archaeological Studies* 39:21–38.
- 2002 Pottery of the Early Middle Bronze Age at Tell Arqa and in the Northern Levant. In *The Middle Bronze Age in the Levant: Proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th–26th of January 2001*. ed. M. Bietak, pp. 363–77. Contributions to the Chronology of the Eastern Mediterranean 3. M. Bietak and H. Hunger, general eds. Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- Trigger, Bruce G.
- 1982 The Reasons for the Construction of the Second Cataract Forts. *Journal of the Society for the Study of Egyptian Antiquities* 12:1–6.
- Tubb, Jonathan N.
- 1985 Some Observations on Spearheads in Palestine in the Middle and Late Bronze Ages. In *Palestine in the Bronze and Iron Ages: Papers in Honour of Olga Tufnell*, ed. J. N. Tubb, pp. 189–96. Institute of Archaeology, London.
- 1993 Sa'idiyeh, Tell es-. In *NEAEHL*, ed. E. Stern, pp. 1295–300. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Tufnell, Olga
- 1953 *Lachish III (Tell ed-Duweir): The Iron Age*. The Wellcome-Marston Archaeological Research Expedition to the Near East, Vol. III. Oxford University Press, London.
- 1958 *Lachish IV (Tell ed-Duweir): The Bronze Age*. The Wellcome-Marston Archaeological Research Expedition to the Near East, Vol. IV. Oxford University Press, London.
- Tufnell, Olga; C. H. Inge and G. L. Harding
- 1940 *Lachish II: The Fosse Temple*. The Wellcome-Marston Archaeological Research Expedition to the Near East, Vol. II, London.
- Tufnell, Olga and Aharon Kempinski
- 1993 'Ajjul, Tell el-. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 49–53. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Tzu, Sun
- 1963 *The Art of War*. Translated by S. B. Griffith. Oxford University Press, London.
- Ussishkin, David
- 1982 *The Conquest of Lachish by Sennacherib*. Tel Aviv.
- 1989 Notes on the Fortifications of the Middle Bronze II Period at Jericho and Shechem. *Bulletin of the American Schools of Oriental Research* 276:29–53.

- 1992 Notes on the Middle Bronze Age Fortifications of Hazor. *Tel Aviv* 19/2:274–81.
- 1993a Dothan. In *NEAEHL*, vol. 1. ed. E. Stern, pp. 372–3. 2nd-English ed. Israel Exploration Society, Jerusalem.
- 1993b Lachish. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 897–911. 2nd-English ed. Israel Exploration Society, Jerusalem.
- de Vaux, Rolland
- 1960 Chronique: Exploration de la région de Salt. *Revue Biblique* 47:398–425.
- 1962 Les fouilles de Tell el-Far‘ah. *Revue Biblique* 69:212–63.
- Vegetius Renuatus, Flavius
- 1993 *Epitome of Military Science* [orig. 4th cent. A.D. Latin]. Translated by N. P. Milner. Translated Texts for Historians 16. Liverpool University Press, Liverpool.
- Vercoutter, Jean
- 1955 Kor est-il Iken? Rapport préliminaire sur les fouilles françaises de Kor (Bouhen sud), Sudan, en 1954. *Kush* 3.
- 1966 Semna South Fort and the Records of the Nile Levels at Kumma. *Kush* 14:125–64.
- 1970 *Mirgissa I*. Mission Archéologique Française au Soudan 1. CNRS, Paris.
- Vila, André
- 1970 L’armement de la forteresse de Mirgissa-Iken. *Revue d’Égypte* 22:171–99.
- Villard, Pierre
- 2001 Les administrateurs de l’époque de Yasmah-Addu. In *Amurru 2: Mari, Ébla et les Hourrites, dix ans de travaux*, eds. J.-M. Durand and D. Charpin, pp. 9–140. Éditions Recherche sur les Civilisations, Paris.
- Vincent, Louis-Hugues
- 1911 *Underground Jerusalem: Discoveries on the Hill of Ophel (1909–1911)*. London.
- Voss, Ross Joseph
- 2002 A Sequence of Four Middle Bronze Age Gates in Ashkelon. In *The Middle Bronze Age in the Levant: Proceedings of an International Conference on MB IIA Ceramic Material, Vienna, 24th–26th of January 2001*. ed. M. Bietak, pp. 379–84. Contributions to the Chronology of the Eastern Mediterranean 3. M. Bietak and H. Hunger, general eds. Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- Walters, Stanley D.
- 1970 *Water for Larsa: An Old Babylonian Archive dealing with Irrigation*. Yale Near Eastern Researches 4. Yale University Press, New Haven.
- Wapnish, Paula
- 1997 Middle Bronze Equid Burials at Tell Jemmeh and a Reexamination of a Purportedly “Hyksos” Practice. In *The Hyksos: New Historical and Archaeological Perspectives*. ed. E. D. Oren, pp. 335–67. University Museum Monograph 96. The University Museum, University of Pennsylvania, Philadelphia.
- Wardini, Elie
- 2002 *Lebanese Place-Names (Mount Lebanon and North Lebanon): A Typology of Regional Variation and Continuity*. *Orientalia LOvaniensia Analecta* 120. Uitgeverij Peeters, Leuven.
- Warmenbol, Eugene
- 1980 Oumm el-Marra à l’époque des royaumes d’Ebla et de Iamkhad. *Akkadica* 19:58–9.

- Weinstein, James M.
 1975 Egyptian Relations With Palestine In the Middle Kingdom. *Bulletin of the American Schools of Oriental Research* 217:1–16.
 1981 The Egyptian Empire in Palestine: A Reassessment. *Bulletin of the American Schools of Oriental Research* 241:1–28.
 1984 Radiocarbon Dating in the Levant. *Radiocarbon* 26:297–366.
- Weippert, Helga
 1988 *Palästina in vorhellenistischer Zeit*. Handbuch der Archäologie, Vorderasien II 1. 2 vols. C. H. Beck'sche Verlagsbuchhandlung, Munich.
- Weiss, Harvey
 1985 Tell Leilan on the Habur Plains of Syria. *Biblical Archaeologist* 48/1:6–34.
 1990 Third Millennium Urbanization: A Perspective from Tell Leilan. In *Tall al-Hamidiya 2*. eds. S. Eichler, et al., pp. 159–66. Orbis biblicus et orientalis, series archaeological 6. Vandenhoeck & Ruprecht, Göttingen.
 1991 Archaeology in Syria. *American Journal of Archaeology* 95/4:683–740.
 1997 Leilan, Tell. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 3. ed. E. M. Meyers, pp. 341–7. Oxford University Press, New York.
 2000 Beyond the Younger Dryas: Collapse as Adaptation to Abrupt Climate Change in Ancient West Asia and the Eastern Mediterranean. In *Environmental Disaster and the Archaeology of Human Response*. eds. G. Bawden and R. M. Reycraft, pp. 75–98. Anthropological Papers 7. Maxwell Museum of Anthropology, Albuquerque, NM.
- Weiss, Harvey, et al.
 1991 1985 Excavations at Tell Leilan, Syria. *American Journal of Archaeology* 94/4:529–81.
- Werner, Peter (ed.)
 1998 *Tall Munbaqa: Bronzezeit in Syrien*. Veröffentlichungen des Hamburger Museums für Archäologie und die Geschichte Harburgs—Helms-Museum, Nr. 80. Wachholtz Verlag Neumünster, Hamburg.
- Wilcke, Von Claus
 1970 Zur Geschichte der Amurriter in der Ur-III Zeit. *Die Welt des Orients* 5:1–31.
- Wilkinson, Tony J.
 1993 Linear Hollows in the Jazira, Upper Mesopotamia. *Antiquity* 67/256:548–62.
 2000 Regional Approaches to Mesopotamian Archaeology: The Contribution of Archaeological Surveys. *Journal of Archaeological Research* 8/3:219–67.
 2003 *Archaeological Landscapes of the Near East*. University of Arizona Press, Tucson.
- Wilkinson, Tony J. and D. J. Tucker
 1995 *Settlement Development in the North Jazira, Iraq: A Study of the Archaeological Landscape*. Iraq Archaeological Reports 3. British School of Archaeology in Iraq, Baghdad.
- Wimmer, Donald
 1997 Safut, Tell. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 4. ed. E. M. Meyers, pp. 448–50. Oxford University Press, New York.
- Winlock, H. E.
 1945 *The Slain Soldiers of Neb-hepet-Re' Mentu-hotpe*. Metropolitan Museum of Art Egyptian Expedition 16. Metropolitan Museum of Art, New York.
- Winter, F. E.
 1971 *Greek Fortifications*. University of Toronto Press, Toronto.

- Winter, Irene J.
1973 *North Syria in the Early First Millennium B.C. with Special Reference to Ivory Carving*. Ph.D. dissertation, Columbia University.
- Wolff, Samuel R.
1991 Archaeology in Israel. *American Journal of Archaeology* 95/3:489–538.
Woolley, Charles Leonard
1921 *Carchemish: Report on the Excavations at Djerabis, Part II, The Town Defenses*. Trustees of the British Museum, London.
1953 *A Forgotten Kingdom, being a record of the results obtained from the excavation of two mounds, Atchana and Al Mina, in the Turkish Hatay*. Max Parish, London.
1955 *Alalakh: An Account of the Excavations at Tell Atchana in the Hatay, 1937–1949*. Reports of the Research Committee of the Society of Antiquaries of London, XVIII. Oxford University Press, Oxford.
- Woolley, Charles Leonard and Richard D. Barnett
1952 *Carchemish: Report on the Excavations at Djerabis, Part III, The Excavations in the Inner Town; The Hittite Inscriptions*. Trustees of the British Museum, London.
- Wright, G. R. H.
1985a *Ancient Building in South Syria and Palestine*. Handbuch der Orientalistik, 7:2, b. 2 vols. E. J. Brill, Leiden-Köln.
- Wright, George Ernest
1964 *Shechem: The Biography of a Biblical City*. Gerald Duckworth & Co., Ltd., London.
1971 The Archaeology of Palestine from the Neolithic through the Middle Bronze Age. *Journal of the American Oriental Society* 91:276–93.
- Wright, George R. H.
1968 Tell el-Yehudiyah and the Glacis. *Zeitschrift des deutschen Palästina-Vereins* 84:1–17.
1969 Iran and the Glacis. *Zeitschrift des deutschen Palästina-Vereins* 85:24–34.
1984 The Monumental City Gate in Palestine and Its Foundations. *Zeitschrift für Assyriologie* 74:267–89.
1985b The City Gates at Shechem, Simple Reconstruction Drawings. *Zeitschrift des deutschen Palästina-Vereins* 101:1–8.
1997 Building Materials and Techniques: Materials and Techniques of the Bronze and Iron Ages. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 1. ed. E. M. Meyers, pp. 363–7. Oxford University Press, New York.
2002 *Shechem III, The Stratigraphy and Architecture of Shechem/Tell Balatah, Volume 2: The Illustrations*. American Schools of Oriental Research Archaeological Reports 6. Scholars Press, Atlanta.
- Wulff, Hans E.
1966 *Traditional Crafts of Persia: Their Development, Technology and Influence on Eastern and Western Civilizations*. MIT Press, Cambridge, MA.
- Yadin, Yigal
1955a The Earliest Record of Egypt's Military Penetration into Asia? *Israel Exploration Journal* 5/1:1–16.
1955b Hyksos Fortifications and the Battering Ram. *Bulletin of the American Schools of Oriental Research* 137:23–32.
1963 *The Art of Warfare in Biblical Lands in the Light of Archaeological Study*. Translated by M. Pearlman. 2 vols, Jerusalem.

- 1970 Warfare in the Second Millennium B.C.E. In *The World History of the Jewish People, Vol. 2*, ed. B. Mazar, pp. 127–59. Ancient Times (Patriarchs and Judges). Massada Publishing Company, Tel Aviv.
- 1972a The Earliest Representation of a Siege from Mari and a ‘Scythian Bow’. *Israel Exploration Journal* 22:91–4.
- 1972b *Hazor: The Head of All Those Kingdoms*. The Schweich Lectures of the British Academy 1970. Oxford University Press, London.
- 1972c Megiddo. *Israel Exploration Journal* 22:161–4.
- 1973 The Tell Beit Mirsim G-F Alleged Fortifications. *Bulletin of the American Schools of Oriental Research* 212:23–5.
- 1975 *Hazor: The Rediscovery of a Great Citadel of the Bible*. Weinfeld and Nicolson, London.
- 1977 The Nature of the Settlements During the Middle Bronze IIA and the Problem of the Apheq Fortifications [In Hebrew]. *Eretz-Israel* 13:91–105, 293*–4*.
- 1978 The Nature of the Settlements During the Middle Bronze IIA Period in Israel and the Problem of the Aphek Fortifications. *Zeitschrift des deutschen Palästina-Vereins* 94:1–23.
- 1982 Is the Biblical Account of the Israelite Conquest of Canaan Historically Reliable? *Biblical Archaeology Review* 8:16–23.
- Yadin, Yigal, et al.
- 1961 *Hazor III–IV, An Account of the Third and Fourth Seasons of Excavations, 1957–1958, Plates*. Magnes Press, Jerusalem.
- 1958 *Hazor I, An Account of the First Season of Excavations, 1955*. Magnes Press, Jerusalem.
- 1960 *Hazor II, An Account of the Second Season of Excavations, 1956*. Magnes Press, Jerusalem.
- 1989 *Hazor III–IV, An Account of the Third and Fourth Seasons of Excavations, 1957–1958, Text*. Magnes Press, Jerusalem.
- Yeivin, Shemuel
- 1951 The Date of the Tunnel in the Lachish Glacis [In Hebrew]. *Eretz-Israel* 1:29–31.
- Yeivin, Zeev
- 1993 Makhrūq, Khirbet el-. In *NEAEHL*, vol. 3. ed. E. Stern, pp. 929–31. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Yener, K. Aslihan
- 1998 A View from the Amuq in South-Central Turkey: Societies in Transformation in the Second Millennium B.C. In *The Aegean and the Orient in the Second Millennium: Proceedings of the 50th Anniversary Symposium, Cincinnati, 18–20 April 1997*. eds. E. H. Cline and D. Harris-Cline, pp. 366–74. *Aegaeum* 18. Université de Liège, Liège.
- forthcoming *Amuq Valley Regional Project I*. Oriental Institute of the University of Chicago, Chicago.
- Yener, K. Aslihan, et al.
- 2000 The Amuq Valley Regional Project, 1995–1998. *American Journal of Archaeology* 104:163–220.
- 1996 The Oriental Institute Amuq Valley Projects, 1995. *Anatolica* 22:49–83.
- Yogev, Ora
- 1993 Nahariya (Excavations on the Mound). In *NEAEHL*, vol. 3. ed. E. Stern, pp. 1088–90. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Yon, Marguerite
- 1992 Ugarit: The Urban Habitat, The Present State of the Archaeological Picture. *Bulletin of the American Schools of Oriental Research* 286:19–34.

- 1997a *La cité d'Ougarit sur le tell de Ras Shamra*. Éditions Recherche sur les Civilisations, Paris.
- 1997b Ugarit. In *The Oxford Encyclopedia of Archaeology in the Near East*, vol. 5. ed. E. M. Meyers, pp. 255–62. Oxford University Press, New York.
- Yuhong, Wu
1994 *A Political History of Eshnunna, Mari and Assyria during the Early Old Babylonian Period (From the End of Ur III to the Death of Šamši-Adad)*. Periodic Publications on Ancient Civilizations 2. Institute for History of Ancient Civilizations, Changchun, China.
- Yurco, Frank J.
1986 Merneptah's Canaanite Campaign. *Journal of the American Research Center in Egypt* 23:189–216.
- Zaccagnini, Carlo
1979 *The Rural Landscape of the Land of Arraphe*. Quaderni di Geografia Storica, Rome.
- Zayadine, Fawzi; J.-B. Humbert and Mohammed Najjar
1989 The 1988 Excavations on the Citadel of Amman: Lower Terrace, Area A. *Annual of the Department of Antiquities of Jordan* 33:357–63.
- Zertal, Adam
1992 *The Manasseh Hill Country Survey I: The Shechem Syncline* [In Hebrew]. Israel Antiquities Authority, Haifa.
1993 Samaria (Region): The Mount Manasseh (Northern Samaritan Hills Survey). In *NEAEHL*, vol. 4. ed. E. Stern, pp. 1311–2. 2nd-English ed. Israel Exploration Society, Jerusalem.
- Zettler, Richard L. (ed.)
1997a *Subsistence and Settlement in a Marginal Environment: Tell es-Sweyhat, 1989–1995 Preliminary Report*. MASCA Research Papers in Science and Archaeology 14. University of Pennsylvania, Philadelphia.
1997b Surface Collections and Excavations in the Lower Town and Lower Town South. In *Subsistence and Settlement in a Marginal Environment: Tell es-Sweyhat, 1989–1995 Preliminary Report*. ed. R. L. Zettler, pp. 35–72. MASCA Research Papers in Science and Archaeology 14. University of Pennsylvania, Philadelphia.