MARITIME TRADE IN THE SOUTHERN LEVANT
FROM EARLIEST TIMES THROUGH THE MIDDLE BRONZE IIa PERIOD

VOL. I: TEXT

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To the Breitsteins (Haifa) and the Hatters (London)
without whose support and affection this work would
never have been completed.
Abstract

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This thesis is a study of maritime trade along the southern Levantine littoral zone from earliest times until the Middle Bronze IIA period (ca. 1950-1750 BCE). Throughout antiquity this region served as a land and sea bridge for traffic between Egypt and the eastern Mediterranean and Near Eastern worlds. This work examines the impact of this seaborne traffic on the southern Levant and the increasing importance of maritime trade. Following the introductory first chapter, which outlines the goals of this work and its approach, Chapter Two examines the long-term commercial relationship between Egypt and the southern Levant, and demonstrates that the latter functioned as a primary and then a secondary supplier of raw materials, but always as a geographical intermediary for Egypt’s foreign relations. With that relationship established and qualified, Chapter Three examines the terrestrial and maritime means of communication, and surveys the history of maritime activity in the southeastern Mediterranean, which reaches its first major peak in the Middle Bronze IIA period with the establishment of numerous ports. Chapter Four surveys the material evidence for this seminal period, examining the artifactual evidence for trade in its proper regional and chronological context. Chapter Five synthesizes this evidence and suggests a maritime commercial model for the growth of southern Levantine urban culture, and its material prosperity. It is argued that the growth of maritime trade was among the principal factors shaping southern Levantine coastal society, segments of which were drawn to settle in the Egyptian Delta, *inter alia*, by commerce and craft. Finally, it is suggested that the economic prosperity of these Deltaic Canaanites may have contributed to their successful usurping of political control from the Egyptians and their founding of a Canaanite (Hyksos) Kingdom at Tell el-Dab’a, ancient Avaris.
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As perhaps befitting a thesis on cross-cultural maritime interaction, the present work is the product of research carried out in two very different locales: Oxford on the River Isis (Thames) and Haifa on the Mediterranean Sea. In Haifa, many of the basic questions were formulated; in Oxford they were challenged, expanded, refined, and the answers first drafted. But it was back in Haifa, near the regions where many of the processes detailed herein actually occurred, that this work was completed.

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Abbreviations

BA: Bronze Age
BCE: Before Common Era
BP: Before Present
CE: Common Era
CW: Combed Ware
EBA: Early Bronze Age
FIP: First Intermediate Period
ha: hectare = 10,000 m² = 10 dunams = 2.5 acres
IBA: Intermediate Bronze Age
INAA: Instrumental Neutron Activation Analysis
knot: one nautical mile per hour (=1.852 km/hr)
L.: Locus
LBA: Late Bronze Age
LFPW: Light-Faced Painted Ware
LPW: Levantine Painted Ware
MBA: Middle Bronze Age
MB IIa: Middle Bronze IIa
MC: Middle Cypriot
MK: Middle Kingdom
MM: Middle Minoan
msl: (modern) mean sea level
MW: Metallic Ware
NK: New Kingdom
nm: nautical mile (=1.852 km)
OB: Old Babylonian
OK: Old Kingdom
p.c.: personal communication
RPW: Red Polished Ware
SIP: Second Intermediate Period
TEY: Tell el-Yahudiyyah Ware
T. #: Tomb number
WPCL: White Painted Cross Line
WPCW: White Painted Composite Ware
WPPL: White Painted Pendant Line
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Chapter 1

Introduction: A Maritime Levantine Middle Bronze Age?

The locations of the seaports along the Mediterranean shore appear to have played a remarkably key role in the development of the country's road network. The courses of virtually all of the lateral roads between the central highlands of Judah, Samaria, and Galilee and the coastal plain were determined to a large degree by the positions of Canaan's seaports. . . . The country's road system, its historical geography, and its history were thus profoundly influenced by these modest coastal harbors [emphasis added].

The Roads and Highways of Ancient Israel
David A. Dorsey

Perhaps no other statement regarding the relationship between land and sea better exemplifies the general scholarly view towards the latter than this quote from the concluding remarks of a recent comprehensive study of the Iron Age road network of the southern Levant (Dorsey 1991: 208).¹ On the one hand, it embodies the perceptive observation that a detailed analysis of the terrestrial evidence reveals that the factors dictating the location of the country's ports were crucial arbiters in the development of the settlement landscape of this region, rather than inland developments. On the other hand, what makes this observation perceptive also reveals its inherent bias—it derives from a study whose typically terrestrial approach does not consider any maritime factors in its analysis. This bias is not unique; rather, it is a general reflection of the limited degree to which scholars recognize that, beyond being a cultivable strip of land between the desert and the sea, the southern Levant is a region with a 250 km long coastal, maritime zone. Whether this zone was of any importance or had significance in any historical, cultural, or economic sense requires at the very least a recognition of this characteristic. Thus, for example, given Dorsey's conclusion one might suggest that maritime activity of some sort along this seaboard was the raison d'être for those “modest coastal

¹The many names for this region, e.g., Holy Land, Eretz Israel, Canaan, Palestine, and the southern Levant, all attest to a history as fragmented as its geographical makeup, and carry theological and political weight. Given the geographical and temporal framework of this work, the geographical term Levant is employed to encompass the eastern seaboard of the Mediterranean from Gaza in the south to the beginning of the Gulf of Alexandretta (Cilicia) in the north. A rough north-south division places modern Israel and Gaza in the southern Levant while Lebanon and Syria comprise the north. The terms Canaanite and Canaan are employed to describe, respectively, the material culture of the people and the region they inhabited in the Levant during the Bronze Age. The term “people of Canaan” is mentioned at MBA Mari (Sasson 1984a; Bonechi 1992: 9; Malamat 1998c: 5). For a more thorough discussion of the geographical and ethnic connotations of this term, see Na'aman (1994 contra Lemche 1991).
harbors”. However, such a suggestion is beyond the conceptual framework of a work that devotes scarcely a single paragraph to the sea and shipping (Dorsey 1991: 4-5). Moreover, although relying on evidence from a variety of periods, the result is a basically synchronic discourse, treating the entire Iron Age road network as an isochronic phenomenon (Dorsey 1991: xvii, 52-6). Given that much of this Iron Age settlement array is not divorced of Bronze Age (BA) antecedents, a diachronic approach might reveal the history of earlier road networks and, concomitantly, their dependence, or lack thereof, on BA ports. As the Middle Bronze Age (MBA), specifically the Middle Bronze IIa (MB IIa) period (ca. 2000-1750)\(^2\), marks the establishment of most southern Levantine ports, it is thus an important juncture for any serious study of the maritime history of this region. This thesis seeks to be a beginning to such a history, focusing on the role of maritime activity, settlement location, and economic interaction on regional and international scales in the development of society, economy, and polity in the southern Levant from earliest times through the MB IIa period.

Beyond being the seminal stage for the development of coastal sites, the MB IIa period is perceived as a watershed because of a number of other features. First, no other BA period had as much impact on the settlement landscape (Gophna 1984), which is particularly apparent to anyone who has stood below the massive ramparts that define the physical shape of so many Levantine tells. While this might seem of little consequence, this land-form created attractive, available, and secure locales, and were thus, in a sense, physical anchors for much of the subsequent settlement landscape. Similarly, it is generally accepted that mutatis mutandis many elements of material culture, socio-political structures, etc., which continued throughout Canaanite civilization until the Iron Age, originated in this period (Dever 1987; Kempinski 1992c: 210; Ilan 1995a: 315).

Second, it is the first period in which substantial artifactual evidence exists for the inclusion of the Levant in the wide-spread maritime activity of the eastern Mediterranean, involving Egypt, Cyprus, Anatolia, and the Aegean (Sherratt & Sherratt 1991; Marcus 1991; Artzy & Marcus 1991; Artzy 1995). Although relatively small in overall numbers, the distribution of these artifacts requires a meaningful explanation. Recent discoveries of Aegean-style frescoes at MB IIb Tell Kabri and, purportedly, Late Bronze Age (LBA)/New Kingdom (NK) Tell el-Dab’a, along with previously unappreciated examples from Alalakh (Niemeier 1995; Bietak 1995), have raised, chronologically, the notion of an east

\(^2\) Other chrono-cultural schemes refer to this period as “MB I”, however the traditional nomenclature is preferred by this author until the character of the incipient MB phase is clarified. Unless otherwise noted all calendrical dates are indicated as BCE. Radiocarbon “date” is synonymous with “determination”, “measurement” and “assay”. This implies a recognition that a radiocarbon date is not a true date, but a laboratory measurement of the amount of radiocarbon expressed in units ordered as “year” BP=Before Present, i.e., 1950 CE. Calibrated calendrical ranges, using the 1993 curve (Stuiver & Pearson 1993; Pearson & Stuiver 1993), were calculated using OxCal ver. 2.17 (Bronk Ramsey 1995) and are indicated as CAL BCE to two standard deviations (2\(\sigma\)), unless otherwise noted.
Mediterranean koine or “internationalism” from the Late Bronze Age into the Middle Bronze Age. These high-profile artifacts might simply be cataloged as part of the general distribution of traded artifacts, but their presence in the archaeological record indicates much more substantial and complex interactions and, as will be demonstrated, are the tail-end of a much longer historical process.

Third, the widespread distribution and selective similarity of Canaanite material culture during this period, e.g., city planning, architecture, pottery, metalwork, and other crafts (Gerstenblith 1983), from Egypt to northern coastal and inland Syria, suggests intensive and sustained communication across fairly long distances. Previous explanations for this phenomenon, which have often been enmeshed with the question of MB IIa cultural origins, have been unsatisfactory. These range from unicausal exogenous factors like movements of West Semitic Amorites (Dever 1976: 5-6, 9-10, 15; 1977: 84-6), Egyptian imperialism (Albright 1928), ambiguously defined notions of craft exchange and land-based trade (Gerstenblith 1983: 125), or an endogenous process like rural agricultural revival (Tubb 1983: 57; Falconer 1994a; Magness-Gardiner 1997: 315), or a combined, but vague peer-polity interaction (Bunimovitz 1992: 228; 1996: 18-9; Ilan 1995a: 298, 301)—a broader explanatory model is needed.

Last, and perhaps most historically significant, the MB IIa period marks the beginning of the only demonstrable large-scale expansion of Canaanite culture and population outside of its traditional boundaries onto foreign soil (Ward & Dever 1994: 47), until the Phoenician expansion during the Iron Age. Canaanite cultural interaction with, and expansion into, Egypt during this period had far reaching historical implications, including: (i) the establishment of Canaanite (Hyksos) rule in the Nile Delta; (ii) socio-linguistic developments in the Egyptian language (Hoch 1994) and the invention of the Canaanite alphabet (Sass 1989); and (iii) a salient impression on Egyptian policy towards the Levant, which was expressed as a trauma of foreign occupation that was preserved as late as the first century CE. As the Hyksos domination and its aftermath are distinct political and economic episodes, in which maritime activity and trade had a somewhat different character, the period up to the rise of this kingdom marks a convenient, albeit artificial terminus for this seminal investigation.

The basic premise of this thesis is that existing approaches have been deficient not only in failing to emphasize the maritime component, but in neglecting or negating it entirely. Moreover, that many if not all of the salient features enumerated above and detailed below are best understood within a maritime approach to the evidence, integrating, with some modification, existing terrestrial approaches. The goals of this study are to demonstrate: i) that maritime activity, so readily accepted as a significant feature of the LBA southern Levant, was a feature already in the pre- and proto-historic period, reaching its first peak in the MB IIa period, thus legitimizing its recent epithet as “the dawn of internationalism” (Ilan 1995a); ii) that MB IIa Canaanite culture and society was influenced by maritime activity and the
establishment of ports cities, both of which were fuels that drove the prosperous economy; iii) that the widespread distribution of Canaanite material culture in the eastern Mediterranean represents communication on a magnitude that must have been predicated on seaborne transport, perhaps from the very beginning of the MB IIa period; and iv) that the rise and economic floruit of the Canaanite-Hyksos kingdom that dominated much of lower Egypt after the Middle Kingdom (MK) can best be understood within a maritime commercial model in which Tell el-Dab’a was the primary hub of a vast eastern Mediterranean network.

The Maritime Mediterranean and Bronze Age Internationalism

The terrestrial bias alluded to above is not limited solely to scholars of the Levant. Indeed, this conceptual myopia exists on a much broader scale. Writing a history of the peoples or the cultures encompassing an aquatic basin, rather than according to a terrestrial demarcation, was only relatively recently pioneered by Braudel (1972) and followed by others (e.g., Chaudhuri 1985). In his landmark work, more often quoted for its contribution to the Annales school’s structural conceptualization of time (Bintliff 1991; Knapp 1992; 1993: 7-19; Levy & Holl 1995), Braudel went beyond simply acknowledging the Mediterranean as a geographical center surrounded by a world composed of disparate entities. He saw a broad geographical and rhythmic commonality that should be considered even in the treatment of individual regions. Much in the same way that scholarship views the river as the common and uniting ecological feature in the earliest civilizations, such is the Braudellian conception of the Mediterranean sea—its physical form and processes, behavior, rhythms, and cycles make the sea a common, uniting ecological factor impacting throughout Mediterranean society, agriculture, polity, and civilization. As the largest inland sea on the planet and the only one in contact with three continents, its central position in the arena of human history makes the Mediterranean Sea particularly deserving of this type of conceptualization.

Acknowledging the Mediterranean Sea as a geographical axis mundi does not necessarily lead to it being viewed as a source of social, cultural, or economic commonality and interaction between its constituent parts. The question of the relative importance of cross-cultural interaction and exchange, international trade, especially its maritime component, in the BA Mediterranean society, economy, and polity, has been widely discussed (e.g., Gale 1991a; Laffinuer & Basch 1991; Oates 1993; Mathers & Stoddart 1994; Laffinuer & Betancourt 1997). Proponents of the importance of exchange in its broadest sense—the movement of goods between hands (cf. Renfrew 1975)—cite the distribution of traded items, material cultural and other influences, and socio-political developments, while opponents look to the relatively small quantities of traded items in the archaeological record, autonomous process and invention, and geographical and technical limitations as both an explanation and an indication of the minimal role of trade. Without embarking on a full discourse on this complex
subject, a few points should be noted. The reluctance of some scholars to recognize that traded
items may be more than simply bric-a-brac is partly temporal chauvinism and partly
parochialism, and perhaps an overly zealous reaction to the sins of diffusionism. A foreign
item in a reliable archaeological context may foster numerous explanations for its
occurrence, but it cannot be discounted or ignored, even if it demonstrates previously
inconceivable technical abilities or élan, or because it crosses formerly sacrosanct
cultural borders, or scholarly biases (Bass 1997; Sherratt & Sherratt 1991: 352-3). In all
cases, an explanatory model should strive to incorporate all the available data, however limited
it may be in absolute numbers. Moreover, lest seemingly limited terrestrial artifact
distributions lead to minimalist interpretations of the scope of BA maritime trade, the
following observation regarding archaeological visibility must be acknowledged:

If the Uluburun ship had reached the Aegean and dispatched its
cargo of Cypriot pottery, then the quantity of Cypriot ceramics from
the Aegean would have tripled, which serves to demonstrate clearly
that the archaeological record, even with respect to non-perishable
goods, does not necessarily represent the true nature and magnitude
of the trade in question (Pulak 1997: 243).

In addition to the quantitative versus qualitative argument, assessing the impact of
trade on society and the issue of agency requires a discriminating approach, which must
rigorously and repeatedly test the archaeological and historical record. Among the trade or
cross-cultural exchange-oriented models that have been proffered are various notions of
“World-Systems”, which operate through a range of core-periphery-margin relations, but are
ultimately based on the exchange of raw materials and finished goods (Kohl 1987; Algaze
trade mechanisms and agencies may be suggested (Renfrew 1975), including the establishment
of foreign enclaves or trade diasporas (Curtin 1984: 1-14), some of which may have operated
within “gateway” communities located on a geographical or cultural interface (Burghardt
1971; Hirth 1978), or in “central-places” at the focus of a regional market (Berry 1967).
Whichever mechanism should prove to have the greatest explanatory utility, the ethnographic
record of long-distance, cross-cultural interaction, which may involve the acquisition of social
prestige by means that leave absolutely no material remains, provides a final caveat against
undue reliance on positivism (Helms 1988; Broodbank 1993: 315).

On land the principal variable in any interaction model is distance, which is presumed
to be inversely related to impact or influence, a phenomenon Bairoch (1988: 11) called the
“Tyranny of Distance”. In contrast, for maritime interaction, distance must be translated into
time, which is reduced considerably by the increased rate of movement. Moreover, impact and
influence must be modified by a factor equivalent to the potential increase in the regularity of
contact and the quantities and size of cargo. Thus, unlike a terrestrial regression model (Hodder 1974), a maritime interaction model must be receptive to occasional punctuated increases of significant magnitude in cultural, economic, and political relations. Ultimately, the differences between terrestrial and maritime interaction, in intensity, orientation, and organization, may lead to the parallel development of distinct social and economic systems, even in proximate and geographically contiguous areas (Fox 1971: 29-38).

The MB IIa Levant: From Patriarchal to International Age

The past few decades have seen a major change in the way scholars perceive the MB IIa period in the southern Levant. At its inception in the late 1930s, the chrono-cultural nomenclature proposed by Albright saw this period as a brief, non-urban, precursor of the fully urbanized MB IIb period. The reasons for this perception and its adoption to an extreme by Kenyon (1960: 155), was partly because of Biblical Archaeology's need for a patriarchal period, partly as an archaeological correlate for the purported movements of so-called “Amorites” (Dever 1976: 5-6, 9-10, 15; 1977: 84-6; Kamp & Yofee 1980), but primarily because most of the excavated sites, by these scholars and others, were in regions that were peripheral to what are now known as the core areas of the MB IIa cultural phenomenon. Apart from a few excavations, such as at Tel Aphek (Ory 1936; 1938), and other small MB IIa sites and cemeteries, the one major exception to this bias was the excavation of Megiddo, but its partial publication and Kenyon's authoritative articles (1958; 1969) negated the full implications of its MB IIa strata. An additional diversion was caused by Yadin (1978), who rejected the notion of a long MB IIa period of fortified cities coeval with a strong Egyptian Twelfth Dynasty on historical grounds, and whose excavations at Hazor seemed to confirm his view (Yadin 1972: 201-6). Only in the 1970s, with the resumption of excavation at Tel Aphek (Kochavi 1975), and the synthesis of its finds with sites in the Coastal Plain (Kochavi, Beck & Gophna 1979; Gophna & Beck 1981; 1988), did a radical shift begin to take place. This shift is best reflected in the landmark work of Gerstenblith (1980; 1983), who, inter alia, refined the relative chronological sequence, although not without some criticism (Beck 1985: 194-6), and demonstrated the lengthy urban nature and foreign contacts, both of which were particularly linked with the northern Levant.

The urban nature of this period is reflected in such attributes as settlement pattern, city plan, and public architecture. Numerous spatial and demographic studies of the settlement

3Recently, Falconer (1994a: 309-12; 1994b: 122-3) has suggested an alternate definition for BA urbanism, which terms a city as any site that is incapable of agricultural self-sufficiency, i.e., the subsistence demands of the calculated population are greater than the carrying capacity of the area accessible by the assumed daily walking distance of BA farmers. By this calculation, sites greater than 35 ha are definitely urban, sites smaller than 4 ha are rural, while sites that fall in the intervening continuum are of uncertain character. Space prohibits a full critique of this approach,
history have shown it to be a multi-tiered hierarchical system, which is weighted towards the
lowlands, especially the Coastal Plain (Gophna & Beck 1981; 1988; Broshi & Gophna 1986;
Ilan 1995a: 301-5; Dever 1997: 287-9). The geometric plan of many urban centers suggests that the inhabitants had both a strong affinity for the Syro-Mesopotamian city “model” and access to the requisite city planners and engineers (Kempinski 1992a;
1992e). Public architecture, including city walls, rampart fortifications, mudbrick gates, temples, palaces, perhaps elite buildings, and some burial traditions, specifically vaulted built tombs, also show an origin or, at least, an affinity to northern antecedents (Kaplan 1971;
300-1, 313-4; 1995b: 129-32; Bonfil 1997).

The most dominant material cultural feature, and the most archaeologically visible reflection of resource expenditure are the MB IIa fortifications, which begin with free-standing walls, often with glacis, and are followed chronologically by massive ramparts. In particular, the ramparts have been subjected to numerous studies of their taxonomic division, function, social significance, and origin. Typologically, these may be roughly divided into free-standing walls, walls with glacis, and rampart fortification, all with complex structural components that vary by site and environment (Kaplan 1975; Kempinski 1992b: 127-32). Functionally, these constructions served both civil, martial, and social roles. As a civilian construction, the massive ramparts, in particular, served to raise the site above the alluvial plain, or above the seashore, and protect it against inundation (Parr 1968: 43; Kaplan 1975: 2-3). As military architecture, the glacis and ramparts both protected the foundations of walls (Yadin 1955; Stager 1991: 30) and deterred high-intensity (foreign and local armies) and low-intensity (raids) threats. As social edifices, by delimiting the perimeter of the site, the fortifications defined the city's inhabitants, and projected the power of the local authority over the non-urban population, whose archaeologically invisible numbers were the requisite manpower for their construction (Bunimovitz 1992; Finkelstein 1992b). In the absence of walls at the top of most ramparts, the military role of these constructions has been called into question, and a social or propagandistic function has been offered in its place (Bunimovitz 1992: 227-8; Finkelstein 1992b: 205-7). While there is no denying the imposing character of these massive artificial mounds, and their place within the Syro-Mesopotamian urban concept, such symbolism would have little effect if it was not predicated on a tradition of functional efficacy that was reinforced by periodic displays of its potency. In light of the increasing evidence for walls on the ramparts of Ashkelon and Dan (Finkelstein 1992b: 205), the increasing evidence for Egyptian military forays into the Levant (see infra Chapter 2), the tradition of warrior burials (Philip 1995c), and

which, in any event, must be scaled down (Dever 1993b: 99-100), and adapted for geographical constraints (e.g., coastal sites of limited proximate hinterland), the demands of the agricultural schedule (Hopkins 1987), and the local ethnographic evidence for the use of the mazra‘a, the seasonal field abode of farmers (Esse 1991: 19-23).
the albeit equivocal evidence of archaeological destruction layers, the possibility of real warfare, both foreign and internecine, must be considered. Whatever their function may have been, sophisticated organizational skills were necessary to raise these constructions (Finkelstein 1992b: 208-14; Bunimovitz 1992: 226-7), which were funded by the surplus material wealth of these urban centers, probably in much the same way that field hands were paid, according to a text from Hazor (Horowitz & Shaffer 1992a).

The source of the material prosperity that fueled the urban process, and enabled the construction of ramparts and palaces, has been largely ignored. However, the recent focus of research and debate on the nature of relations between Tell el-Dab’a and the Levant, and the rise of the Hyksos Kingdom (e.g., Oren 1997a), may provide a partial answer as the role of the southern Levant in east Mediterranean trade is further elucidated. In addition, excavations on the southern Levantine coast, including the aforementioned Aegean frescoes, have led to a renewed consideration of the nascent international nature of this period (Artzy & Marcus 1992; Kislev, Artzy & Marcus 1993; Ilan 1995a; Teissier 1996: 6-7). Previously, apart from discussions by primarily maritime-oriented researchers (Raban 1985; 1991a; 1995b; Marcus 1991; Artzy & Marcus 1991; Artzy 1995), and occasional allusions by others to trade and possible ports (Tufnell 1962: 1; Prausnitz 1975; Harif 1978; Thompson 1979: 53-4; Gophna 1984: 31; Kochavi 1989c; 1992), the notion of MB IIA southern Levantine maritime trade on any scale has been generally ignored or denied outright (Weinstein 1975: 7-9, fig. 3; Dever 1976: n. 78; 1987; Ziffer 1990; Falconer 1994a). This denial derived primarily from a myopically static approach to coastal paleogeography, which led to the disregard of potential ports (Dever 1976: n. 78; Aharoni 1979: 17; Gerstenblith 1983: 4). However, recently there are indications that maritime trade is beginning to gain more general acknowledgement as a reality, if not as an important mechanism in the development of MBA culture (Ilan 1995a; Bietak 1996: 14-20, 55-63; 1997: 103-4; Dever 1997: 289; Holladay 1997: 203-5).

In order to fully appreciate the role of maritime trade on the southern Levant, the discussion first turns, in Chapter 2, to Egypt and its external relations with the Southern Levant and beyond, in order to understand the evolution of these relations and their long term impact on the southern Levant. Other trade networks of the eastern Mediterranean and ancient Near East are considered only insofar as they shed light on the role of the southern Levant as alternately primary and secondary trade partner, and cross-cultural nexus for Egypt. Having demonstrated the long term nature of these relations, Chapter 3 considers the physical mechanisms of interaction, surveying and contrasting land-based and seaborne communications and reviewing the evidence for maritime activity along the southern Levant. This chapter will demonstrate that the coastal zone was a necessary maritime nexus in Egypt's primary relations with the northern Levant and beyond. After examining the southern Levant's role in the maritime network of the eastern Mediterranean, Chapter 4 surveys the material cultural landscape of the Levantine MB IIA period in order to present the evidence for interaction and
traded commodities in their proper archaeological and relative chronological contexts. Finally, Chapter 5 brings together the evidence into a meaningful maritime model for the rise and floruit of the southern Levant in the MB IIa period. With this conclusion, it is hoped that the validity of a maritime approach to Levantine archaeology will have been demonstrated, and the writing of a maritime history of the southeastern Mediterranean will have begun.
Chapter 2  
From Nile to Cedar Forest and Silver Mountain: the southern Levant and east Mediterranean trade

Egypt and Mesopotamia, the two earliest Ancient Near Eastern civilizations, arose in lush alluvial plains watered by large rivers that enabled surplus agricultural production and served as the main arteries of communication. The Nile, the Tigris, and the Euphrates were unifying ecological features for the distant and disparate populations that emerged as complex societies. Beyond governing and facilitating subsistence, and distributing surplus production, these rivers, along with land and sea routes, were the by-ways for the import of foreign exotica and staple products. Early on, both of these great civilizations became dependent on materials that were unavailable in their immediate environs. To ensure access to and delivery of these materials they developed and relied on basic transportation technology, common and esoteric knowledge of distant places, and long-distance social relations. These relations included those living at or near the source as well as the middleman or inhabitants of the interstitial areas. The impact of these relations could involve socio-political equals as well as unequals, resulting in a variety of influences and developments. A thorough treatment of Ancient Near Eastern trade is beyond the scope of this thesis, nor is it its goal. Instead, this chapter seeks to outline the evolution of trade relations along the eastern Mediterranean littoral, particularly in the way they affected the cultures of the southern Levant leading up to and including the MB IIA period. By its name, this chapter alludes to the seminal work of Marfoe (1987), which posited a firm link between local process and long distance interactions involving the Levant, the eastern Mediterranean, and the Ancient Near East. Emphasis will naturally be placed on Egypt, because of the intimate nature of its relations with the Levant throughout history. Inland Syria and Mesopotamia will be considered, but only as they relate directly to the issues at hand.

1. The longue durée of Egyptian-Levantine relations

As is evident in works such as Redford's (1992) recent tour de force, the rich intimacy of Egyptian-Levantine relations are a mainstay amidst the changing palimpsest of history. From prehistoric until modern times, it is impossible to consider the totality of any historical period in Egypt or the Levant without some consideration of the other (Table 1). Even in periods when such contact is absent, that absence is noteworthy and lamented by modern writers as much as their ancient counterparts (viz. The Admonitions of Ipuwer). Yet this contact is often nebulous and difficult to characterize and, when recorded, alternates between animosity, familiarity, and cordiality.4 This

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4 At a conference on relations between Egypt and Canaan in the fourth and third millennium BCE, held at the Hebrew Union College in Jerusalem on May 14-15, 1998 (N.B. other presented papers will simply be referred to this note), Toby Wilkinson drew a distinction between the official portrayal of Asiatics in Egyptian art and literature and the actual relations during the pre- and Early Dynastic periods, a distinction that also holds for many other periods.
ambiguity is to be expected between lands that were not only situated on two sides of a desert divide, but also were intermittently favored by the swinging pendulum of cultural, economic, and political superiority. Despite the subject's breadth—or perhaps precisely because of it—there is an obvious lack of a conceptual thread or a cohesive model to guide the reader across the millennia of interaction. In some respects the Braudelian approach of long term patterns, punctuated by "events", is a useful way of summarizing the continuous features of this historical axis.

In quantitative terms of raw materials and potential, Egypt is by far the wealthier of the two countries. Surplus agricultural produce (grain, pulses, vegetables, and fruits, etc.), and plant products (e.g., papyrus, etc.) abound. As a corollary, the surpluses supported domesticated animals and, more importantly, a large workforce of craftsmen. In addition, the lithology of the surrounding deserts offered workable stone and metals. One need only glance at the resource map provided by Baines & Malek (1980: 21) to envision the full spectrum of possible Egyptian exports from prehistoric times through later antiquity (Sperber 1976). The realization of this potential was gradual, a long process dependent on a variety of technological (e.g., level of craft specialization, transportation, etc.), social (e.g., degree of stratification, displays of status, etc.) and economic (e.g., demography, production, etc.) parameters. Despite its wealth, Egypt lacked many crucial products, along with the knowledge of their use and manipulation. Among these were long woods, various arboreal oils and resins, certain orchard fruits and their by-products (olive oil and wine), bitumen, various metals, and other materials, whose demand far transcended subsistence and became imbued with social, religious, and even political value.

The Levant must be viewed at a different and smaller scale (cf. Joffè 1993: 23-4). The sub-regional variation in rainfall and agricultural carrying capacity, the fragmented geography, and the ecological diversity, meant that the Levant lagged far behind in quantitative agricultural potential, but was blessed with a qualitative variety of products and basic raw materials, although some were beyond the margins of the settled areas. In socio-economic terms, the absence of a single unifying dominant ecological feature, such as a major river, lake, or mountain, may have destined this region to greater socio-ethnic and cultural diversity than its powerful neighbor, and a relative multiplicity of subsistence strategies. Many of the products that the Egyptians came to covet initially came from the southern Levant, or were transshipped from more distant regions overland or by sea. But the asymmetry of scale and the narrowing area of dry farming meant that the Levantine region most proximal to Egypt was not necessarily capable of meeting the demands of the growing Nile Valley civilizations alone. Even with growing Egyptian interest in more distant regions, the southern Levant maintained a role of nexus, of transshipper, of bystander, or of last settled region before the desert divide. For the Levant, Egypt’s exports were initially luxuries or prestige items, but ultimately a melange of organic staple products (e.g., flax linen, papyrus, etc.) entered the relationship as well. Finally, Egypt had a traditional role as a safety net in times of famine, either as a refuge for mobile groups or as a source of much needed food, for which Levantine polities could trade. The latter role began to emerge already in the Bronze Age, although this is not readily detectable in periods prior to the appearance of texts.
A number of themes are covered in what follows. The primary focus is on the nature of the contact between Egypt and the Levant from prehistoric times through the Twelfth Dynasty-MB IIa period, and the varying asymmetry of cultural and political superiority between these two regions. Inter-regional and intra-regional trade in the Levant are discussed inasmuch as they may reflect the organizational infrastructure behind all types of exchange, and the marshalling of material surplus for export. Similarly, evidence of administration (e.g., seals, public architecture, etc.) is seen as reflective of the level of bureaucratic sophistication for organized redistributive and commercial economies.

This survey is not meant to be comprehensive. The lack of consistency in the available evidence, both synchronically and diachronically, is an obstacle difficult to overcome. For example, New Archaeology's natural science and materials-based approach is much more common in anthropologically-oriented research on prehistory, and gradually declines among researchers in later periods, but this situation is changing rapidly. Thus, some raw materials and finished goods are occasionally dealt with in more detail in earlier periods than in later ones, either because by then their exchange and use are considered self-evident (e.g., basalt grinding stones), or because the basic research for the evidence of these periods is still lacking. Lastly, as this work focuses particularly on the maritime and coastal aspects of this relationship, some inland areas, such as Trans-Jordan and parts of the Hill Country, are not dealt with in as much detail. This choice should not be construed as a negation of their importance, but rather a recognition that their specific geographic situation, which deserves a different approach, sets them apart, from time to time, from the maritime spheres of interaction.

### 2. First traverse and contact

First and foremost, from earliest times onward, Egypt and the southern Levant can be compared to two stations on either side of an increasingly inhospitable stretch of highway: the Sinai peninsula. Before the advent of sedentary life, relations were predicated on their position at either side of the sole landbridge “out of Africa” and into Asia. Everything from early hominids to anatomically human hunter-gatherers traversed this route, whichever the direction they took (O. Bar-Yosef 1995), or whatever the impetus that drove them (Sherratt 1997). These groups and societies moved in migrations and had interactions, which are ill understood, although their existence is well documented in lithic and physical anthropological comparanda.5 As portions of humanity gradually abandoned mobility for sedentary life, it was on the Levantine side of the desert divide that agriculture first succeeded, with its Nilotic counterpart lagging behind on the order of perhaps three calendrical millennia (Hassan 1988: 144-5; Bard 1994: 265-7; Wenke 1989: 135-8). Floral domesticates along with other elements and

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5The first demonstrable evidence of the transportation of anything other than an “idea” (e.g., lithic technology) are fragments of *Aspatharia* shells, which originate in the Nile Valley, at two Natufian sites: `Ain Mallaha (`Eynan) and Abu-Ghosh (Reese, Mienis & Woodward 1986: 79). In addition, material analysis of ochre from the Hayonim Cave shows it to have originated in the eastern desert of Egypt or the Saudi Arabian Red Sea coast (Zackheim 1997).
innovations (e.g., lithic and ceramic attributes, domesticated animals, and textile technology) from the Levant were introduced into Lower Egypt during the Nilotic Neolithic, which is roughly contemporary with the Levantine Pottery Neolithic through early Chalcolithic (Hassan 1988: 145, fig. 2; Levy 1992: fig. 4). This transmission is unreciprocated in the contemporary Levantine archaeological record, but the crucial introduction of agricultural domesticates should not necessarily be seen, socio-economically, as any different from other items of exchange (Runnels & Van Andel 1988). This “first contact” between south Levantine and Nilotic sedentary communities seems archaeologically ephemeral, as it resumed only in the Chalcolithic period.

3. Chalcolithic expeditionary trade to the Nile Valley

The Chalcolithic period marks the first stage where material evidence and chronological synchronization provide some basis for characterizing Egyptian-Levantine relations. During this stage of prehistory, which is coeval with Naqada I (Amratian and Badarian cultural units), the asymmetry of complexity between the two regions is quite distinct and favors the southern Levant in terms of socio-cultural and technological development (Levy 1992). Recent studies have highlighted aspects such as settlement hierarchy, formal cemeteries, regional and local cultic centers or temples, varied modes of agricultural and pastoral production, and craft specialization as indicative of relatively advanced socio-cultural developments, particularly, but not exclusively in the Beer Sheva Valley (Gilead 1988; Levy 1995).

Although the bulk of crafts relied on relatively local resources (Gilead 1988: 426), long distance expeditions for the procurement of native ores in Timna’, Transjordan, and Sinai, and perhaps the import of naturally occurring alloys from regions far to the north, were the basis for copper production at Beer Sheva valley sites (Shalev 1994; Ilani & Rosenfeld 1994; Hauptmann & Weisgerber 1992; Tadmor, et al. 1995). Some lithic industries (Rosen 1986; 1993), and possibly

6 Among these crafts are pottery production (Goren & Gilead 1987; Gilead & Goren 1989; Goren 1990b; Goren 1995), metallurgy (Shalev & Northover 1993a; Shalev 1994; Tadmor, et al. 1995), and basalt vessels (Amiran & Porat 1984; Gilead & Goren 1989).

7 At present the extent of our knowledge of the copper sources during this period is growing, but still incomplete (Shalev 1991; 1994). While there is evidence for Chalcolithic metallurgical operations at Feinan (Hauptmann 1989; Hauptmann, et al. 1992: 6-7; Hauptmann & Weisgerber 1992: 62-3), the dating of the evidence from Timna’ is problematic (Shalev 1994; Rothenberg & Glass 1992; Sebbane, et al. 1993; Avner, Carmi & Segal 1994: 276). Feinan appears to have been the ore source for the production of utilitarian tools (Shalev 1994: 633; Tadmor, et al. 1995: 136-8), but the source of the ores used for prestige items remains unknown. Analysis of the ores at Feinan (and Timna’, as it derives from the same formation) exclude it as the source for the antimony-arsenic copper or the arsenic-nickel copper used for the production of prestige products (Hauptmann, et al. 1992; Hauptmann & Weisgerber 1992: 62-3; Shalev 1994: 633; Tadmor, et al. 1995: 138-42). Among the suggested origins for these natural alloys are Antioch, and eastern Anatolia to Central Iran (Tadmor, et al. 1995: 140-3; Shalev 1996: 161-2). However, recent work by Ilani & Rosenfeld (1994) suggests a local arsenical source in the Sinai, but antimony and nickel were not detected. Wherever the source of these alloys, the limited distribution of these artifacts within the Levant argues against these being imported finished products, but rather as a raw material (Shalev 1996: 162). As the petrography of the stone core in a macehead from Shiqmim is consistent with a source in the Aravah (Shalev, et al. 1992), an unknown, local production site, somewhere in the region is most likely, or perhaps it is the product of
turquoise (Beit-Arieh 1980: 56-8, 61-2), also depended on distant sources. At settlement sites, inter-regional trade is attested in raw materials and finished products. More frequently, however, specialized contexts (e.g., ritual centers, hoards, and burials) contain non-local raw materials and finished objects. The few stamp seals, including one made of a Syrian stone, and a single seal impression from a basket may be evidence for the emulation of Syro-Mesopotamian administrative practices (Joffe 1993: 55, n. 5; Ben-Tor 1995; Bourke 1997: 99).

Rare Egyptian imports to the Chalcolithic southern Levant include: *aspatharia* shells (Reese, Mienis & Woodward 1986: 79-80; D. Bar-Yosef 1995); an alabaster jar from the temple at ‘En Gedi (Ussishkin 1980); an alabaster pendant from Gilat (Alon & Levy 1989: 165, 208, 210, table 1); a number of petrographically substantiated Egyptian pottery sherds from the northeastern Sinai and Gilat (Oren & Gilead 1981: 30-3, fig. 9:10; Goren 1995: 293); other still unanalyzed ceramic objects of Egyptian affinity from Nahal Besor D2, Gezer and Tuleilat el-Ghassul (De Cree 1991: 22); and two flint tools of Egyptian affinity found on the surface of Gerar 100 (Gazit & Gophna 1993). Hippopotamus ivory was used to fashion a number of objects found at Shiqmim, which have Egyptian parallels, but the raw material could also have come from the Coastal Plain (Levy, et al. 1991: 405, 411, figs. 14-15, 20; Levy 1992: 345-6, fig. 1; Levy & Alon 1992). The most important find of recent years are eight rings of gold and electrum from the Nahal Qanah Cave (Gopher, et al. 1990; Gopher & itinerant coppersmiths (Gates 1992). While no remains of the “lost-wax” casting process has been found, all aspects of the utilitarian copper production, apart from mining and sorting, are documented at the habitation sites, including those fairly close to the mines (Shalev 1991; 1994: 636; 1995: 115; Adams & Genz 1995).

These include basalt and phosphorite (Amiran & Porat 1984; Gilead & Goren 1989; Goren 1989a; 1991b; Philip & Williams-Thorpe 1993), copper, which is limited to the Beer-Sheva valley and sparse occurrences in the north (Shalev 1994: 633, fig. 1), lithics (Rosen 1987; 1993), ivory (Perrot 1959; Barnett 1982: 23), shells (D. Bar-Yosef 1995: 453-4), and ceramics (Gilead 1988: 426; Gilead & Goren 1989). Note the inspiration for the few ivory figurines is no longer thought to be Egyptian (De Cree 1991: 23-4; Kantor 1992: 12).

Lastly, two studies suggest Egyptian influence on the local iconography (Mozel 1979; Gates 1992).

In Egypt, Levantine raw materials (e.g., wood, resin, copper, and turquoise) are reported in Amratian and Badarian contexts (Kantor 1992: 12; Prag 1986a: 71-2; Ward 1991: 13-4, 16; Lucas & Harris 1962: 429-38). The most substantial evidence for contacts with the southern Levant comes from Maadi, a Naqada I to early Naqada II settlement near Cairo (Bard 1994: 277-9; Hassan 1988: 160-1; Levy 1992: 348-50; Hoffman 1979: 200-14; Rizkana & Seeher 1984; Wenke 1989: 140; 1991: 300; Tutundjàič 1993). Among the architectural finds in this nearly 20 ha settlement were four subterranean structures, which while unparalleleld in Egypt, are similar to those found in the Beersheva valley (Rizkana & Seeher 1989: 49-56; Levy, et al. 1991: 405; Levy 1992: 348-9, fig. 2-3; Hoffman 1979: 201-2, fig. 54). Other Levantine cultural features include an intra-mural jar burial (Hassan 1988: 160; Hayes 1964: 130-1; Rizkana & Seeher 1989: 67-8), lithic tools (Schmidt 1992: 32-3), and a ceramic butter churn made of local Nile clay (Levy 1992: 349-50; Rizkana & Seeher 1987: 46-7). Apart from the butter churn, there are no other Levantine forms or imported pottery detected at Maadi prior to the EB I (Porat & Seeher 1988); however, aspects of the local ceramic production at El-Omari to its south may have been brought from the Levant (Bard 1994: 277). Other imported finds include: small objects of cedar wood, bitumen, and copper ingots and ore from Feinan or Sinai, which was processed at the site (Rizkana & Seeher 1984: 239; 1989: 24-5, 71-2; Hassan 1988: 427; Pernicka & Hauptmann 1989; Hauptmann 1989: 120, 129; Kroll 1989; Bard 1994: 278). A small ring made of a...
Levantine basalt, perhaps a spindle whorl, was found on the surface (Porat & Seeher 1988: 217, 228, n. 5). Analysis of the human remains from Maadi and nearby Wadi Digla suggest an indirect morphological relationship between South Levantine and Lower Egypt populations (Klug & Beck 1985; Beck & Klug 1990). Thus, the evidence suggests the physical presence of representatives of the Beer Sheva culture at Maadi, but for what purpose? Hoffman (1979: 200-14) and Hassan (1988: 160-1) both liken Maadi to a commercial enterprise, where goods and people moved between the Nile Valley and the Levant. The discovery of domesticated donkey remains (Bökőnyi 1985), and ceramic boat models (el-Alfi 1992: 340), complements the evidence for means of long-distance transportation from the southern Levant (see infra Chapter 3). Certainly, Maadi's position at the apex of the Delta does mark, as Hoffman (1979: 201) noted, the inauguration of this location as an economic and political center. Maadi may have been the trade node via which gold passed on its way to the Nahal Qanah. If land-based resource procurement was the basis for supplying raw materials for certain crafts in the Beer Sheva valley culture, it is tempting to view the presence of Levantines at Maadi as another manifestation of their search for raw materials and exotica, and their role in fostering foreign relations.

Other evidence for Egyptian foreign contacts may harbor an indirect south Levantine route. Based on raw materials, technological and stylistic criteria, and the general lack of similar finds in the interstices, Prag (1978; 1986a) argued that maritime trade between Egypt and Byblos, particularly in resin, wood, and silver, began in the Chalcolithic period. Ben-Tor (1991: 3-4) rejected this notion of regular maritime contacts, but his claim of the lack of cedar imports prior to the Old Kingdom is contradicted by the aforementioned evidence from Maadi (Davies 1995). Ward (1991: 13, n. 2) cautiously acknowledges some indirect contact, and notes that if not cedar, some coniferous woods were being imported, probably from the Lebanon (Lev-Yadun & Gophna 1992). The exceptional nature of Byblos (Gilead 1988: 426-9) logically singles it out as a possible exchange node. The presence of carnelian at Byblos (Prag 1986a: 70) and a single pendant of this material at Kalavasos Ayious on Cyprus (Todd 1986: 21) strengthens the notion that cabotage was one of the means of trade. The absence of similar luxury items in the southern Levant could be the result of the paucity of coastal settlements or the lack of excavation. This lacuna should be balanced by the recent

15While an extensive sample was used for this analysis (Beck & Klug 1990: table 5.1), the inclusion of skeletal remains from the Shiinquim cemetery and other southern Levantine Chalcolithic sites (Levy & Alon 1982; Levy 1987) would be quite useful.

16In their tripartite division of this period, based on calibrated radiocarbon determinations, Joffe & Dessel (1995) distinguish temporally between Nahal Qanah and Maadi/Wadi Digla, but this distinction does not hold when using 2σ ranges.

17Besides sources in Egypt, Arabia and Sinai, Anatolia is cited as another source of carnelian (Moorey 1994: 97-8). The subterranean pit dwellings discovered at Kalavasos Ayious and nearby Kalavasos Kokkinoyia/Pamboules (Todd 1986: 20-1) offer an additional, albeit enigmatic, parallel with the contemporary Beersheva culture and Maadi.
discovery of the Nahal Qanah gold and south Levantine cultural affinities at Byblos (e.g., pottery, butter churn, violin figurine, and, perhaps, copper; see Prag 1986a: 63). Although it is generally thought that Egypt received its obsidian from Abyssinia (Zarins 1989), analysis of a knife from el-Tell el-Iswad (South) may point to an Anatolian origin (Schmidt 1992: 34).18

Among the factors in the collapse of the south Levantine Chalcolithic, Joffe (1993: 36-7) suggests that growing commercialization may have caused social fissioning in what Levy (1995: 240-3) has called a “debt-based” society. How this process impacted on Chalcolithic elites, whose disappearance by the EB I period can be seen in the loss of nearly all the characteristic prestige or cult symbols (Joffe 1991: 9-10; 1993: 36-7; Merhav 1993), still requires more investigation. In contrast, interaction, trade, and commercialism are seen by some as positive factors in the rise of the Egyptian state and the impetus for the Naqadan expansion into Lower Egypt (Trigger 1987; Hassan 1988: 166-75; Von der Way 1992a: 8-10 [discussion]; Bard 1994: 281-2), a phenomenon which opens a new chapter in Egyptian-Levantine relations.

4. The Egyptian Levantine colony and Uruk maritime expansion?

The rise of the Egyptian state during the second half of the fourth millennium is a long, complex, and still not fully understood process, with numerous explanations and avenues of research still to be explored (Hassan 1988: 164-75; Wenke 1989; 1991; Bard 1994; Köhler 1995). Whichever model one posits to explain this process, it did not take place in a vacuous state of insularity; rather it occurred at a time when Egyptian culture displayed complex foreign contacts and influences from Mesopotamia while exporting the trappings of its own culture and society into the southern Levant. As the history of this time period is shrouded by the foggy veil of proto-literacy, the social, religious, economic factors, and foreign influences that coalesced to lay the foundation for the unified Egyptian state, may never be fully understood (Wenke 1991). Although this foggy veil has long been pierced by vague and perhaps biased later historical references to proto-kings and events, it is only slowly being lifted by radiocarbon determinations (Hassan 1980; 1987; Levy 1992; Brandl 1992: n. 1; Kempinski & Gilead 1991: 171; Joffe 1993: 41; Gilead 1988: 399-406; Boehmer, Dreyer & Kromer 1993; Wenke 1991: 288-9). From this we learn that the Nile Valley developments of Naqada II-III (e.g., cultural nucleation and Uruk influences) are almost indistinguishable, chronologically, and therefore seemingly contemporaneous with the earliest South Levantine EBA phase (Gophna 1995: 279, table 1; Levy, et al. 1997: 7, table 1; Table 1).19 The present discussion will seek to outline the character of these relations as they set the background for future Egyptian-Levantine relations.

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18Chalcolithic-EB I period cotton fibers found in eastern Jordan may also hint at contacts with either the East, east Africa, or the Upper Nile (Betts, et al. 1994).

19Braun and Van den Brink (1998) was received too late to be incorporated into this study, but the authors’ conclusions do not radically alter the views presented here.
4.1 Egyptian colonization of the southern coastal plain

The collapse of the Beer Sheva Valley Chalcolithic culture and other regional clusters does not herald a complete depopulation of the region. Evidence exists for a major shift in settlement location (Gophna 1995; Gophna & Portugali 1988: 12-4, figs. 1-2; Finkelstein & Gophna 1993; Joffe 1993: 41-8), changes in metal production and distribution (Shalev 1994), new ceramic wares (Stager 1992: 28-9), and, as noted above, a radical change in the elite groups and their symbols of prestige.20 With these changes comes some evidence for a continuity in ceramics, cross-craft skeuomorphs, utilitarian metallurgy, and aspects of ritual behavior (Joffe 1993: 39; Joffe & Dessel 1995: 514; Amiran 1985; Shalev 1994; Beck 1995: 8-13; de Miroschedji 1993a; Stager 1992: 29-30), all of which indicate the survival of Chalcolithic vestiges.21 The socio-political vacuum of slow, small-scale social reorganization in the early phases of the EB Ia (see Joffe 1993: 41-3 for a summary) was met by a socially and technologically complex superior foreign entity: an Egyptian colony.22

The literature on the Egyptian presence in the southern Levant during the EB I period is extensive (Brandl 1992; Gophna 1995: 277-9; Ben-Tor 1991; Stager 1992: 31-3; Finkelstein & Gophna 1993). While many scholars of the Levant have characterized this relationship in terms of later models of military intervention and imperialism, others have argued for a commercial relationship and peaceful coexistence (see summaries by Gophna 1995: 277 & Levy et al. 1997: 6-7). Some have sought to look towards Egypt as the catalyst for Levantine urbanization (Kempinski 1992d: 423-4), while others have demurred (Gophna 1995: 279). Even on the Egyptian side, relations with the southern Levant are raised as an issue in state formation (Trigger 1987; Bard 1994). All the explanations and interpretations are predicated upon the distribution of foreign finds in the archaeological record, but it is only with the recent application of archeometric techniques that local Egyptian industries have been identified and understood, and the full extent of the Egyptian colony realized. Kempinski & Gilead (1991: 187) are correct in warning against the loose application of the term “colony” to this phenomenon without any definition of the term. While the debate over the precise semantics of this phenomenon will no doubt continue, enough evidence has now accumulated to satisfy most definitions of colony, namely the presence of an Egyptian expatriate society that maintained relations with its homeland and possessed a full-range of societal components, from the administrative elite to the farmer—all of these in a geographical zone, between the Yarkon and Besor rivers, the sea, and the hills.


21One such vestige is the depiction of pack animals (see infra Chapter 3).

22The recent salvage excavations of EB Ia sites along the coast of Ashkelon will no doubt shed important light on this process (Braun & Gophna 1996; Baumgarten 1996; Golani 1996; Gophna 1997).
4.1.1 Egyptian architecture

At three sites, Tel `Erani, En Besor, and Afridar, Egyptian-style buildings were constructed using Egyptian building techniques (Brandl 1992: 445; Kempinski & Gilead 1991: 175-6, fig. 9; Kempinski 1992d: 422-3; Gophna & Gazit 1985). This combination of form and fabrication indicates that the architectural style desired by the inhabitants was met by architects and masons who came from an Egyptian building tradition. Although still not completely excavated, the discovery of an Egyptian-style tomb at Nahal Tillah with a dromos may be another example of Egyptian architecture in the region (Levy, et al. 1997: 14-6, 34-5, 45-6).

4.1.2 Egyptian administration and bureaucracy

Locally produced cylinder seals from Gezer, En Besor, and possibly Nahal Tillah, indicate the production of administrative devices that were derived from an Egyptian iconographic idiom (Brandl 1992: 446; Levy, et al. 1997: 18). Numerous seal impressions from En Besor, Tel `Erani, Tel Halif, and Nahal Tillah are local derivations of Egyptian seals (Brandl 1992: 446-7; Ben-Tor 1991: 6-8; Schulman 1983; 1992; Kempinski & Gilead 1991: 171; Levy, et al. 1995: 28-9; 1997: 16-8). Petrographic and chemical analysis of the clay from seven sealings from En Besor and Nahal Tillah show conclusively that these were impressed on local clays, which suggests a local application of an Egyptian bureaucratic administration (Porat 1989a; Ben-Tor 1991: 6-8; Schulman 1992; 1994; Levy, et al. 1997: 16-8). Porat's analysis (1989a: 86) demonstrates that some of En Besor bullae derive from other regions, perhaps as official consignments for the local authority. At present, given the lack of good parallels for these seal designs in Egypt (Ben-Tor 1991: 6-8), or material analysis, there is no evidence for sealed shipments from the southern Levant to Egypt.

4.1.3 Egyptian pottery

When discussing the EB I period, the term “Egyptian pottery” encompasses a complex range of artifacts. Egyptian pottery has been a facet of our understanding of the material culture of the southern Levant during the EB I-II since the excavations of Tel `Erani (Brandl 1989). Initially, the presence of kitchenware lent credence to the notion of an Egyptian physical presence in the region (Gophna 1976). Only recently, however, has a detailed analysis of the pottery permitted a full understanding of the relations between the Egyptian people, their potters, and their pots in the southern

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23 The results indicated that the clay of four of the seven sealings is comparable with the silty clay from En Besor, two of the seven are of a quartz-tempered loessy fabric comparable with Fara H, Taur Ikhbeineh, or Nizzanim; the remaining sample is of a calcareous clay from somewhere else in the southern Levant (Porat 1989a: 60). An impression from Nahal Tillah, which may read “chief/ruler of the city/fortress of the foreign country X” (Levy, et al. 1997: 18), is the first hint at the type of political organization that may have been in place.

24 Baruch Brandl (see supra n. 4) hypothesizes the use of miniatures (jars, bread loaves, etc.) from Tel `Erani as a manifestation of Egyptian administration similar to the one reconstructed for Mesopotamia by Schmandt-Besserat (1978). In this scheme, the small clay sealings sealed loops or bags of miniatures in a kind of docket or bill of lading.
Levant. Egyptian ceramic types, which draw their morphological, functional, and cultural inspiration from the Nile valley, have been found in large quantities in the colonization zone, diminishing in numbers and frequency towards the north and the east (Porat 1989a: 57; 1992: 433, fig. 1; Brandl 1992: 444, map).25 Within this zone, a number of sites (’En Besor, Taur Ikhbeineh, Tel ’Erani, and Nahal Tillah) stand out for their richness of numbers and range of forms within the Egyptian ceramic assemblage (Gophna 1990; 1992a; Oren & Yekutieli 1992; Brandl 1989; Levy, et al. 1995: 28; 1997: 25-38). At Tel ’Erani, for example, sherds of over one thousand vessels have been identified (Brandl 1992: 441).

The presence at Tel ’Erani of hybrid vessels, reflecting a mixture of Canaanite and Egyptian traits (Brandl 1989: 376-9), is now clearly substantiated by petrographic analysis (Porat 1986-1987; 1989a; 1992).26 Four distinct petrographic groups were identified: loessy or silty clays, Nile clays, marly clays, and sedimentary clays. The loessy or silty group is a south Levantine fabric from which particular Egyptian types were made, including bread molds, various bowls, various drop-shaped jars, other storage jars, and hybrid forms—all vessels associated with food preparation, eating, or drinking. No kitchenware was imported from Egypt (Porat 1989a: 50; 1992: 433-4, table 4). This petrographic group is found only in the colonization zone; no examples were found outside this zone, not even in the Sinai (Porat 1992: 435, fig. 3; Brandl 1992: 446, map).27 Technologically, this group differs considerably from the local Canaanite pottery tradition in source material, temper, the addition of organic temper, higher firing temperature, and the extensive use of the pottery wheel—all characteristics of Egyptian ceramic traditions (Porat 1989a: 50-2, 61-2 tables 9.3, 9.7; 1992: 433-4, table 6). Slight differences in fabric among the sites suggest that these wares were being produced at several locales (Porat 1986-1987: 112-5; 1989a: 55-7; 1992: 433, table 4). As Porat (1989a: 85-6; 1992: 434) concludes, side by side with a Canaanite pottery tradition, an Egyptian tradition, i.e., Egyptian potters, were producing Egyptian wares for Egyptian households.28 Recently, a cache, perhaps a foundation deposit, of Egyptian vessels made in the Egyptian technique using local clay was

25Limited examples are found outside this zone (e.g., Arad and Beth Yerah), often in later levels (Porat 1992; Brandl 1992: 443).

26Porat's petrographic sample is the most extensive undertaken for this period to date. From the southern Levant, she has sampled over three hundred Egyptian vessels of eleven types from seventeen different sites; 1,049 local Canaanite vessels of eighteen types from twenty-six sites; and from Egypt, fifty-three Canaanite vessels of seven types from nine sites and 109 Egyptian vessels of thirteen types from ten sites (Porat 1989a: figs. 5.1-5.2, appendix 2a; 1992: 433, fig. 2, tables 1 & 2). Further sampling and analysis of EBA ceramics has been undertaken by Goren (1990a; Oren & Yekutieli 1992; Levy, et al. 1997: 35-8).

27Sinai kitchenware was supplied from Egypt (Porat 1992: 435).

28The presence of hybrid types (Brandl 1992: 445-6; Porat 1989a: 3, 52, 55-6) indicates communication and some craft transfer between the two traditions, although the evidence from Nahal Tillah may indicate that this craft transfer may not have been widespread (Levy, et al. 1997: 34).
found at an EB I temple at Megiddo (Finkelstein 1997; D. Ussishkin, see supra n. 4), which is the first such assemblage outside the colonization zone.

4.1.4 Egyptian flint tools

Alongside the local lithic industry, analysis has revealed imported flint tools from Egypt and a high proportion of locally-made Egyptian flint tools, produced by resident Egyptian craftsmen (Rosen 1988). Examples are found sporadically along the coast at Tel Aviv (“Country Club” site), Azor, and Yavne-Yam, with the richest assemblages in the south at the sites of En Besor, Gaza Site H, and, in particular, Tel ‘Erani (Rosen 1988; Brandl 1992: 441, 446). Of the one thousand lithic artifacts from Tel ‘Erani analyzed by Rosen, two hundred are of Egyptian type (Rosen 1988: 106-7). Functionally, the assemblage is varied, and includes sickle blades, which were used as agricultural tools or in bread and beer production (Rosen 1988: 115; Brandl 1992: 446). Regarding the question of an Egyptian military presence, Rosen (1988: 115-6) notes the absence of transverse arrowheads, a common weapon at Egyptian sites in Sinai. Acknowledging the scarcity of a comparable Canaanite lithic assemblage that can be attributed to the earliest sub-phases of the EB I period, Rosen (1988: 113-5) makes the following points in support of his identification of resident Egyptian knappers: the Egyptian flints were found only in sites with locally produced ceramics, architecture, and other aspects of locally produced Egyptian material culture (cf. Brandl 1992: 444, map); with the abandonment of these sites, this lithic element disappears completely; the frequency of local lithic elements provides a marked contrast to the greater variety of the Egyptian tool kit; and, lastly, the preference for particular raw materials indicates craftsmen other than those who produced the Canaanite flint assemblage. The functional convergence or redundancy shows that these are not individual elements of a single tool kit, but represent distinct and parallel industries.

4.1.5 Other evidence for Egyptian industry or presence

Cosmetic stone palettes from Azor, Tel ‘Erani, Lachish, and Site H are reported to be locally made (Brandl 1992: 450), although the basis for this determination is not given. Analysis of the skeletal remains from Azor suggest that some of the individuals are of African origin (Ben-Tor 1975: 9).

4.2 True imports from the Nile valley

True Egyptian imports from the Nile valley are found primarily within the colonization zone, but also beyond its limits (Brandl 1992: 444, map). Among these finds are luxury items such as beads of gold and various semi-precious stones from tombs at Azor; cosmetic palettes; beetle and bull’s head amulets; alabaster objects; an unidentified green bead in the shape of an Egyptian vessel from Tel Halif (Seger 1990: 71, fig. 58:6); part of a diorite vessel from Lachish (Brandl 1992: 460); and a stone vessel
out of context from Yoqneam (Brandl 1992: 469). Prestige or ritually oriented items include a discoid macehead from Megiddo (Brandl 1992: 465) and a faience statue from 'En Besor (Gophna 1993b). Utilitarian lithic objects include fine flint tools from Azor, Yavne Yam, Lower Horvat 'Illin, and Nahal Tillah (Ben-Tor 1975: 24, pl. 21.4; Gophna 1969; Marder, Braun & Milevski 1995: 78-79, n. 18, fig. 10; Levy, et al. 1997: 42, fig. 29a), and a diorite stone axe from the Tel Aviv 'Country Club' site (Gophna 1978: 138-40, fig. 4:3). Organic products may have arrived in closed vessels, of which the *aspatharia* shells from Arad, Azor, and Tell el-Far‘ah (N) are the only known examples (Reese, Mienis & Woodward 1986: 80-82).

True ceramic imports are represented solely by storage jars of various types and sizes, which are produced of Nile silt and marly clays (Porat 1989a: 45-56, 75-77; Brandl 1989: 368-79; Gophna 1990: 151-8). They occur in sites within the colonization zone alongside locally produced Egyptian wares, albeit in much smaller numbers (Porat 1992: table 4). Outside of this region, these are the only Egyptian vessels found (Porat 1992: fig. 3). They presumably contained organic commodities that were desired by the Egyptian population and not available in the southern Levant (Gophna 1990: 159).

### 4.3 Other evidence for inter-regional and international trade in the southern Levant

Although most investigations of trade in the southern Levant tend to focus on Egypt, evidence for both inter-regional trade and international trade with other regions is documented in the archaeological record. Since Hennessy's research (1967), little has been done on the northern connections, apart from architectural, ceramic, and glyptic similarities with Byblos (Ben-Tor 1985; 1989; Braun 1989). Such contacts will need to be reassessed in light of recent finds of cedar and Turkey oak wood, both probably from Lebanon (Gophna & Lipschitz 1996), an Amuq F bowl at EB Ia Taur Ilkheineh (Oren & Yekutieli 1992: 371, fig. 10:15, pl. 9), and a Jemdat Nasr type vessel found at 

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29 For gold beads and semi-precious stones such as amethyst, agate, chalcedony, and jasper, see Ben-Tor (1975: 23, fig. 12:9, pl. 22:5). A jade pendant is reported at Site 177, near Dor, which is dated to the Chalcolithic-EB I (Olami 1984: 162, fig. 161:7). Jade is often misidentified; it is probably of jasper or serpentine (Lucas & Harris 1962: 396-7). Cosmetic palettes from Jericho, Halif (Brandl 1992: 458), and Bab edh-Dhra‘ (Schaub & Rast 1989: 452-6, fig. 261), with other possible examples at Beth Yerah and Gaza (Brandl 1992: 467-8). A possible steatite beetle amulet was found at Nahal Tillah (Levy, et al. 1997: 22, fig. 17:2). Bull's head amulets come from Tell el-Asawir and Azor (Brandl 1992: 449-50). Another amulet, fashioned in marble, is reported from 'En Besor (Gophna 1993a: 394). Alabaster finds include: beads at Tell el-Asawir (Brandl 1992: 449; Ben-Tor 1982: 5); a cylindrical vase at Yotvata in the Arava (Brandl 1992: 469); a macehead from Lower Horat 'Illin (Marder, Braun & Milevski 1995: 79); and pendants from the Tel Halif terrace 'Silo site' (Alon & Yekutieli 1995: 181, fig. 28:2) and 'En Esor (Yanai & Horowitz 1996).

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30 To Brandl's summary should be added a petrographically documented Egyptian vessel from an EB Ib tomb at 'En Esor (Yanai & Horowitz 1996), a bottle and a storage jar from Lower Horvat 'Illin (Marder, Braun & Milevski 1995: 79). Apart from a sherd bearing a *serekh*, no petrographically Egyptian ceramic imports were found at Nahal Tillah (Levy, et al. 1997: 31).

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31 Note that only one jar was sampled from 'Ai (Porat 1989a: appendix 2a). Numerous other vessels were found (Brandl 1992: 454-5, fig. 2), including bowls, suggesting that this firm geographical division may need to be modified.
with local and Egyptian finds in an EB Ib tomb at `En Esur (Yanai & Horowitz 1996: 71). Although beyond the scope of this work, many seemingly insignificant finds and materials have eluded any synthetic treatment.\textsuperscript{32} The presence of Dead Sea bitumen at a few sites may hint at the network that supplied Egypt.\textsuperscript{33}

\subsection*{4.3.1 Seals and sealing}

In addition to locally made Egyptian cylinder seals and impressions in the zone of colonization, which are associated with an Egyptian administration, cylinder and stamp seals and impressions were also found outside this zone. These finds appear at numerous sites, summarized by Ben-Tor (1978), a corpus that is continuously growing.\textsuperscript{34} Seals and seal impressions suggest the beginnings of the use of symbols in some form of economic or administrative system (Helms 1987b). These symbols are complex derivations from Mesopotamia and Iran, which were transmitted in a variety of directions via Syria and Byblos (Teissier 1987), and to some extent via Egypt (Beck 1984).

\subsection*{4.3.2 Pottery}

A number of studies of pottery production have noted a change from a low level of inter-regional interaction, reflected by a multiplicity of styles, to a more inter-regionally integrated and standardized craft (Joffe 1993: 53; Esse 1989b). Porat (1989a) does not synthesize her study of Canaanite pottery by sub-phases within the EB I, but she notes increasing specialization and inter-regional communication within the period.\textsuperscript{35} Inter-regional trade is demonstrated by storage jars made of dolomitic raw materials of the Central Hills that were found at numerous sites in the southern Coastal Plain (Porat 1989a: 47-9, table 8.5A, fig. 8.1A). Rare examples of basalt-tempered jars at Tell el-Far`a (N) and Tel Malhata suggest trade with eastern Galilee and the Beit Yerah area, respectively (Porat 1989a: fig. 8.1A, table 8.5B). Hole-mouth jars made of calcite-tempered calcareous clay may also have been brought to Coastal Plain sites (Porat 1989a: 47). A basalt-tempered hole-mouth jar

\begin{itemize}
\item\textsuperscript{32}These include semi-precious stones (Ben-Tor 1975: 23; Talbot 1983; Hestrin & Tadmor 1963: 285, fig. 15), tabular fan scrapers (Rosen 1983; 1989), and basalt objects (Amiran & Porat 1984: 17; Braun 1990; Philip & Williams-Thorpe 1993).
\item\textsuperscript{33}E.g., Arad (Nissenbaum, et al. 1984); Lower Horvat `Illin (Marder, Braun & Milevski 1995: 84-86); and Tel Dalit (Gophna 1996: 134).
\item\textsuperscript{34}This corpus includes: Arad (Beck 1984), `En Shadud (Braun 1985: 77-89), Beth Yerah (Esse 1990), Kabri (Kempinski 1991), Bab edh-Dhra` (Lapp 1989: 3), Jawa, and Tell Um Hammad (Helms 1987b), a list that is not intended to be comprehensive.
\item\textsuperscript{35}One might argue that her study is biased towards Arad, which makes up 22 percent of the sample (Erani is next highest with nearly 16 percent), but her sampling from other sites is fairly regular and covers all the sub-phases of the period (see above n. and Porat 1989: appendix 2a). There is still much that may be gleaned from her results, but one must acknowledge that this is a pioneering study; as macro and micro-scopy study of ceramics becomes \textit{de rigueur} the subject will certainly be elucidated further.
\end{itemize}
from Nahal Tillah is from a still unidentified Levantine source (Levy, et al. 1997: 38). Petrography also supports the identification of a workshop at Aphek, which produced carinated bowls that were traded to other sites by the end of EB I (Beck 1985a; Porat 1989a: fig. 8.1A, table 8.5B).

4.3.3 Metals

The beginning of the Early Bronze Age marks a significant change in the realm of mining, production, and distribution of copper. In contrast to the Chalcolithic period, when no manufacturing was carried out near the mines, there is increasing evidence to suggest that smelting and manufacturing were carried out near the sources of ore. No direct evidence for smelting is documented at Feinan during this period (Hauptmann & Weisgerber 1992: 63; Hauptmann, et al. 1992: 6-7),36 but recent finds indicate some manufacturing activity was carried out in the vicinity (Shalev 1994: 635-6; Adams 1992).37 One mine shaft from Timna’ is radiometrically dated to the EB I (Avner, Carmi & Segal 1994: 277), but dating the evidence here, as with the sources in southern Sinai, is complicated by the difficulty in dating arid zone sites (Sebbane, et al. 1993; Avner, Carmi & Segal 1994). Ilan & Sebbane (1989: 148, 153) suggest that sources in south Sinai were utilized based on, inter alia, the similarity in the composition of EB I and EB II copper awls, the latter of which are more convincingly derived from that region. The argument for a change in exploitation relies partly on the absence of evidence for smelting at habitation sites (Ilan & Sebbane 1989: 143). Furthermore, the presence of ‘industrialized’ smelting slag at some sites (Shalev 1994: 635; 1995: 115) suggests that the primary smelting was carried out elsewhere. Evidence for manufacturing comes in the form of slag, crucibles, and molds that have been found at habitation sites along the Coastal Plain at Palmahim, Besor-Site H, and Ashkelon (Shalev 1994: 635; Golani 1996), inland at Tel ‘Erani, Arad, and Small Tel Malhata (Ilan & Sebbane 1989: 143, n. 5), and at Tell esh-Shuna in Jordan (Baird & Philip 1994: 118). Unlike Chalcolithic metallurgy, all copper objects were made of the same unalloyed material, and as with other metals, formed by open-mold casting and forging (Shalev 1994: 633-6). With the exception of Tell esh-Shuna, all of the available evidence for the manufacture of copper objects is limited to sites south of Jaffà. In contrast to the Chalcolithic, the distribution of finished products in the EB I period is relatively random all over the southern Levant, suggesting general abundance and access to this material and its products: tools, weapons, jewelry, etc. (Shalev 1994: 633-6, figs. 1-3; Philip 1989; Miron 1992; Ilan & Sebbane 1989: 143-53, fig. 2).38

36There had been some earlier indications by Hauptmann, Weiberger & Knauf (1985: 172) of EB I mining at Feinan (cited in Ilan & Sebbane 1989: 148), but activity during this period is not reflected in later publications.

37It is not clear whether this development in EB specialization emerges from the Chalcolithic sites in the Feinan area (Adams & Genz 1995).

38There is still no unanimity regarding the date of the Kfar Monash hoard (Hestrin & Tadmor 1963; Miron 1992: 25; Shalev 1994: 635), but some tend towards an EB I attribution (Ben-Tor 1975:
Silver, whose source is generally considered to be in Anatolia (Prag 1978: 40-1; Lucas & Harris 1962: 245-9) is not common in the southern Levant in EB I contexts. Among the few examples are a silver bowl, rings, a pin, and other fragments.

4.4 Levantine imports in Egypt

The EB I period is characterized by an increasing number of archaeologically visible imports from the southern Levant. Invisible commodities may be inferred by the presence of pottery vessels, which most likely contained organic products. Occasionally, some evidence, such as resin or bitumen (Prag 1986a: addendum; Rizkana & Seeher 1989: 71-2), is preserved or discovered through analysis. The nature of these commodities reveals much about the desires of the burgeoning Egyptian state and its elites. The development of an Egyptian taste and demand for oils, resins, bitumen, wood and its by-products, wine, and copper, would establish a pattern for Egyptian foreign relations that would last, mutatis mutandis, the entire Pharaonic period. How the Egyptian elites developed a taste and demand for these products is not clear. While it can certainly be demonstrated by the EB I, its beginnings may date back to an earlier period. Other seemingly less exotic foodstuffs are suggested, such as moringa oil, honey, and legumes (Ward 1991: 15-6), but the archaeobotanical record does not entirely support these suggestions, and, e.g., the translation of moringa should probably be amended to olive (Stager 1985: 174-5; Lev-Yadun & Gophna 1992).

4.4.1 Copper

Beginning with the Naqada II period, increasing numbers of copper tools made in open molds were in use throughout Egypt (Ward 1991: 16-7; Ilan & Sebbane 1989: 153). The only evidence for manufacturing is at Maadi, whose copper appears to have come from Feinan (see supra p. 15). As no evidence has been found for the utilization of local Egyptian sources prior to the Twelfth Dynasty (Garenne-Marot 1984), the metallurgical evidence from Maadi and the Egyptian finds in the Sinai suggest that the copper was being brought from sources in the southern Levant, including Sinai (Ilan 26-7; Philip 1988: 199-200; 1989: 110-2). Philip (1988: 199-200; 1989: 158-9, 193-4) argues for centralized control of copper production, but does not deny the widespread distribution of its products.

39 For the rejection of Egypt as the source of silver, see Philip & Rehren (1996: 137-40); contra Gale & Stos-Gale (1981: 294). (See their conclusion regarding a Pre-dynastic silver rim.)

40 E.g., silver bowl from Tell Fara (N) (de Vaux 1951: 587, fig. 13, pl. XXVIIIa; Amiran 1979), various rings from tombs at Azor (Ben-Tor 1975: 24, fig. 12:10-12, pl. 22:6) and Tel Aviv-HaQiryaa (Ritter-Kaplan 1979: 241), a pin from Bab edh-Dhra’ (Schaub & Rast 1989: 313, fig. 185), an earring from Ashkelon (Golani 1996), and a single ring and fragment of silver sheet from Tell esh-Shuna (Philip & Rehren 1996: 137). Joffe (1993: 56, n. 7) refers to a silver ring in an EB tomb at Jericho, but according to Kenyon (1965: 30) both objects are corroded copper. The fragments of silver sheet from Kfar Monash may also be included in this list (Philip & Rehren 1996: 137; Hestrin & Tadmor 1963: 285).
4.4.2 Pottery and its influences

Levantine ceramics have been discovered at numerous Gerzean or Naqada II-III period sites, primarily in tombs (Kantor 1992: 12-7). Most of the vessels are storage jars, with ledge and loop handles, but other closed and unusual forms (e.g., kernos, churn, etc.) are known as well. Elements of these vessels, such as ledge and loop handles, are considered to have influenced Egyptian ceramic forms (Kantor 1992: 12-3; Bard 1994: 282), although the precise chronology and mechanism of transfer is still not fully understood. Compared with the generally sporadic occurrences along the middle and upper Nile (Kantor 1992: 12-4), the greatest concentration of these imports is at the Deltaic sites of Maadi, Minshat Abu Omar and Tell Ibrahim Awad (Kroeper 1986-1987: 78-79; 1989; Tutundâjic 1989; 1993; Van Den Brink 1992: 53, fig. 9). The exception to this pattern of distribution is the extraordinary number of Levantine jars at the elite cemetery (labeled "U") at Abydos (Dreyer 1992; 1992: 62-64). While single chamber tombs Uo and Up contained two Levantine jars, and a multi-chamber tomb Ua contained twenty-five Levantine jars, a large twelve chamber tomb Uj, which may have belonged to a ruler, held as many as seven hundred vessels, a quantity of which contained grape pips or the residues of resined wine (Dreyer 1992: 294-7, pls. 2, 3, 5; Dreyer, Hartung & Pumpenmeier 1993: 33-5, 49-56, figs. 4, 11; McGovern, et al. 1997: 9-11). Lastly, an unusual occurrence is a group of eight to nine Levantine jugs discovered in Qustul, Nubia (Williams 1986: 78-80, table 22, fig. 48).

Analysis of Canaanite jars of various types from a number of sites shows that they were produced in the southern and central Levant, some of dolomite tempered wares specifically from the southern and central Levant, some of dolomite tempered wares specifically from the

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41 Oren (1989: 400, n. 7) reports several kilograms of copper ore at a northern Sinai site, which is far less than Kempsinski cites (1989e: 165). These finds deserve more attention, as the presence of unrefined ore in EBA contexts does not correlate with what is known of the organizational trend of the copper industry.

42 At Maadi, for example, these wares comprise three percent of settlement pottery (Bard 1994: 278), while at Minshat Abu Omar imports are one percent (Kroeper 1989: 420).

43 Petrographic analysis of these jars have revealed that some were produced according to south Levantine ceramic traditions using locally available materials (N. Porat & Y. Goren, see supra, n. 4). Note that one of the clay sealings of the Abydos jars was composed of Nile clay, which suggests bottling some where in Egypt (McGovern, et al. 1997: 11-2). Until a correlation is made between the petrography and the organic remains, the full implications of this important context and its finds will not be fully realized.

44 Williams (1986: n. 63) notes that they appear to be made of the same fabric as Egyptian wares, prompting Kantor (1992: 13) to suggest that they are copies rather than imports. Together with the unpublished evidence from Abydos Tomb Uj, this suggests that Levantine pottery was in enough demand to support resident Levantine potters in the Nile valley.
Given the geographical origin of these vessels, their design as containers for liquids (Raban 1980), their emergence as a prestige item, a trait evinced by their presence in tombs and pictorial depiction by the First Dynasty (Amiran 1969b), it is likely that they contained resins, olive oil, or wine (Finkelstein & Gophna 1993; Ward 1991: 13-4).

4.4.3 Lithics

As in the preceding period, evidence for Levantine influence on the lithic technology of the Delta, specifically sickle blades, continues at Maadi and now appears at Tell el-Far’in (Buto) and el-Tell el-Iswid (Kantor 1992: 12-3; Schmidt 1992: 34-5; 1993). The aforementioned surface occurrence of a small basalt ring, perhaps a spindle whorl, from Maadi, if not of Chalcolithic date, belongs to this period.

4.4.4 Wood products

Evidence for the use and transport of wood and its byproducts in the EBA comes from two sources, which are not always reconcilable: the archaeological and historical record. The incompatibility of these sources derives from a number of methodological limitations. For textual sources, there is the fundamental question of the reliability of identifying a particular ancient term with a specific arboreal species (Meiggs 1982: appendix 2). Even with a correct identification in one time period, the same term in another age may be questionable. Meiggs (1982: appendix 3) notes that confusion between various species occurs even in later historical periods. While such problems of identification may not plague the modern paleobotanist, some limitations are imposed by the poor preservation of wood, except when charred, which until recently resulted in relatively small representative samples from individual sites and regions. Many key excavations were performed at a time when archaeologists were not cognizant of the need to collect wood samples; when they did, the lack of conservation of anything less than a find of museum quality means that identifications carried out before the advent of the scanning electron microscope cannot always be reconfirmed (Western & McLeod 1995: 77-78). Palynological data complements these identifications (Baruch 1986). In recent years, improvements in collection and analysis have meant that a meaningful, if sometimes heated, dialogue can now take place between the paleobotanist and the philologist (Ward 1991; Lev-Yadun & Gophna 1992). Advances in the analysis of organic residues of oils or resins (Mills & White 1989), however, have yet to be applied to the questions at hand (cf. Prag 1986a: addendum). In light of the

45 Buto (N=1), Maadi (N=10), Minshat Abu Omar (N=6), Hierkonpolis (N=1), Naqada (N=2), and El-tell es-Iwid (N=6). Porat's exclusion of any southern Levantine Chalcolithic imports from the Maadian ceramic assemblage is an excellent example of how petrography can occasionally be used as a dating method (Porat & Seeher 1988).

46 Kempinski notes that these narrow necked jars are a functional feature for the transportation of wine (Dreyer 1992: 299).
quantities of imported Levantine pottery, residue analysis would be a welcome contribution to the discussion.

Archaeological remains of wood are the only evidence for Predynastic imports of wood. At Maadi, eleven examples of cedar were discovered, including a lid and a small stick (Kroll 1989; Rizkana & Seeher 1989: 25). Although these could have been fashioned from timber, they may have arrived as small wood or as finished products (Rizkana & Seeher 1989: 25). An example of juniper is also reported (Davies 1995: table 1).

4.5 Summary of the evidence for Egyptian colonization

Until recently, previous models seeking to explain the Egyptian presence in the southern Levant, e.g., short military incursion, imperial aspiration, commercial relations, etc (Gophna 1995: 277), have suffered from a lack of recognition of the locational, technological, and chronological characteristics of Egyptian finds abroad. Brandl's (1992) summary of Egyptian finds in the southern Levant shows a clear and defined distribution within a limited geographical zone for a distinct time frame. Imported luxury or prestige items and storage jars demonstrate that there was a demand for Egyptianalia and food products from the Nile Valley. More importantly, the discovery that many Egyptian finds (e.g., ceramic, lithic, administrative, etc.) were produced locally demands a more holistic and complex interpretation. Physical anthropology suggests the presence of Egyptians who were buried abroad. The study of craft traditions demonstrates that artisans from an Egyptian cultural milieu were resident in the region for the entire period. Egyptian architecture was constructed by Egyptian masons at three sites, two of which, Tel `Erani and `En Besor, demonstrate large Egyptian assemblages. These two sites may have served, respectively, as a sort of capital and a border post for the local Egyptian administration (Brandl 1992: 442; Gophna 1993a: 394; Schulman 1994), although Levy et al. (1997: 46) suggest that Nahal Tillah was an additional administrative center. This local administration is reflected by the seal impressions and cylinder seals, perhaps indicating some sort of intra-regional, centralized, and redistributive agricultural economy. Petrographic analysis demonstrates the presence of locally produced Egyptian wares and indicates that Egyptian potters worked in at least two locales, supplying Egyptian expatriates with the kitchenware to maintain households at no less than eleven sites (Brandl 1992: 444, map). These households also utilized the products of Egyptian flint knappers who produced Egyptian sickle blades for the residents of three sites (Brandl 1992: 444, map). This specific industry suggests that Egyptian farmers were settling in this region as well.

47 Juniper is distributed in the north-central mountains of Sinai and in Jordan (Liphschitz & Biger 1995; Lev-Yadun, Herzog & Tsuk 1995). An example of this species is reported at Timna during the Chalcolithic period (Liphschitz & Biger 1995: 123, table 1), but the evidence for human activity at the site during this period is equivocal.

48 A.M. Rosen (see supra n. 4) suggests that flood plain farming may have been practiced by Egyptian farmers in adapting to the southern Levant's environment. What experience or technology they may have imparted to local agriculturalists is unclear.
workers are also indicated by the locally produced pallettes. Only one possible example of Egyptian ritual was found—the statuette at `En Besor. Its context in an Egyptian residency suggests that it was not merely a secular luxury import. Thus, a full array of social and craft activities are represented in a limited geographical zone, from primary food production to centralized administration. All lived side-by-side with local Canaanite communities in unfortified settlements lacking any material remains that might be suggestive of warfare or enmity. This evidence clearly suggests an intentional colonial endeavor, in which Egyptians came to this region in order to remain physically resident, but vigorously maintained their social, economic, and ethnic identification by their daily activities, cuisine, and communication with their home country. The presence of royal serekhs at numerous sites (Brandl 1992: 447, map; Joffe 1993: 52; Levy, et al. 1995: 29-33) may be a reflection of their deference to Egyptian political authority or royalty, or the latter's involvement or control of the entire enterprise.49

A number of salient points must be considered before attempting to understand the intention of this Egyptian enterprise. First is the chronology of the phenomenon. Based on the evidence from Taur Ikhbeineh, Besor Site H, and other sites, the arrival of the Egyptians, with their potters, begins at the very earliest phase of EB I and shows its greatest inspiration from the material culture evident at Maadi and its Lower Egyptian contemporaries (Oren & Yekutieli 1992; Gophna 1995: 277-8). Second, its spatial distribution must be considered. This foreign entity continues to expand geographically and develop in size and scope throughout the EB I sequence. Developments among the Egyptians in the southern Levant parallel the developments in material culture in Egypt, suggesting that whatever the purpose of the initial colony, it continued to serve the interests of the Upper Egyptian Naqada culture that gradually dominated Lower Egypt. Some differences in distribution and intensity can be discerned between early and late EB I phases (Brandl 1992: 447, map; Gophna 1995: 277-8). One particular discontinuity has been noted in the Egyptian presence in the lower Besor region where Site H is abandoned in favor of the establishment of the border post at nearby `En Besor, which did not occur before the peak of Upper Egyptian expansion into Lower Egypt (Gophna 1992a). Some view this second phase as a south Levantine expression of the expansion of Naqada culture (Oren & Yekutieli 1992: 381-2). The final point to be considered is the scale of the phenomenon. In Ben-Tor's (1991: 8) opinion, based on the percentage of the ceramic and lithic finds at Tel `Erani, the resident Egyptians numbered in the several hundreds. This estimate is crude and will need to be refined by further analysis of the increasingly available evidence and tested by various theoretical criteria. In a notional sense, he is essentially correct. The Egyptian colony was not a small-scale, ephemeral phenomenon. The duration of this self-replicating expatriate society spanned the entire EB I period and is represented, at the very least, by a variety of craftsmen, farmers, and administrators. Unless

49 According to Brandl (1992: 447, map), examples from Palmahim and Erani were incised on locally-produced vessels. One of the two examples from Nahal Tillah was incised on an imported Egyptian vessel (Levy, et al. 1995: 32; 1997: 19-21, fig. 17:3a-b).
these classes of individuals were merely mutually self-serving, other Egyptian dependents and customers may also be inferred, and their true number is inestimable at present.\textsuperscript{50}

Clearly, this Egyptian entity required a significant investment in terms of resources and manpower. Communication with mother Egypt required the maintenance of a lifeline across northern Sinai (Oren 1973b; 1989). This investment and its organization necessitated, at the very least, the tacit approval of the elites and emerging rulers of Egypt; whether a royal hand initiated or guided this enterprise is a matter of conjecture, royal symbols, e.g., \textit{serekhs}, notwithstanding. In either case, the fruits of this colonial apparatus—raw materials and imported agricultural commodities—were conspicuously consumed in tombs, indicating that they were highly prized by the Egyptian elite. Thus began a pattern of Egyptian interest in maintaining the supply of Levantine products that continued into the Pharaonic period. In order to ensure this supply at the dawn of the Early Bronze Age, the Egyptians relied on their own administrative mechanism for the acquisition of goods from the southern Levant. Furthermore, the demand for this supply was one of the factors in the changing agricultural and horticultural strategies of Levantine communities, both in the lowlands and highlands, and may have been Egypt's indirect contribution to more complex social organizations, i.e., urbanization (Finkelstein & Gophna 1993: 11-4; Stager 1985; Esse 1989a).\textsuperscript{51} As important as this supply was, it was not irreplaceable. With the rise of a united Nile Valley, the Egyptians abandoned their colony, gradually favoring relations with more northern communities and finally a firm relationship with the Lebanese port of Byblos. In the southern Levant, this abandonment is archaeologically undetectable; neither a gradual, nor a sudden disengagement has been discerned. All that can be demonstrated is the lack of any evidence of local production of Egyptian material culture and a decline in Egyptian imports. If some assimilation into the indigenous culture occurred, it is as poorly documented as the evidence for any impact or influence of Egyptian culture upon the Canaanites, alongside whom they resided for nearly two hundred years. For the southern Levant, it is a period of growing nucleation and social organization: the rise of a widespread local urban culture. What may have motivated these shifts will be considered shortly.

4.6 Uruk maritime expansion into Egypt?

Relations between the two earliest Near Eastern civilizations have long engaged scholarly attention, partly in order to better utilize Egypt's and Mesopotamia's chronological anchors as the

\textsuperscript{50}One other explanation for the 'Egyptian' presence in the southern Levant is that this sub-culture represents a highly Egyptianized south Levantine (or other) group; rather than ethnic Egyptians. This view would require some still unknown evidence for this acculturation process, perhaps somewhere in the Delta at the end of the Chalcolithic period, and a bit of dulling to the edge of Occam's razor.

\textsuperscript{51}This is not the place for a detailed discussion of which came first, stable and complex society, and then specialized highland horticulture (Stager 1985), or vice versa (Finkelstein & Gophna 1993: 13). We need more refined excavation of the incipient EB Ia highland sites, with better retrieval of botanical remains, before this question can be answered.
foundation for written history, and partly out of a need to establish the primogenitor of civilization. This aspiration often led to unicausal explanations for the rise of civilization like mass migrations, conquests, or some form of diffusionism (Moorey 1987: 36; Hoffman 1979: 293; Childe 1953: 238-44). As the taxonomic “shopping list” of civilization's traits (e.g., writing, monumental architecture, etc.) was assembled, the emerging pattern seemed to point towards a Sumerian cradle supplying these attributes not only to neighboring regions, but to distant lands, including Egypt (Frankfort 1951: appendix). Later, the scholarly pendulum swung away from emphasizing direct influence to focus on independent, pristine origins (Trigger 1983: 37; Moorey 1987: 36). Today, a much more sober view is directed at both extremes, but a complex long-distance relationship is still evident (Moorey 1987; 1995; Kantor 1992: 14-7; Largacha 1993; Mark 1997). This relationship manifests itself at a very distinct time (Naqada II), during a crucial and formative stage in Egyptian history. As large complex social organizations were emerging and the first Egyptian initiative into the southern Levant was beginning, a major pulse of Mesopotamian influence swept over the Nile Valley in the southwesternmost extension of what is commonly called the Uruk expansion.

The emergence of Mesopotamian civilization outside the southern Sumerian core area is seen as the result of an expansion of Uruk culture, which fostered and maintained complex trade relations with the Iranian plateau and the greater Tigris-Euphrates river systems as far as Anatolia through a series of enclaves, outposts, and stations (Algaze 1989; 1993). This is not the place for a detailed discussion of the supra-historical and supra-regional issues of what Algaze (1993: 5-10) calls a cycle of “momentum toward empire”. Suffice to say that aspects of Uruk culture and civilization: pottery, administration (e.g., tokens, seals, impressions, and simple numerical notation tablets), architecture, and iconography, are found throughout the aforementioned regions, which are in proximity to sources of raw materials (e.g., copper and wood), trade routes, and markets. The westernmost expression of this phenomenon, which is nearest to the Levant, is found along the Euphrates between Habuba Kabira and Jerobulus Tahtani (Algaze 1993: 24-30; Strommenger 1980; Peltenburg, et al. 1995; Peltenburg, et al. 1996; Sürenhagen 1986). While Uruk-type pottery is found further to the south at el-Kowm, near Palmyra, and at Jawa in the Black Desert of Jordan, but these sites fall short of the full Uruk expansion assemblage (Algaze 1993: 56; Joffe 1993: 55-6; Helms 1987c). From the margin of this periphery to Egypt no similar Mesopotamian finds are known.

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52 Algaze (1993: 56, tables 1 & 2) leaves the characterization of el-Kowm as an Uruk outpost an open question, particularly in light of the absence of the administrative evidence (e.g., tablets, seals, impressions, etc.) for regional and long distance trade. Joffe (1993: 55) is keen to see the Uruk-like pottery at Jawa as evidence of the arid zone pathways of contact between Mesopotamia and the southern Levant, a link also expressed by Mark (1997: 126). Elsewhere I have suggested that Jawa be characterized as an arid zone gateway for southern Syria (Marcus 1995b). This suggestion was based primarily on the work of Braemer (1993), but now see also McClellan & Porter (1995). The complexity of these arid zone contacts can be seen in the seal impressions from Jawa and Um Hammad, whose best parallel is from Tepe Gawra (Helms 1987b), a site that seems to have remained independent of the Uruk network (Algaze 1993: 71-72, 85-86).
The distribution of Uruk finds in Egypt have been amply dealt with by Moorey (1987; 1990; 1995) and Kantor (1992: 14-7). The range of portable finds include raw materials, such as lapis lazuli, and finished goods including stamp and cylinder seals, and ceramic jars whose contents are unknown (Moorey 1987: 37); so far, the evidence of stone vessels is less conclusive (Moorey 1990: 64*). The assimilation of Mesopotamian artistic elements, particularly from its Susian embodiment, into Egyptian iconography—with all that these symbols may (Smith 1992) or may not connote—is extensive and seems to be the result of a complex process of selection and transmogrification. The arrival of Mesopotamian motifs as impressions on commodity consignments may have been mediated via the northern Levantine ports of Byblos and Ugarit (Moorey 1987: 39; 1990: 62*-4*, 67*; Teissier 1987). Another artistic element, the high-ended boats found painted on pottery, in the Hierakonpolis tomb painting, and incised in numerous petroglyphs, was previously seen both as an example of the contacts between Egypt and Mesopotamia and as representation of their carrier. However, they appear only to bear a superficial resemblance to “Mesopotamian” examples (Moorey 1987: 39; Vinson 1994: 17; Mark 1997: 69-87).54 The introduction of monumental mudbrick architecture and niched facades are both seen as having derived from an ultimately Mesopotamian source (Moorey 1987: 40). The discovery of locally-made clay wall pegs (nails) and cones, and the presence of mudbricks at Tell el-Fara’ in (Buto), suggest that the inspiration for these architectural elements may have come from a Mesopotamian structure (i.e., temple or palace) built in the western Delta (Moorey 1990; Von Der Way 1987: 247-50; 1988: 248-9; 1991: 54-7; 1992; 1992).55 The material culture from Buto is the only demonstrable evidence for the physical presence of bearers of Uruk culture (masons and people who used this structure, e.g., merchants?) in Egypt, and may hint at other craftsmen as well (Moorey 1990: 64*-67*). Lastly, what functional or structural debt, if any, is owed by Egypt's writing system to that of Sumer is still unclear (Moorey 1987: 40), although like the more ancient Mesopotamian writing, 

53Space does not permit a full response to Mark's suggestion (1997: 23-4, fig. 9) regarding “Mesopotamian” pottery at Azor. Suffice it to say that typology, chronology, and possibly ceramic fabric indicate a different mechanism for this transfer.

54See also the extensive references to the controversy in Casson (1971: 12, n. 5). In Vinson's (1994: 17) opinion, the Gebel el-Arak knife handle is the lone example of a Mesopotamian boat representation in Egypt. So little is known of seacraft in the interstices during this period that, if high-ended boats are not Egyptian in origin, perhaps a Levantine derivation should also be considered (see infra Chapter Three). See also the discussion by Basch (1987: 57-62).

55The precise stratigraphic horizon of the wall cones and pegs (nails) is unclear (Von der Way 1988: 249), and the mudbricks are only found in situ in Buto Layer IIa (Von der Way 1992: 3), which is a late Naqada II stratum (Köhler 1992: 8). The excavator presumes, however, that the use of mudbricks should be expected already in Layer 1=Naqada IIb (Von der Way 1991: 54; 1992: 5), presumably along with the earliest wall pegs (Von der Way 1992: 220). Until the stratigraphical attribution of this important evidence is clarified, at best it can only be associated with the end of the period of Uruk imports on Egypt. Three clay rods were found at Maadi, but their limited number and the lack of any evidence for mudbrick architecture seem to preclude their being part of a wall decoration (Rizkana & Seeher 1989: 13), but opinions differ (Largacha 1993: 62).

Up until the late 1980s the distribution of Mesopotamian finds in Egypt was limited to an area from the apex of the Delta southwards, with a large concentration in the south near the point where the Nile bends towards Wadi Hammamat (Moorey 1987: fig. 4.1). The lack of similar concentrations in the Delta or in the Syro-Levantine interstices, along with the identification of “Mesopotamian” boats among the rock carvings of Wadi Hammamat, led some to suggest a Persian Gulf→ Indian Ocean→ Red Sea route as the way in which these influences and objects travelled.56 The absence of any reciprocal Egyptian elements or materials in Mesopotamia, apart from perhaps gold and some possible, but dubious, influences on stone bowl production (Moorey 1987: 41; 1990: 64*; Largacha 1993: 64) was always a difficult hole to fill in the argument for a route around the Arabian Peninsula.57 Increasing artifactual evidence from inland Syria, particularly Habuba Kabira, and other contemporaneous contacts, such as those between Egypt and the Levant, intra-Levantine contacts, and glyptic evidence (Teissier 1987) led Moorey (1987; 1990) to suggest a somewhat complex and still archaeologically invisible east Mediterranean maritime or trans-Levantine terrestrial route from Mesopotamia to the Egyptian Delta.58 In addition, recent surveys and excavations in the Delta have begun to fill the lacunae in our knowledge of its settlement history, indicating more extensive habitation in the Predynastic period than had previously been supposed (Borghouts 1988; Van Den Brink 1988; 1993).59 The discovery of the aforementioned Uruk-type finds at Buto, along with sherds of Syrian Amuq and south Levantine wares (Moorey 1990: 62*; Köhler 1992: 20-2, figs. 8-9; 1992: 8-10, fig. 3), lends support for one of Moorey's Syria to Delta routes.60 Further support comes from a possible

56Although contact between southern Mesopotamia and the Persian Gulf, at least as far as the Straits of Hormuz, dates back to Ubaid times (Potts 1990: 37-89; Roaf & Galbraith 1994), a similar lack of interstitial Uruk-type evidence along the remaining route is instructive, as is the present lack of any contemporary evidence for complex societies, as is a later Pharaonic network (Moorey 1987: 39; 1995: 9-10). Connections between the Nile and the eastern desert, and human habitation in the Arabian peninsula, including a flint from Aden with purported affinities to Predynastic Egyptian types, are still offered as evidence for this route (Majer 1992).

57Similarly, the cessation of these influences by the end of the Predynastic period was never explained by proponents of this model (Mark 1997: 130-1).

58See also the arguments of Mark (1997). Among the extensive evidence he brings in support of a connection between the Delta and northern Mesopotamia, is the distribution of bear and monkey figurines, respectively, in Egypt and Mesopotamia, where neither is indigenous (Mark 1997: 45-6). Unfortunately, his otherwise detailed study is somewhat brief and unsubstantiated.

59The reason for the Predynastic Delta being a terra incognita is that these settlements are generally several meters below the flood plain under the water table (Hassan 1997: 55; Wenke 1991: 290-2). The work of the Dutch at Tell el-Fara‘in (Buto) is one example of the difficulty and technological sophistication necessary to explore these sites (Von Der Way 1986: 209-10, fig. 9, pl. 28).

60These examples warrant petrographic analysis. Note that all of these imports are assigned to Layers IIIa–IIIc, a Late Naqada II - early Naqada III phase (Köhler 1992: fig. 9), which is coeval with the earliest in situ mudbrick architecture.
Egyptian sherd and a south Levantine ledge handle from Habuba Kabira-South (Moorey 1990: 62*-63*, Ill. 1b-c; Sürenhagen 1986: 22, figs. 23-24). Whether a maritime or terrestrial route was utilized is not known with any certainty, however the evidence favors the former (see also Largacha 1993: 65-67), perhaps with the involvement of the south Levantine coast (Gophna & Lipschitz 1996). With the exception of a Late Uruk stone chalice reported at Maadi (Hassan 1988: 161), a possible lapis lazuli bead at Nahal Mishmar, the Amuq F sherd at Taur Ikhbeineh, and a Jemdat Nasr period vessel at 'En Esor (see supra p. 23), no eastern Delta or interstitial finds are known. Geomorphological investigations place Buto on a lagoon or salt marsh near the paleocoastline of the Delta (Wunderlich 1988; Hassan 1997: 66-68, fig. 4; Van Den Brink 1993: 295), supporting its identification as a coastal settlement or proto-harbor. In this respect, Stager's (1992: 41) historical analogy of Buto with the Greek colony of Naukratis in the Western Delta is instructive, particularly in light of the connection that both sites had with the North Syrian coast. Whether Buto, or another as yet undiscovered Deltaic town, was the gateway for other imported items from the northern Levant and beyond, such as silver (Moorey 1987: 41; 1990: 68*; Prag 1978) and lead (Gale & Stos-Gale 1981: 115), is still unclear.

4.7 Summary of the Egyptian Levantine colony and Uruk maritime expansion

The Egyptian colonization of the southern Levant and the Uruk expansion's Deltaic branch are two parallel phenomena that are chronologically complementary, but seem to be, phenomenologically, mutually exclusive enterprises. Within the limitations of current dating methods (comparative typology and radiometric dating) their beginnings are chronologically indistinguishable. The Uruk presence and its material manifestation can be described as a pulse of influence that arrives, flourishes and disappears, leaving a distinct mark on the symbols of power, prestige, and kingship. The Egyptian colonization set patterns that left an indelible mark on Egypt's foreign policies and commodity demands on the Levant. In terms of the mechanism of cultural transfer, little evidence can be demonstrated for any overlap, although this may be remedied by future excavations. Both phenomena are similar in that they represent the establishment of expatriate communities in distant lands in order to access raw materials and markets. While the Uruk expansion covered a much greater area and distance, materials research of the Egyptian colonization apparatus has revealed its sophistication and intensity to a much greater degree. While the former may have only had a slight ripple of indirect influence on the

61 Sürenhagen (1986: 22) considers the ledge-handle to be a Late Chalcolithic example, while Moorey (1990: 62*) wonders whether it might be of Egyptian derivation. Again, analysis is warranted as there are petrographic criteria for distinguishing both the chronological and the geographical attribution.

62 Mark (1997: 104-5) notes the association between Buto and Hathor, who, among her many epithets, becomes a patron goddess of seafaring.

63 While Algaze (1993: 124-5) mentions of the need to carry out chemical characterization analysis, he does not appear to be cognizant of the need for a more detailed study of the individuals (e.g., masons, potters, etc.) who inhabited his trade diasporas.
southern Levant, the latter established a pattern of economic relations that would shape the region throughout much of the Bronze Age.

On very different scales both phenomena also represent a material expression of the expansion of ancient cognitive geography and an assimilation of exotic material and knowledge (Helms 1988) into acts of conspicuous consumption. Why the Egyptian elite chose Mesopotamian symbols for their own expression of kingship and status is as difficult to explain as why the south Levantines did not absorb Egyptian culture despite a more intimate, intense, and lengthy association. Egyptian society as a whole did not witness Mesopotamian society, order, or kingship. At most they encountered an enclave of merchants who controlled access to exotic products that the burgeoning Egyptian elite demanded (Moorey 1987: 42-3; Largacha 1993: 67-69), resulting in the borrowing and misassociation of Mesopotamian symbols and their meaning (Teissier 1987). For the Egyptians, exotic people bearing and controlling exclusive access to exotica from far-away never-to-be-seen lands was equated with power and status, not from an association with a powerful central authority, but through a connection with the exotic unknown. If a maritime route was indeed in use, the arrival of people on ships from a distance (or even better from over the horizon) would have increased the impact of such imagery on Egyptian society. For the southern Levantines, whose elites were only beginning to emerge, Egypt was neither distant nor as yet all-powerful and thus did not represent a culture to be emulated. By the time such symbols were needed, Syro-Mesopotamian sources were emulated (Beck 1995), perhaps for ethno-linguistic or cultural reasons.

5. Early Dynastic shipping, the Old Kingdom “Byblos run” and inland Levantine urbanism

The unification of the Nile Valley into one of the first great states of antiquity began a long period of centralized administration of nearly all aspects of society and economy in the vast land of the Nile. In terms of Egypt's relations with the outside world, the state and members of its social structure desired imported exotica and raw materials to an increasingly greater scale. In addition to their timeless role as signs of wealth and prestige, these imports increasingly became staples of local industries that served the ever-growing elite in life and in embellishing their dead. The role of the state in securing these imports is readily apparent during this period, or at least is claimed by rulers through official artistic and written declarations. By far the most important of the trade enterprises undertaken, in terms of bulk quantity, were state-sponsored maritime activity to the Levant, particularly to Byblos. One reflection of the increasing importance of relations with the Levant is

64Let us not forget the impact of a few shiploads of fifteenth-sixteenth century CE Europeans on primitive island bands of natives and sophisticated Mesoamerican states alike.

65For the origins and organization of the state, the intensification of many developmental trends, and the history of the ED and OK periods, see, inter alia, Bard (1994); Hassan (1988); Köhler (1995); Kemp (1983; 1989); Trigger (1983; 1987); Edwards (1971); Smith (1971); and Wenke (1991).

66The existence of markets should not be excluded even in the temple and palace-oriented economy of the Nile Valley (Hodjash & Berlev 1980).
the intensification of settlement and the concentration of national and economic centers (Memphis) in Lower Egypt, with its Deltaic gateway at sites like Mendes and Minshat Abu Omar (Wenke 1991: 312, 314, 317; Van Den Brink 1993).

As in previous periods, the archaeological record presents the tangible, material evidence of trade. However, with the advent of writing, a new source is added. Many Egyptian texts relating to the outside world are brief, yet reveal something of Egypt's interests and actions. Moreover, with the Early Dynastic period, the cultural units that were previously transformed into temporal ranges begin to be replaced by the Manethian sequence of dynasties, which, along with the Royal Turin Canon and Palermo Stone, provides a vague historical framework.67 While the dating of individual kings is often spurious, radiocarbon determinations show a very good correlation with the historically-derived dynastic date ranges (Hassan 1980; Hassan & Robinson 1987: 123-5, table 1). For convenience, this period of nearly a millennium is considered in a single section rather than being subdivided. Nonetheless, strict chronological distinctions are maintained.

5.1 Pictorial depictions and textual references relating to the Levant

As art and language often go hand-in-hand in the Egyptological record, it is only fitting that they be treated together, although the interpretation of pictorial depictions often seems more equivocal than some textual references, especially as they often seem to become generic visual idioms. The wood and ivory labels depicting Asiatics bearing Canaanite jars, a common scene in later NK depictions, appear at the beginning of the First Dynasty. The smiting of the Asiatic scene also owes its origin to the Early Dynastic period, and is found in Sinai with the vague caption “the first occasion of smiting the East” (Schulman 1989: 436), a “first” followed by extensive written evidence for an Egyptian presence in Sinai from the Third through Sixth Dynasties.68 Royal inscriptions refer to military forays into eastern Asiatic (Levantine?) lands with uncertain toponyms and against Asiatic groups described by a variety of ethnonyms (Schulman 1989: 441-3; De Cree 1991: 29; Wright 1985: 248; 1988; Wilson 1950a: 227). In the Sixth Dynasty, the autobiography of Weni, an official who served the courts of Teti, Pepi I, and Menere, recounts five punitive raids against the “sand-dwellers”, burning their houses and uprooting their orchards and vineyards (Lichtheim 1973: 18-23; Breasted 1906: §311, §313-§315; Wilson 1950a: 227-8). Among the forays was a combined sea and land attack on the far side of the “Gazelle's nose”, a mountain range that may have been the Carmel, which is the earliest example of the Egyptian use of ships for military purposes abroad. A number of OK siege depictions may reflect the most extreme exhibition of Egyptian belligerency (Wright 1988: 155-6, figs; Ben-Tor 1982: 13-4).

67 For the regnal lists see Baines & Malek (1980: 36) and the recent critical evaluation by O'Mara (1997).

68 Both T. Wilkinson and C. Köhler (see supra n. 4) presented evidence for an even greater antiquity to this idiom.
Other references give an indication of what the Egyptians most desired from their neighbors to the north. In a continuation of the portrayal on ED labels from Abydos, a foreign jar in an OK depiction is said to contain sweet oil (Kantor 1992: 20, fig. 6:3). During the reign of Sneferu, first ruler of Fourth Dynasty, the Palermo Stone and Cairo fragment #4 refer to “the bringing of forty ships filled with ‘š wood” and the building of great 100 cubit long vessels and a palace door, variously of ‘š and mrw wood (Meiggs 1982: 63; Smith 1971: 167; Breasted 1906: §146-§148; Wilson 1950a: 227). Presumably, this wood was brought from Kbn (Byblos), a toponym which figures in a number of OK texts as a city, a source of foreign goods, and as a type of ship (Horn 1963: 52-3; Wright 1988: 146-8; Redford 1992: 38-43). Sea-going ventures are depicted in a relief from the funerary temple of the Fifth Dynasty king at Abusir (Kantor 1992: 20-1, fig. 6:2; Esse 1991: 105; Smith 1965: figs. 6-7; Fig. 1), where a series of fragments depict a shipment of Levantine jugs and tethered bears, while another panel shows the return of eight sea-going vessels carrying Egyptians and Asians, who may have been slaves, craftsmen, or shipwrights (Gaballa 1976: 24; Bietak 1988; 1996: 19-20; Wachsmann 1998: 12). At Saqqara, Asians are also shown aboard two sea-going ships in a relief from the causeway of Weni (Hassan 1955). Other Fifth Dynasty tombs at Saqqara depict juniper berries and prt-sni fruit, which was later known to have been brought from Byblos (Kantor 1992: 20). One nobleman, who was buried in Aswan the late Fifth or early Sixth Dynasty, saw fit to recount his numerous ventures with a companion to Byblos (and Punt), apparently as royal agents (Newberry 1938; Horn 1963: 52-3; Wright 1988: 147-8). By the Sixth Dynasty, an inscription from the tomb of Pepinacht recounts the use of a “Byblos-ship” for a voyage to Punt (Breasted 1906: §360; Säve-Söderbergh 1946: 48; Wright 1988: 148). Lastly, the term kbn, enclosed in a crenulated city or fortification sign, appears as a morpheme in the name of the OK official kbwnwntt, perhaps a Levantine who was buried near the Giza complex (Wright 1988: 147).  

69 Wachsmann (1998: 12) correctly objects to Bietak's suggestion (1988) that the Asians are crew members. Wachsmann's alternate suggestion, that the Asians themselves are cargo, “held by the scruff of their necks,” is possible, but relies solely on an ambiguously depicted relationship, which is quite consistent with Egyptian artistic treatment of foreigners. Their stance is not one of “adoration,” as suggested by Wachsmann, but part of a ritual associated with entering a port, which is paralleled in the Kenamon relief (Davies & Faulkner 1947) and discussed in its proper context by Brody (1996: 134-6). As to the lack of any depiction of cargo, Wachsmann (1998: 12) seems to have ignored the other parts of the relief. The possibility that some of these Asians are shipwrights should not be excluded, nor that the ships themselves are a commodity product that is being delivered. The maritime aspects of these depictions are discussed in Chapter 3.  

70 The date of this tomb is debatable and ranges from the Fourth to Sixth Dynasties (Wright 1988: 147, n. 9).
5.2 Levantine imports to the Nile Valley

During the ED and OK periods, the range of imports from the Levant is fairly consistent with the preceding period, although there seems to be an increase in relative quantities and wider distribution. While some notion of the organic imports is suggested in the following survey, others such as bitumen seem either under-represented or unacknowledged in the literature.

5.2.1 Wood and its by-products

Textual evidence from Egypt indicates two principal types of imported wood: `š and mrw wood, both of which occur frequently from ED times onwards (Meiggs 1982: 63; Ward 1991: 13-4). Although the precise identity of both terms is still a matter of debate, they most certainly refer to some type of conifer as they were used in Pharaonic times for large ship construction and long flagstaffs (Meiggs 1982: 63, 406).\footnote{Whether imported timbers were used in the construction of the fleet of boats buried at the Early Dynastic funerary complex at Abydos must await further investigation (O’Connor 1991).} Lucas & Harris (1962: 429-39) list a number of coffins and lids from ED and OK contexts made of imported woods, such as cypress, pine, juniper, and yew.\footnote{Cypress, pine, and juniper are found as close as the southern Levant, but yew, a non-resin producing conifer, may have been brought from the Taurus mountains in Asia Minor (Lucas & Harris 1962: 439; Willcox 1992: 7).} One of the coffins, which comes from beneath Djoser’s Third Dynasty step pyramid, was made of three imported woods: cypress, pine, and either juniper or cedar (Ward 1991: 13). Recent work confirms the import of these woods (and box-wood) for, \textit{inter alia}, coffins, lids and statues (Davies 1995: 148-52, table 1). Pine was used for arrows found at Abydos (Western & McLeod 1995: 80). Some wooden cylinder seals were also carved from box and manna ash, the former from as near as the Lebanon and the latter from as near as Anatolia (Liphschitz, Bonani & Van den Brink 1997). Although cedar is believed to be the principal wood used in the construction of the 38.5 ton Cheops boat, the precise species of conifer has not been positively identified (Lipke 1984: 25; Davies 1995: n. 21). One board was made of juniper, while cedar and hop hornbeam, a species found in Anatolia, were used for the oar blades (Steffy 1994: 23-5; Lipke 1984: 24-5).

While Ben-Tor (1991: 4) correctly stresses that there is no evidence for the importation of cedar timber prior to the Fourth Dynasty, when the royal ship of Cheops was constructed, large coniferous timbers were used in the construction of Dynasty One tombs at Abydos (Prag 1986a: 72; Stager 1992: 40). Thus, it is conceivable that other conifers, including cedar, could have been brought by this time as well; the evidence, however, is still lacking. By the Fourth Dynasty, when cedar timber is clearly available, it is feasible to identify the wood brought by Sneferu (‘š and mrw wood) as referring to cedar and some other type of conifer (Meiggs 1982: 63; Smith 1971: 167). In Davies’ (1995: 149) opinion, the increasing archaeological evidence lends strong support for the identification of ‘š as cedar. After the Fourth Dynasty, when a reliable maritime connection is established, the
import of (cedar) timber became a regular feature of the increasingly closer relations between Egypt and Byblos (Redford 1992: 37-43; Marfoe 1987: 26-8, 32-4).  

Imported oils or resins, whose existence is only inferred for the Predynastic period, are documented items already in the Proto-Dynastic period. Ward (1991: 13-4) notes examples of “oil of ś” written on alabaster vases of the First Dynasty king Adj-ib and among food offerings of the Second Dynasty; sft which is obtained from the ś tree, is frequently mentioned as an offering in the Second and Third Dynasties, sometimes alongside ś oil; and mrw oil is mentioned on an ivory label and alabaster jar of King Aha as well as on pottery vessels from a cemetery at Abu Ṭumuri. Imported oils or resins are therefore documented prior to the importation of timber, but their source is disputed.

Lev-Yadun & Gophna (1992) argue that Ward's (1991: 13-4) southern Levantine source is not supported by the archaeobotanical evidence. While some stands of conifers existed, the most likely source for large quantities of oil is in the northern Levant.

5.2.2 Pottery

In the Protodynastic and OK periods a significant shift can be seen in the type and origin of Levantine pottery imported into Egypt. Storage jars, which were previously imported solely from south central Canaan, were replaced by jugs of decorated and red-polished type, and storage jars of combed & metallic ware that were imported from more northerly regions of the Levant. These imports and their implications have been considered at length most recently by Esse (1991: 103-16), Kantor (1992: 17-21), and Stager (1992: 37-9), whose nomenclature has seemingly sought to clear up much of the confusion caused by the overlap of typological terms and fabric descriptions, and the generic use of the term “Abydos Ware”; still, some confusion remains. Porat's (1989a: 63-5, appendix 5b) analysis of Dynasty 0 to First Dynasty red-burnished and decorated examples of so-called “Abydos Ware” from Abydos and Tell Ibrahim Awad demonstrates that they can be divided into three petrographic groups. The following discussion reflects Esse's typological division, and although the term “ware” is used, it refers to a vessel family; only metallic ware describes a petrographically established fabric group.

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73 Apart from being the focus Egyptian-Levantine relations, the import of timber enabled the construction of riverine craft capable of transporting large stone blocks from Upper to Lower Egypt and enabled Egypt's exploitation of Nubia, where long woods are absent (Adams 1984: 71).

74 Kantor's scheme is a fabric description that is intended to be independent of typological variations. Both Esse and Stager utilize her nomenclature for what they distinguish in typological terms. Many of the Red-Polished Ware jugs noted by Esse and Stager are actually her Metallic Ware jugs. Note the difference between Kantor's (1992: 19) and Stager's (1992: 37) description for this ware.

75 Abydos (N=15) and Tell Ibrahim Awad (N=1). Her study supercedes an earlier one (Hennessy & Millett 1963), which relied on a semi-quantitative method whose results show significant discrepancies with later analyses (Porat 1989a: 21-2, table 4.1).
5.2.2.1 Red-Polished Ware

The typological term “Red-Polished Ware” (RPW; Fig. 2c) includes a variety of handleless, single loop, and double-handled jugs that are decorated with red-slip and burnishing. These jugs occur at numerous sites, primarily in tombs of the First Dynasty (Esse 1991: 104-5; Kantor 1992: 19-20, fig. 10-11). Given the jug from the tomb of the Fourth Dynasty Queen Hetepheres, and the artistic representation of this vessel-type during the time of Sahure in the Fifth Dynasty, the near absence of post-First Dynasty examples may be misleading (Esse 1991: 105). Outside of Egypt these vessels are widespread in the Levant as far north as Qal`at er-Rus on the coast and Tell Judeideh in the Amuq region, in contexts ranging from EB II to EB III (Esse 1991: 104-7; Hennessy 1967: 50, 63, pls. XLVI, L; Stager 1992: 37-8). Some Dynasty 0 to First Dynasty RPW jugs from Abydos and Tell Ibrahim Awad are petrographically identical to the Metallic Ware of northern Israel, whose source is probably in the northern Hula Valley, or possibly along the Lebanese or Syrian coast, but not in the area of Tell Sukas or the Amuq region (Porat 1989a: 64, 71-4; Greenberg & Porat 1996: 16-9). However, the source of the later OK examples is probably elsewhere (Greenberg & Porat 1996: 18). The exclusion of the Amuq region on petrographic terms is significant. Previous analysis on lattice-burnished sherds from Abydos, an RPW sub-group (Stager 1992: 38), had suggested a similarity with an example from Tell Judeideh in the Amuq region (Esse & Hopke 1986: 333, 337). It now seems more likely that they both derive from a similar source.

5.2.2.2 Light-Faced Painted Ware

Light-Faced Painted Ware (LFPW; Fig. 2a-2b) is distinguished by geometric and linear motifs painted on a light, cream background. Jugs and juglets are the dominant types, and are found only in First Dynasty contexts in Egypt, some bearing similarity to RPW shapes (Kantor 1992: 19, figs. 12-13; Esse 1991: 107, fig. 20). This class is well-represented at EB II sites in the southern Levant, especially at Arad (Esse 1991: 108-9; Stager 1992: 38); the only north Levantine occurrences are some sherds from Tell Judeideh in the Amuq region (Hennessy 1967: 51, pls. XLVI, L). Porat's (1989a: 63-65, 70-71, 74-75) analysis of decorated jugs from Abydos shows that apart from a single example, which is identical in composition to the jars imported into Egypt during the Predynastic period from southern Canaan, the remainder belong to her Group 3. One vessel of Group 3 is consistent with the lithology of the eastern Galilee; the remainder lack features indicative of a specific source.

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76Esse (1991: 105) counts a minimum of 117 examples, ninety-eight of which were found at Saqqara, including one tomb with fifty-six vessels.

77Abydos (N=11) and Tell Ibrahim Awad (N=1).

78Joffe (1993: 67) misstates that Esse and Hopkins [sic] (1986: 337) suggest that some of the LFPW examples may have originated in the Amuq. Esse & Hopke (1986) only analyzed Combed Metallic Ware, some Red Polished and Khirbet Kerak Wares. They merely suggest that, because a
5.2.2.3 Combed Ware

Apart from “Abydos Ware”, three other overlapping and misused terms are employed for this class of pottery: Combed Ware (CW) (Esse 1991: 109), “Metallic” Ware (Kantor 1992: 19; Greenberg & Porat 1996: 5-6), and “Metallic” Combed Ware (Stager 1992: 38-9). Esse (1991: 114) estimates a minimum of fifty-six two-handled jars, of which forty-seven were found in the Giza necropolis and the remainder in Upper Egypt (Fig. 2d-2e). The earliest example comes from the Tomb of Djer in the First Dynasty, but the greatest numbers are found in the Fourth Dynasty or later (Esse 1991: 114). This ware is widely distributed throughout the Levant, Lebanon, Syria, and as far north as the Orontes Valley (Esse 1991: 109-14; Stager 1992: 38-9).

According to Greenberg & Porat (1996: 18), the examples from the First Dynasty are related to the true Metallic Ware (MW) of northern Israel. True MW vessels, which may possess a variety of surface treatments (e.g., combing, slipping, lime-wash, or burnishing), is a handmade, high-fired pottery ranging in color from red to buff of gray (Kantor 1992: 19; Greenberg & Porat 1996: 5-6). A variety of vessel types are made of this ware (Greenberg & Porat 1996: 6-11, figs. 1-4), but only closed vessels, jars, and jugs are found in Egypt. As noted previously, Porat found that the First Dynasty RPW vessels (group 2) are petrographically identical to the Metallic Ware of EB II-III northern Canaan, which derives from a source in the Upper Jordan Valley or Lebanon (Porat 1989a: 72; Greenberg & Porat 1996: 18-9). The OK examples are much closer, typologically, to the northern coastal Levant (Greenberg & Porat 1996: 18).

Chemical characterization of the metallic ware shows two sub-groups, 2a and 2b, which are similar to Lebanese and Syrian groups; however, their provenance is unclear (Porat 1989a: 74). Using neutron activation analysis and hierarchical cluster analysis on examples of combed ware from Giza (N=20), five distinct elemental clusters were distinguished (Esse & Hopke 1986: 332-5, fig. 31.3). The first three clusters, while internally cohesive, could not be related to any analyzed examples from anywhere in the Levant or the Orontes valley. The fourth group, comprising eight jars, clustered with a sample from Byblos. The fifth group, while not as internally cohesive as the others, showed the closest similarity with examples from southern Canaan. Four other sherds showed similarity with sites in the Shephelah region. Porat (1989a: 74) notes that a number of samples from the Esse & Hopke study are similar to her group 2a, particularly a sample from Byblos. A few of these jars contained coniferous resins (Esse & Hopke 1986: 334; Porat 1989a: appendix 5b; Reisner & Smith 1955: 75).

5.2.3 Copper

There is increasing material and pictorial evidence for local copper manufacture during this period (Garenne-Marot 1985; Schorsch 1992; Lucas & Harris 1962: 212-6). In contrast to the previous periods, the wide range of artifacts (e.g., weapons, tools, fastenings, vessels, statues, etc.) suggests that sherds from Tell Judeideh clusters with the lattice-burnished sherds from Abydos, the perceived stylistic and decorative relationship between the Amuq and Egypt may be somewhat stronger.
copper was plentiful (Ward 1963: 10; Marfoe 1987: 26; Trigger 1983: 64; Hayes 1953: 41, 46; Edwards 1971: 34, 69; Lucas & Harris 1962: 199-216; Davies 1987: 27-32). Moreover, the sheer quantity of evidence, exemplified by hundreds of objects in the royal mastaba of Djer and the tomb Kha’sekhemwi (Marfoe 1987: 26; Lucas & Harris 1962: 200), indicates a vibrant industry that required voluminous raw material. Although a comprehensive synthetic metallurgical study of copper in Egypt is still lacking, analyses carried out to date have shown that both unalloyed and arsenical copper were widely used (Garenne-Marot 1985: 105-6; Schorsch 1992: n. 3; Lucas & Harris 1962: 214-6).79 As in previous periods, copper was still being exported to Egypt from the southern Levant and Sinai (Garenne-Marot 1984), via intermediaries by land and sea, although not via the northern Sinai, for which there is a lacuna in habitation.80 Later in the Old Kingdom, direct Egyptian involvement in the exploitation of Sinai copper sources may have taken place alongside the mining of turquoise (Ward 1963: 19-20; Ilan & Sebbane 1989: 159). Royal inscriptions from the time of Sanakht of the Third Dynasty through Pepy II of the Sixth attest to its importance (Kemp 1983: 141). Lastly, the term úmty st, “Asiatic” copper, appears in the late Old Kingdom (Posener-Kriéger 1969).81

5.3 Imports from beyond the Levant

In addition to imports from the Levant, other materials and objects suggest that Egypt was receiving imports from more distant regions. Lapis lazuli continues to arrive until the reign of Djer, following which this material is absent through the Old Kingdom (Moorey 1987: 39). The one prominent exception are silver anklets inlaid with lapis (among turquoise and carnelian) in the tomb of Queen Hetepheres of the Fourth Dynasty (Lucas & Harris 1962: 246, 399). This example presents another rare material, silver, presumably still imported from Anatolia, which was used in jewelry and small objects during the Early Dynastic through Old Kingdom, although it is relatively scarce (Lucas & Harris 1962: 246). Anatolia, specifically Tarsus in Cilicia, may be the source of a flask found in a Giza mastaba from the early Fourth Dynasty (Kantor 1992: 20; Mellink 1992: 215).82 Regardless of the eventual resolution to the controversy over possible EBA mining of a tin source in southeastern Anatolia (Moorey 1994: 300, extensive bibliography), the rare examples of tin-bronze in ED and OK

79 A basin and ewer from the time of Kha’sekhemwi is reported to be made of tin-bronze with a small amount of lead (Schorsch 1992: n. 3). The spout of the ewer was made of arsenical copper, while the basin also contained substantial amounts of arsenic.

80 Y. Yekutieli, paper presented at the HUC conference (see supra n. 4).

81 It is not clear if this term refers to a specific alloy or its origin (Redford 1992: 210; Muhly 1976: 213, 218; Garenne-Marot 1984: 103).

82 Peltenburg (1995: 38) cites this as a vessel containing traces of a coniferous resin. Examination of the original publication, however, shows that he has confused this vessel with another (Reisner & Smith 1955: 73-75).
Egypt (Lucas & Harris 1962: 219; Stos-Gale, Gale & Gilmore 1984: 29; Cowell 1987: 98; Schorsch 1992: n. 3) is evidence of contact with distant regions.  

5.4 Evidence for international and inter-regional trade in the southern Levant

For the southern Levant the concomitant EB II-III periods represent the first floruit of urban culture. Numerous studies have dealt with the catalysts for this cultural development, its socio-economic characteristics, its chronology, the developments that took place during the third millennium, and lastly, its demise (Weinstein 1984; Seger 1989; Esse 1991; Stager 1992: 34-9; Finkelstein & Gophna 1993; Joffe 1993; Gophna 1995). Among the characteristics of this period are the nucleation of sites into larger, denser, and more socially differentiated (stratified) socio-political agglomerations, fortified settlements, public works, monumental architecture, and greater craft specialization, to list but a few.

Relations with Egypt are marked by a radical decline compared to the intensity of contacts during the previous EB I period. Part of this decrease is no doubt the result of the abandonment of the Egyptian colony. Other factors include changes in the nature of the commodities being exported and the regions from which they derive. While the increasingly northward shift in Egyptian interests may have ended the exclusivity that the producers of horticultural cash-crops had previously enjoyed, the export potential of other commodities, including copper and perhaps bitumen, meant that southern Canaan was not entirely cut-off from Egypt.  

In contrast to the previous period, when Egypt took an on-site interest in the acquisition of desired commodities, the rise of local elites meant that there were interested parties that could maintain the necessary organizational and logistical infrastructure to insure the safe arrival of goods to the coastal roads and ports, such as Ashkelon, Tel Gerisa, and Khirbet Kurdaneh (see infra Chapter Three). It is particularly instructive that the major fortified centers are located on the inner corridor of the coastal plain, the Shephelah, and the Western Hills, clustering along the highland-lowland interface in order to take better advantage of the agricultural potential of both phytogeographical zones (Gophna & Portugali 1988: 15-6, figs. 4-5; Amiran & Gophna 1989; Portugali & Gophna 1993: 173-5, fig. 5; Joffe 1993: 73-76). This settlement pattern is, seemingly, a more developed network within an interaction zone that had previously served the Egyptians (e.g., Erani and the Halif Terrace) in the south (see Portugali & Gophna 1993: fig. 2). The various spatio-demographic analyses cited also show the locations of fortified settlements on the regional interface and the longitudinal and latitudinal routes, all of which are reflections of inter-regional trade.

83 See also Muhly (1976: 332) and Frangipane (1985: 218-22, fig. 3). Note the increasing evidence for material connections between the Cilician coast and the Central Taurus mines in the EBA (Yener, et al. 1991).

84 Evidence exists for bitumen at Arad, small Tel Malhata, Yarmuth, and Tel Dalit (Nissenbaum, et al. 1984; de Miroshedji 1988: 87, pls. 47.2, 48.17; Gophna 1996: 134).
networks. For example, a similar highland-lowland cluster can be located in the western Jezreel and Lower Galilee leading towards the sites of the Akko Plain (Esse 1991: 146-52, fig. 27; Portugali & Gophna 1993: fig. 5). The EB II settlement pattern of the Huleh Valley shows a bi-polar arrangement with the largest sites (Dan and Hazor) at the northern and southern phytogeographical borders (Greenberg 1990). A contemporary bi-polar lacustrine arrangement could be posited for the Kinneret region with Beth-Yerah at the southern end and Tel Kinneret and et-Tell (Bethsaida) at the north (Epstein & Gutman 1972: site 111; Esse 1991: fig. 27, site 66; Fritz 1993: 193-95).

5.4.1 Imports from Egypt

With the end of the EB I period, local production of Egyptian material culture ceased and imports from the Nile Valley declined considerably. Moreover, re-analysis of many Egyptian artifacts that had been previously associated with EB II contexts have been reassigned to the EB I period, such as at Tel ’Erani (Brandl 1989) and ’En Besor (Gophna 1993a: 394). Nevertheless, pottery, faience beads, and a slate palette at Arad (Amiran 1974a; Amiran, et al. 1978: 51, 55, pls. 55, 68:21, 69:16-19), and pottery from Tel ’Erani (Brandl 1989: 376), demonstrate that some imported artifacts appear in EB II contexts (Ben-Tor 1982: 6); these all but disappear by EB III (Ward 1991: 18; Ben-Tor 1986: 18). Other EB II/III finds include aspatharia shells (Reese, Mienis & Woodward 1986: 82); various cosmetic palettes in EB III contexts (Jacobs 1996); a cache of First Dynasty alabaster vessels found in an EB III sanctuary at Ai (Amiran 1970; Callaway 1978: 49-50); fragments of alabaster and stone (diorite) vessels from Yarmuth (de Miroschedji 1988: 88, pl. 48.9, 11-12; 1993c: 664-665); an Early Dynastic stone vase from Tel Kinrot, which was found out of context (Fritz 1993: 195); and an OK jar from Beth Shean.

85Among the largely unexplored subjects is the wide distribution of basalt (e.g., de Miroschedji 1988: pl. 49: 7, 11; Williams-Thorpe & Thorpe 1993: 313).

86Current excavations at Bethsaida have focused primarily on later periods. See Arav (1995) and cited preliminary reports. For a discussion of the role of the Kinneret as a medium for waterborne transshipment, see infra Chapter Three.

87For the distribution of faience in the southern Levant, see Peltenburg (1995: n. 32, fig. 1); his distribution map is admittedly not comprehensive. An Egyptian jug from Tel Aphek is associated with EB II levels (Kochavi 1990: 213, fig. 3; Beck & Kochavi 1993: 66), but Brandl (1992: 467) considers it to be of an EB I date, perhaps an heirloom.

88A possible serekh is also reported, but the vessel may be local (de Miroschedji 1988: 86, pl. 47:8)

89An “Abydos” MW jug with incised hieroglyphics from Beth Yerah was presented by Greenberg at the HUC conference (see supra n. 4), who associates it and other evidence with an Egyptian presence at the site.
5.4.2 Imports from the North

A number of objects hint at relations with the more northern cultures. An EB III gold plaque of Anatolian style was deposited in a tomb near Khirbet Kerak (Amiran 1993; Kaplan 1975). Whether this is evidence of the export of gold from Anatolia, as suggested by Ben-Tor (1986: 23; Young 1972), or a reflection of local production employing northern artistic influences on Egyptian gold is not clear.\(^{90}\) Another possible Anatolian connection can be seen in the ceremonial axes from `Ai (Ben-Tor 1986: 23; Prausnitz 1955; Parr 1958). Ivory bull's heads, models of ritual beds, and carved bone handles from a number of sites are also considered to be evidence of contact with Syrian or Mesopotamian traditions (Ben-Tor 1986: 23).

5.4.3 Copper

During the EB II-III, the structural shift in the organization of metal production and distribution that began with the Early Bronze Age continues and becomes further entrenched. Copper objects continue to be widely distributed throughout all regions in a variety of utilitarian, martial, and ornamental forms (Shalev 1994: 633-6, figs. 1-3; Philip 1989; Miron 1992; Ilan & Sebbane 1989: 154-8, figs. 9-10). As in the EB I period, all copper objects were made of the same unalloyed material by open-mold casting and forging (Shalev 1994: 635-6, fig. 2), although a number of artifacts from Bab edh-Dhra` were found to be made of arsenical copper (Hauptmann 1990: 57; Hauptmann & Weisgerber 1992: 63).\(^{91}\) Despite the ubiquity of copper objects, their location of manufacture is uncertain and may have been carried out near the mines (Ilan & Sebbane 1989: 155-6, fig. 9). Shalev (1994: 636; 1995: 115), however, emphasizes a total geographical separation between the process of extraction (mining and smelting) and production. Extensive evidence of smelting has been found at all three known sources of copper in the southern Levant: the southern Sinai, Timna`, and Feinan (Shalev 1994: 636; 1995: 115; Ilan & Sebbane 1989: 156).\(^{92}\)

In southern Sinai, the EBA population involved in mining and smelting shows strong material cultural affinity (architecture, pottery style and production, etc.) with EB II Arad and other Negev sites (Beit-Arieh 1983; 1986; Porat 1989b; Ilan & Sebbane 1989: 154-8). This affinity is seen as part of a copper exploitation enterprise centered at Arad, although the precise socio-political relationship is not

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\(^{90}\)Regarding the unlikelihood of gold deriving from the Pactolus Valley, see Moorey (1994: 220-1).

\(^{91}\)It is not clear whether these artifacts should be considered the result of recycling or the continued utilization of the arsenical sources recently identified in Sinai (Ilani & Rosenfeld 1994).

\(^{92}\)For southern Sinai, see Beit-Arieh (1981; 1986). For Timna`, see, most recently, Rothenberg & Glass (1992). For Feinan, see Hauptmann (1990), Hauptmann et al. (1992), and Hauptmann & Weisgerber (1992).
clear (Ilan & Sebbane 1989: 154-9). Analysis of copper artifacts from Arad point to the southern Sinai as their source (Ilan & Sebbane 1989: 148). Similarly, exploitation is reported at Timna’ (Rothenberg & Glass 1992) and its environs (Avner, Carmi & Segal 1994: 278), although the Timna’ data is not without some controversy (Sebbane, et al. 1993: 51; Beit-Arieh 1995). The most extensive evidence for mining and smelting is found at Feinan, where slag heaps are estimated to be the result of between 100-300 tons of refined copper (Hauptmann 1990: 57; Hauptmann, et al. 1992: 7; Hauptmann & Weisgerber 1992: 63). Chemical analysis of artifacts from a number of sites in Jordan and at Jericho suggests that they were produced of copper from Feinan (Hauptmann & Weisgerber 1992: 57). Thus, there is no reason to exclude Feinan as one of the main sources of copper west of the Jordan river (Hauptmann, et al. 1992: 3). The intensity of the material cultural connection between Arad and southern Sinai has made it almost paradigmatic that the latter was the source of the former's copper. More analyses must be carried out before the complex issue of specifying chemical “fingerprints” for the various copper sources is resolved (Hauptmann, et al. 1992: 3-4). Given its position in the southeasternmost zone of dry-farming, Arad could have served as an interface or gateway for copper arriving from all three sources, which was then distributed northwards and westwards to the Coastal Plain, perhaps to a maritime gateway at Ashkelon (Stager 1990).

Previously, Ilan & Sebbane (1989: 158-9) outlined a pattern of shifting fortunes in EB II-III copper exploitation and trade, in which the southern Sinai sites are finally abandoned, when they are eclipsed by intensified EB III exploitation at Timna’ and Feinan. Recent work by them and others, however, has demonstrated the complexity of dating arid zone sites (Sebbane, et al. 1993; Avner, Carmi & Segal 1994). Radiocarbon evidence suggests that the Negev and Sinai sites were not entirely abandoned after the fall of Arad (Avner, Carmi & Segal 1994: 282), although the absence of clear EB

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93 Kempinski (1985; 1989e: 166) suggests the toponym Arad derives from the Sumerian word for copper URUDU. The genesis of Arad (and its collapse) and the identity of the culture that initiated the relationship between it and southern Sinai are still the subject of a fascinating debate. Is Arad the southernmost extension of the urban EBA Canaanite culture, whose inhabitants were among the prospectors active in southern Sinai (Amiran, Beit-Arieh & Glass 1973; Kempinski 1989e: 166), or is Arad the northernmost extension of an arid zone autochthonous culture (Sebbane, et al. 1993; Govrin 1990; Avner, Carmi & Segal 1994: 282; Finkelstein 1995a: 67-86), interfacing with urban Canaan at their Aradian entrepôt or gateway?

94 Analysis of the copper sources near the southern Sinai sites show them to be of an extremely low-grade ore, leading Avner et al. (1994: 282) to suggest that the copper smelted at these sites, which is of a much higher grade, originated in sandstone deposits, e.g., Timna’ or western Sinai. This suggestion is contradicted by their own observation (Avner, Carmi & Segal 1994: n. 21) that the technical means (bronze tools) of mining sandstone deposits was not available until the Intermediate Bronze Age. While there is no precluding exploitation of sources distant from these sites, it seems equally plausible that the highest grade copper in nearby deposits was mined out in antiquity, leaving only low-grade deposits for modern assays. Avner et al. (1994: 282) are correct that these sites were settled for reasons other than copper, which is all the more reason to draw a distinction between where this population settled and where it mined. For the geology of the copper deposits in Sinai, see Weissbrod (1987: 288-91) and Ilani & Rosenfeld (1994).

95 See especially the editor’s note following Beit-Arieh’s article.
III material remains leads Finkelstein (1995a: 85) to argue that these dates may only represent the “weakened activity of a local ‘invisible’ population” (cf. Finkelstein & Perevolotsky 1990; Finkelstein 1992a; 1995a: 23-6; Rosen 1992). In southern Sinai, however, far from the EB III culture of southern Canaan, Egyptian involvement in the exploitation of turquoise and copper during the Old Kingdom may have led to diminished contacts with the more northerly areas and, hence, the lack of comparanda that would have originated from settled urban sites. Thus, although Arad may have fallen out of the equation, utilization of the Sinai sources may have continued, although at a different scale and under different auspices. Arad's decline should be viewed as anything but unicausal (Finkelstein 1995a: 77-86), and the widely available copper in the southern Levant may have been transported via other sites along the Jordan Rift Valley.

5.4.4 Pottery

A number of recent works have emphasized the increasing degree of standardization and specialization of pottery production in the southern Levant during the EB II-III as compared to the previous period (Esse 1989b; 1991; Joffe 1993; Porat 1989a; Beynoun, et al. 1986). Alongside this local production and regionalization were some complex long distance inter-regional exchanges in pottery, that included common and luxury vessels (Porat 1989a: 43, table 8.5, fig. 8.1b).

5.4.4.1 Common vessel classes

In the EB II, arkose-tempered holemouth cooking pots, which were manufactured in southern Sinai (or the southeastern Arava valley), are found at sites throughout the northern Negev, 'En Besor, southern Sinai, Biq’at Uvda, and especially at Arad, where they are the sole cooking vessel in Stratum III (Porat 1989b: 172-4). Similarly, fossil shell tempered holemouth jars, which were produced either in the central Sinai or the southern Arava valley, are found throughout the northern Negev, Biq’at Uvda, southern Sinai, and Arad (Porat 1989b: 175-7).

The work of Greenberg & Porat (1996) has demonstrated that the EB II-III metallic ware, which was widely distributed in the northern part of Canaan, was produced of non-local material from a production center, or centers, somewhere in the area near the foot of Mt. Hermon, the Upper Galilee, or further north. From a single petrographically distinct fabric, EB II potters produced all of the necessary range of forms required, with the exception of cooking pots (Greenberg & Porat 1996: 6-11, 19 figs. 1-3). At sites in northern Canaan, this ware constitutes ca. eighty-five percent of the

96 Regarding her criteria for distinguishing imported from local vessels, see Porat (1989a: 43-5).

97 In the following stratum this ware declines to 20% of the total holemouth cooking pots, as locally produced imitations dominate (Porat 1989b: 174).

98 This ware is petrographically different from the combed, high fired storage jars of the Shephelah and southern Coastal Plain, which are often called metallic ware (Greenberg & Porat 1996: 17).
assemblage, while even at the southernmost sites that have produced quantities of this ware, some 80-110 km away from the nearest possible source (e.g., Tel Qashish and Qiryat Ata), the percentages can still reach fifty percent, with all the vessel types still represented (Greenberg & Porat 1996: 11-2, 19, fig. 5; Porat 1989a: 72). Further afield, isolated examples of a more limited range of types are found at numerous sites, as far south as Arad and northern Sinai (Greenberg & Porat 1996: 11, fig. 6; Porat 1989a: 43, table 8.5, 72-73, fig. 10.9), where they may have been considered luxury items. During the EB III, this class is rare and the range of types is limited to storage jars and pithoi (Greenberg & Porat 1996: 12). The lack of any analysis of possible examples of MW vessels from Lebanon renders any conclusion premature. However, its presence, usually in restricted types in the Beqa’ Valley and similarities between jugs and jars from Byblos and a tomb at Lebea, east of Sidon, with examples from Dan and Hazor (Esse 1991: 111; Greenberg 1996a: 137; 1997: 21; Greenberg & Porat 1996: 11, fig. 11) should remind us of the geographical proximity between the northern Hula valley and the Lebanon, as compared to the more southern regions of Metallic Ware distribution.

5.4.4.2 Luxury pottery vessels

In addition to the limited occurrences of Metallic Ware in southern Canaan, far from its core area of use, Porat (1989a: table 8.5b) found numerous lone examples of imported pottery. Examples from Arad include holemouth jars and holemouth cooking pots from the Shephelah and Coastal Plain, and a “snake” decorated storage jar from the Coastal Plain. Sites in the Shephelah (Tel ‘Erani and Tel Halif) appear to have received jugs and juglets from Arad. The LFPW vessels from Arad, referred to by Porat as decorated Abydos ware, were made of local materials similar to other storage jars (Porat 1989a: 75). The distribution of the carinated bowl family, which began to be produced and exported from a presumed pottery workshop at Aphek, or its immediate environs, by the end of the EB I period, reaches its floriuit during the EB II-III period (Beck 1985a; Porat 1989a: fig. 8.1A, table 8.5B).

Lastly, Khirbet Kerak (or Beth Yerah) Ware, the fossile directeur of the EB III, is another example of a widely distributed class of pottery. Ignoring, for the present, the complex issues surrounding the origin of this class of pottery, Esse’s study (1991: 138-40, table 4, fig. 25) of the distribution of the various types shows clearly that the greatest variety is concentrated in northern Canaan. With the exception of `Ai, quantity and range of type decrease outside of this area, and only smaller portable bowls are found south of Beth Shean. The limited technological analysis that has been carried out on this ware demonstrates that despite its exotic appearance and origin, it was produced

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99 Nine examples of Metallic Ware of a limited range of types are reported from Tall Abu al-Kharaz in Jordan (Fischer & Toivonen-Skage 1995). In the absence of a petrographic description, it is not certain if these are related to the ware under discussion, although the macroscopic description does not preclude such an association.

100 The strong contrast between the overall assemblages at Byblos, Lebea, and Dan, and the probability of Metallic Ware production further north in Lebanon should be emphasized (Greenberg 1996a: 137-9).
locally (Chazan & McGovern 1984; Esse & Hopke 1986: 328-332). Porat (1989a: table 8.5, appendix 5c) found that examples of Khirbet Kerak ware at Tell Halif were produced in northern Canaan and at some other unknown foreign locale.

5.4.5 Seals and sealing

Apart from the requisite administrative authority for the building and maintenance of public and monumental architecture (Joffe 1993: 84), and the public granary at Beth Yerah (Esse 1991: 100), seals and sealings (stamp and cylinder) represent the only presumed reflection of the artifices of central organization. Despite the efforts of numerous scholars (Ben-Tor 1978; 1985; Esse 1990; Greenberg 1992b; 1996a: 142-9; Lapp 1989; 1995; Beck 1976; 1984) to elucidate the chronological and iconographic aspects of numerous examples from throughout the EB II-III southern Levant, we are no closer to understanding the economic organization that may have stood behind these symbolic or ideographic artifacts. In the absence of textual evidence, and the lack of impressed bullae, there may never be an adequate explanation of the way in which the inhabitants of this region employed these administrative devices, whose artistic influences and connections span much of the Near East and Aegean. One exception may be the impressions found on pottery vessels (Ben-Tor 1978: 40-1), especially on storage jars of metallic ware. The juxtaposition of the seal impressions with storage jars manufactured at limited, specific workshops may not be coincidental, as is the similar geographical distribution of the impressions and the metallic ware family (cf. Ben-Tor 1978: fig. 25 and Greenberg & Porat 1996: fig. 6). These impressions may represent some form of workshop trademark, label of consignment, or kiln batch; only future study will elucidate this issue.101

5.5 The beginning of the commercial maritime container

Potters, like any other craftsman, respond to the needs of their consumers, pushing the limits of the ceramic medium to create desired form and maximize function. Nowhere is this relationship more apparent than in the development of the commercial maritime container, a storage vessel capable of safely delivering an organic bulk cargo long distances by sea.102 Although not the first to recognize it's particular distinctiveness (Grace 1956; 1979; Amiran 1969a: 140-1; Parr 1973; Zemer 1977), Raban (1980: 1-8) has succinctly outlined the ideal characteristics of this particular jar: it should be simple and inexpensive to produce in large numbers, so as not to impact negatively on the cost of the commodity it contains; it should be of standard dimensions and shape, in order that the volume (and often the commodity) would be easily recognizable to a potential customer, and to maximize the capacity of a ship's cargo hold; and it must be adapted for rugged transport at sea and easily carried.

101 N. Porat and R. Greenberg are conducting a petrographic and chemical study of seal-impressed metallic ware (N. Porat, p.c.).

102 On the LBA Uluburun wreck, jars were also used as a container for loose, bulk cargo, such as beads (Bass 1986: 278; Pulak 1997: 240).
Although on land many relatively light materials (e.g., leather, metal, and plastered or bitumen-sealed baskets) might serve as possible containers, at sea, for long periods of time, organic cargoes required sealed, airtight containers that would not react with the contents or allow them to be spoiled by the constant presence of sea spray and bilge water (Raban 1980: 3-4; Marcus 1995a: 601). The cumbersome, heavy ceramic container was the only solution until the introduction of the wooden stave barrel, perhaps sometime in the Eleventh-Twelfth centuries, C.E (Pryor 1988: 82-83).

In order to achieve the desired characteristics in a ceramic form, a number of attributes evolved (Raban 1980: 1-8, passim; Parr 1973: 176-7): an increasingly streamlined, standardized, elongated shape that enlarged the amount of surface area in contact between two adjoining vessels, which helped prevent breakage by distributing the force of impact; a gradually smaller, thicker base to prevent breakage at one of the vessel's primary weak points, and, ultimately, to serve as a third handle; to enable ease of conveyance, strong, firmly attached loop handles were added, again streamlined to prevent sharp knocks on an adjoining vessel wall, and standardized for ease of lashing; shoulder strength to enable the placement of a second or third stack in a ship's hold; a relatively narrow, standardized neck and shaped rim that would enable a “cork” and clay lump to be firmly attached and the vessel stoppered; and, lastly, overall vessel strength and reduced permeability, either by production method (choice of paste and firing technique) or by the use of a sealant (Fig. 2d-2e).

Since Raban's (1980) seminal study, no other synthetic works have dealt with the early development of the BA commercial storage jar. A full consideration of this topic is beyond the scope of the present work, but a number of salient trends should be indicated. While the optimum ceramic form may only have been achieved by the Classical amphora—and even then in countless typological and functional permutations—already at the beginning of the Early Bronze Age, potters began to experiment with various attributes of the storage jar to adapt it for the rigors of transport. Clearly, EB I ledge-handle and loop-handle jars were capable of making the arduous journey from the southern Levant to Egypt, arriving there complete with their contents intact. By the EB II period, the loop-handle replaces the ledge handle on all the storage jars imported into Egypt, and many of the attributes outlined above (thickened walls and base, profiled rim, elongated body, etc.) began to become more widespread in the Old Kingdom. The development of these EB II-III storage jars, and many of the jug types, are seen as a consequence of the demands of sea-borne trade during this period (Raban 1980: 57-62; Stager 1985: 179; 1992: 37-9; Esse 1991: 115-6). Esse’s (1991: 115, fig. 21) study of the height of Levantine vessels found in Egypt shows a chronological trend from relatively small LFPW jugs and juglets, to larger RPW jugs, to even larger Combed Ware jars. This most certainly echoes the increasing carrying capacity of the means of transport, from relatively small boats or donkeys to

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103 Pryor (1988: 81) notes, however, that the amphora continued to be used, especially in timber-starved areas, such as Egypt and North Africa.
increasingly larger sailing ships (Esse 1991: 115-6).\textsuperscript{104} Unnoticed by him, the bell curves of Esse's histogram also demonstrate greater standardization among RPW and Combed Ware vessels than among LFPW jugs, with the steepest bell curve attained by the Combed Ware jars. Moreover, the identification of MW production centers in northern Canaan and the northern coastal Levant (EB III) demonstrates that these vessels were being mass produced with particular typological and petrographic characteristics (high-fired, less permeable, strong but light weight) that made them ideal for transport and easily packed (Greenberg & Porat 1996)\textsuperscript{105}.

Regarding commercial recognizability, depictions of commercial jars appear on wooden labels and ivory inlays by the First Dynasty (Amiran 1969b) and later in the Old Kingdom, where its contents are indicated to be sweet oil (Kantor 1992: 20, fig. 6:3). Imported jugs are depicted on a Second Dynasty tomb and on a relief from the time of the Fifth Dynasty king Sahure (Kantor 1992: 20, fig. 6:2; Esse 1991: 105). These jugs are a sufficiently recognizable visual idiom by the reign of Qa in the First Dynasty, when they are copied in stone; and by the Third Dynasty they become a hieroglyphic determinative in an offering list (Kantor 1992: 20). Although not depicted or celebrated pictorially, the decoration on LFPW jugs may reflect some form of botanical decoration that indicated its contents (e.g. resin or fruit juice)\textsuperscript{106}.

Thus, while in quantifiable terms there is a relatively limited amount of evidence for the involvement of the EB II-III southern Levant in the export of organic products to Egypt, the emergence of a specialized commercial container that was produced in specific workshops is indicative of a reorientation in the way potters reacted to the necessities of trade. The true MW vessels (jars and jugs) that were produced in northern Canaan and reached Egypt during the Early Dynastic/EB II period are only part of a much broader socio-economic ceramic phenomenon, only hinted at by the examples found in Egypt. However, the wide distribution and occurrence of Metallic Ware at sites in northern Canaan means that the containers cannot be used to pinpoint the origin of the products that were shipped to Egypt. These vessels were produced in one specific area and may have been filled anywhere within their extensive distribution area, to be exported from a coastal zone (e.g.,

\textsuperscript{104}Esse's model does not incorporate the EB I jars imported into Predynastic Egypt from the southern Levant, but that should be explored following the publication of the large, complete assemblage from Abydos tomb Uj.

\textsuperscript{105}After its EB II floruit, MW continues to be used solely in the production of storage jars and pithoi, while other forms are made of different fabrics (Greenberg & Porat 1996: 12). This continuity strengthens the notion that potters had found an optimum matching of vessel type and function with fabric, an achievement that consumers were loath to give up. Note that these are the only closed MW types found at Byblos, Tyre, and Lebea, although those at Byblos are in much greater variation, suggesting an additional production center (Greenberg 1996a: 137).

\textsuperscript{106}The scholarly literature has been unusually silent regarding the relationship between these decorations and possible contents, despite the fact that it is the only style of painted decoration of this period (Amiran 1974b). It is particularly interesting that many of the motifs (triangles and lozenges filled with dots, wavy lines) reappear in MBA decorations, such as the Levantine Painted and Tell el-Yahudiyyah Wares.
The significance of this phenomenon is, perhaps, best expressed by what might be described as an hypothesis from a list of Raban's (1980: 6) general “expectations” from the study of the commercial maritime jar:

The presence in the ceramic repertoire of a particular culture of a distinctive type of storage jar, which is significantly different from the remaining jar types in that it is better suited to being carried and shipped, is evidence of the flourishing of long distance maritime trade. The absence of this distinctive type may indicates the opposite (translated from the Hebrew).

A possible corollary is that the production, adoption, and utilization (implementation in the maritime network) of such a vessel reflects the economic orientation of said culture towards long distance maritime trade. Whether these hypotheses can be proven or disproven will require further synchronic and diachronic study.108

5.6 Byblos

Following the EB I Egyptian colonization phase, no site outside the Nile Valley possesses the range and quantity of Egyptian artifacts, particularly royal and prestige items, as the relatively small site (5 ha.) of Byblos. For this reason alone no discussion of Egypt's relations with the Levant or eastern Mediterranean trade could be complete without consideration of the evidence from this Lebanese coastal site. However, any consideration of this evidence is fraught with difficulty. Excavated by the peeling off of arbitrary 20 cm layers, i.e., without reference to debris layers that may slope irrespective of absolute altitude, much of the voluminous data has often been unusable without reliance on external chronological cross-reference. Fortunately, intra-mural burials, well-preserved and self-contained public architecture, and numerous foundation deposits permit some secure contexts that exert some control over the chronological integrity of the excavated material (e.g., Tufnell & Ward 1966; Negbi & Moskowitz 1966; Negbi 1976; Prag 1986a). For the third millennium, we are fortunate to have the results of the admirable efforts of Saghieh (1983), who painstakingly reassembled the contexts and placed them into a stratigraphic architectural sequence.109 It is not the

107 The lack of imports in Egypt from southern Canaan is instructive. It will be interesting to see whether true metallic ware or a southern Canaanite variant was found at Ashkelon. Gophna (1997: 160, n. 17) considers the ceramics from Ashkelon to belong solely to EB III, but full publication must be awaited.

108 Mazzoni (1987: 150-1) notes a predominantly coastal distribution of CW jars in Syria compared to inland areas, which strengthens its maritime role.

109 This sequence must still be used with caution (Esse 1992).
purpose here to attempt a thorough study or even to fully review the extensive evidence. Instead, a summary of the range of artifacts and a number of general observations will be offered.

Numerous scholars have discussed the close relations between Egypt and Byblos during the ED and OK periods (Ward 1963; Saghi eh 1983; Wright 1988; Ben-Tor 1982: 11-2). While a number of objects suggest at least indirect contacts as early as the First Dynasty, the real floruit of direct relations does not appear to have begun before the Fourth Dynasty (Ward 1963: 20-2; 1991: 13, 19; Saghi eh 1983: 104-6). From the Fourth through Sixth Dynasties at least eleven royal names have been found inscribed on objects from Byblos; the most frequent occurrences are in the Sixth Dynasty and the most frequently mentioned rulers are Pepi I and Pepi II (Saghi eh 1983: 99, table 8, 106; Ward 1963: 21-4; Wright 1988: 148). Most of the inscribed objects are stone vessels that were found in what has been called the Baalat-Gebal temple complex, whose architectural plan is suggested to have been influenced by Egyptian examples, and the nearby enceinte sacrée (Saghi eh 1983: 36-8, 106, 121, fig. 12a; Ward 1963: 24; Wright 1988: 149-50). Other inscribed objects are known, including one of an Egyptian official and a local cylinder seal with a hieroglyphic inscription dedicated to three gods and mentioning Byblos (Ward 1963: 21, 24-5; Wright 1988: 149-52; Martin 1998). Although attention is usually focused on the high profile prestige objects (or votive offerings) from Egypt, there is evidence for artistic influences and imported raw materials. One additional find of importance is a copper axehead found at the mouth of the Adonis river bearing the name of an Egyptian lumberjack crew in hieroglyphs (Rowe 1936: 283-6, pl. XXXVI:1; Wright 1988: 146-7).

The ample artifactual evidence and the epigraphic finds, especially the aforementioned cylinder seal, are often taken as indications of the strong cultural influence that Egypt had on the inhabitants of Byblos, and their own orientation and predilection (Wright 1988: 151-2). Exploring issues of influence is somewhat subjective at a site with problematic stratigraphy, outdated and insufficient collection methods, and a lack of material analysis of the various crafts. Moreover, such processes cannot be assessed in chronological isolation, as many of the clearly MK/MBA influences probably had their origins in the OK/EBA relations. This legacy is particularly apparent in one very important component of EBA Byblos: writing. Among the finds from Byblos are inscriptions written in a so-called “pseudo-hieroglyphic” script (Hoch 1990; 1995; Dunand 1978; Mendenhall 1985; Colless 1992; 1993; 1994; 1995; 1996-1997). Most of these fragmentary inscriptions are on stone, but metal spatulas and two fairly lengthy texts on bronze tablets were also found (Mendenhall 1985: 3; 53).

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110 Jidejian (1971: 20) claims that there are 36 inscriptions bearing the names of Pepi I and Pepi II.

111 Figurines, especially of monkeys, are one example (Jidejian 1971: pls. 22-23). Various gold, silver, and carnelian finds attest to imports from the south and north (Saghi eh 1983: 26-7, 48-51). The presence of jewelry molds (Saghi eh 1983: 62, fig. 17) is indicative of the local crafts in precious metals. However, as the metal industry is not considered in Saghi eh’s analysis (1983: 87, n. 2), a diachronic review of metal use and development is precluded.
The stone inscriptions were found in later contexts in secondary use, but the inscriptions on metal were associated with the Obelisk Temple and are dated no later than the Middle Kingdom (Mendenhall 1985: 5; Hoch 1990: 115, n. 7). The precise date of the development of this script is not yet clear. Based on the latter context and paleographical study of the signs, the script is believed to have evolved from OK hieroglyphics signs either already in the twenty-fourth century (Mendenhall 1985: 5), or between the Old and Middle Kingdoms (Hoch 1990: 119), but was certainly in its developed stage by the latter. Although an accepted decipherment has not yet been achieved, enough of the signs have been identified to establish that this is a syllabic script of a Semitic language (Mendenhall 1985; 1988; 1992: 235-9; Millard 1986: 391; Hoch 1990; Colless 1992: 55-8). Clearly, a period of interaction and development must be assumed to have preceded these inscriptions, during which this script was written primarily on perishable material, namely papyrus. No positive evidence has survived, but presumably this writing system served a variety of functions. Although Hoch (1990: n. 2) dismisses their utility, many of these signs are found etched on metal and incised on pottery, which is evidence of the widespread use of these developed signs and, potentially, evidence for their dating. Thus, one result of the intimate contact between Egypt and Byblos is the transmission of a writing system, which, as with other influences, does not seem to have reached other any other regions.

Why was Byblos alone so attractive to the Egyptians and why were the Byblians so inclined towards Egyptian culture are difficult questions to answer. Clearly, an economic rationale was behind the maintenance of this intensive and enduring relationship. Byblos' position on the Lebanese Coastal Plain, within a reasonable distance to the forested mountains, its access to the Damascus road and

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112 Mendenhall (1985: 3) states that the metal is copper. One of the spatulas has a later Phoenician text suggesting some contemporaneity between the two scripts (Sass 1988: 86-87), or the later re-use of an heirloom.

113 Colless (1992: 74) notes a sign that appears in Texts D & I derives from an Eighteenth Dynasty hieroglyph, which may suggest a sixteenth century date for some of the texts. Text D, a bronze tablet, was found along with Text C in a context that was in use during the Twelfth and Thirteenth Dynasties, but abandoned until the Hellenistic period (Mendenhall 1985: 5). The sign appears repeatedly in Text I, a bronze spatula, which was found near the city reservoir, and is associated with a Twelfth Dynasty context found above a twenty-third century destruction layer (Mendenhall 1985: 5-6). However, the use of the Babylonian calendar in the text suggests a terminus post quem of 1750 (Colless 1995: 25-6).

114 Hoch (1990: 119, n. 32) draws a connection between the Byblian syllabic script and the Sixth Dynasty group writing system. A similar connection is posited between the Proto-Sinaitic script and MK group writing of foreign names (Sass 1989).

115 Translations of the longer texts and some fragmentary inscriptions have been attempted (Mendenhall 1985; Colless 1993; 1994; 1995: 1996-1997). These attempts suggest various royal proclamations, elite dedications, a marriage contract, taxations, disputes, and pledges.

116 Another piece of evidence, seemingly ignored by scholars, is a limestone tablet with hieroglyphic signs arranged in registers (Saghieh 1983: 63, 67, fig. 18: no. 17145).
inland Syria, and its anchorage are only part of the answer. Other sites, such as Tyre, Sidon, and Beirut, with access to wood, oils, and other exploitable cash crops, could easily have served a similar capacity, but evidence for that is lacking. It is possible that no other community had achieved the requisite level of organization that Byblos may already have begun to demonstrate in the fourth millennium. Differential access to these resources would account for Egyptian interests at Byblos. However, it must be appreciated that outside Byblos little is known about the Lebanese coast and its immediate hinterland during the EB II-III period. Soundings on the “island(s)” of Tyre exposed two meters of EB II-III accumulation on bedrock, although the narrow exposures and limited ceramic assemblage permit only a general assessment (Bikai 1978: 5-6, pls. 57-58, 69, 72). Of particular interest is a quartz cylinder seal inscribed with hieroglyphs found in an Intermediate Bronze Age (IBA) level, which dates to the Third to Fourth Dynasties (Bikai 1978: 69, pl. 54:6; Ward 1978a: 84). Excavation at Tell ’Arqa in the north (Thalmann 1991: 25-32), a tomb at Lebea east of Sidon (Guiges 1937), and surveys carried out in the Beqa`a Valley (Marfoe 1979; Kuschke 1978) provide some additional evidence for the extent of settlement during this period.

In complete contrast to other Levantines, including those in the southern coastal plain of Canaan in the EB I, among whom the Egyptians lived for as long as 200 years, only the Byblians seem to have assimilated archaeologically visible reflections of Egyptian culture, particularly in aspects of ritual and prestige. How this influence was transmitted is not entirely clear, but the material and inscriptive evidence at Byblos, and the textual and pictorial evidence from Egypt, suggest at least two possible mechanisms: Egyptians present at Byblos and Levantines (Byblians) present in Egypt. Whoever initiated the relationship between Byblos and the Nile Valley, by the second millennium the inhabitants of Byblos used Egypt as a symbol of wealth and status, or to “set itself apart” (Baines 1996: 33). In this respect, Byblos is an anomalous phenomenon, even in Lebanon. Apart from the aforementioned copper axehead and the seal from Tyre, no other Lebanese site has produced any architectural evidence on only in the final two of seven EB II-III strata, suggesting perhaps intermittent use of the “island” (Bikai 1978: 5-6). Bikai (1978: 69-71) makes some general comparisons with primarily EB II-III assemblages, but note the presence of what appears to be a combed MW jar in this and the subsequent Intermediate Bronze Age stratum. Greenberg (1996a: 135-6) compares types from his late late EB II to early EB III pottery phase at Dan with the Tyrian assemblage.

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118 Ward (1978a: 84, n. 16) leans towards this OK object being one of many that reached the MBA Levant as heirlooms, but is willing to accept that it arrived during the OK period. The lack of any MBA remains at Tyre, particularly within this IBA context, suggests that the origin of this object is possibly in the preceding EBA occupation.

119 It remains to be tested whether the MW jugs and jars at Lebea and Tyre, as well as those in the Beqa’ Valley, are related to the production center identified by Greenberg and Porat (1996), or more northern manifestation of this ware.
Egyptian find. The only other contemporary Egyptian objects from anywhere else in southwestern Asia were also found in an elite context on the floors of Palace G at Ebla, to wit: fragments of a diorite vessel and an alabaster jar that are inscribed, respectively, with the names of Chephren and Pepi I (Scandone-Matthiae 1979; 1982: 14-5; Matthiae 1985: 137, 170, fig. 79). It is quite possible that Byblos was the source, but other possible explanations may be offered (Pinnock 1990: 43-4). In the rich material cultural landscape of the EBA Levant and inland Syria, the meager Egyptian finds (excluding the Byblos anomaly) underscores what our understanding of Egyptian-Levantine relations would be today if Byblos had not been excavated and, perhaps, what some other yet unexcavated coastal site might still yield.

5.7 Contacts with Cyprus, Anatolia and the Aegean

The material evidence for contacts between Egypt, the Levant, and the eastern Mediterranean lands beyond Byblos is of limited quantity, but is varied enough in artifact type and material not to be discounted, particularly as it appears to coincide with increasing evidence for maritime contact between Egypt and the Levant. With a few exceptions, there is no evidence of reciprocity in the Nile Valley for the Egyptian exports that have been found in Cyprus and Greece, an incomplete pattern that perhaps favors an explanatory model involving intermediaries. Although previously fairly insulated, the archaeological record in Cyprus begins to demonstrate increasing evidence for external contacts during the third millennium (Peltenburg 1995; 1996; Swiny 1986). In addition to the contacts that are evident with the immediate Syro-Cilician mainland (e.g., pottery, obsidian, chlorite, stamp seals, copper, and tin-bronze), Syro-Palestinian flint appears at Kissonerga, and calcite vessels, faience pendants, beads, and, gold originating perhaps in Egypt are also found at various sites, although they may have been transmitted by Levantine or Anatolian intermediaries (Knapp 1994: 280-91, fig. 9.4; Peltenburg 1995; 1996: 20-7, fig. 2).

Tarsus, Mersin, and a few other surveyed sites in southern Anatolia do provide some evidence of ceramic contacts with Syria, Cyprus, and western Anatolia, placing the Cilician coast

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120 The scholarly community is so Byblio-centric that the origin of OK stone vessels purchased on the antiquities market after World War I as being Byblos has never been questioned (Nelson 1934), and are even misattributed to a particular context (Wright 1988: 149, photo caption).

121 Other possible OK exports to Syria, which lack a secure context, are six stone vessels from Ugarit (Caubet 1991: 207-8, pls. I:1-2, VIII:12).

122 With a few exceptions all of the finds discussed here appear in contexts from ca. mid-third millennium onward. This work is not the place for a discussion of the merits or demerits of the ongoing debate on Aegean BA chronology (Warren & Hankey 1989; Manning 1995: 104-7, passim).

123 Peltenburg (1995: 32, n. 9) does not elaborate on the nature or identity of the Syro-Palestinian flints. If these are Canaanese blades, their distribution even in the northern Levant and inland Syria is quite widespread. The origin of the gold at Sotira-Kaminoudhia (Swiny 1986: 38, fig. 3:18) is unknown.
within the existing maritime sphere of activity (Mellink 1991; 1992: 214-5; 1993). No clear Egyptian remuneration for the Cilician jug found in Giza is known along the coast, or anywhere in Anatolia for that matter, apart from an unprovenanced gold cylinder seal from a hoard bought in Turkey, bearing the names of two Fifth Dynasty rulers, Menkaure and Djedkare (Young 1972: 11, fig. 8), and the name of Sahure on a gold overlay from the infamous Dorak treasure (Kantor 1992: 21).

Regarding contacts with the Aegean, a number of fairly recent studies summarize and discuss the evidence for the importation of raw materials, finished products, artistic motifs, as well as possible influences on crafts (Crowley 1989; Lambrou-Phillipson 1990; Cosmopoulos 1991; Phillips 1991; Warren 1995; Peltenburg 1995: 37-41). The most substantial contemporary evidence is found on Crete, whose position just beyond the southern maritime entry to the Aegean gave it an important position vis-à-vis the Near East. Finds from Knossos, Aghia Triada, and Mochlos include hippopotamus ivory, both as a raw material and as finished stamp seals, carnelian, amethyst, chalcedony, faience beads, and perhaps gold (Krzyszkowska 1984: 125; 1988: 210; Warren 1995: 1-2; Peltenburg 1995: 38-9). A Syrian silver cylinder seal, the aforementioned imported raw materials, and evidence for local imitations suggest that Mochlos may have functioned as one of the main gateways for Crete (Branigan 1991; Peltenburg 1995: 38-9). Stone vessels of Predynastic through Sixth Dynasty date are found in Knossos and Aghia Triada, but only two are from secure contexts (Warren 1995: 1-2; Lambrou-Phillipson 1990: 51-2). Although Cycladic finds are known on Crete (Wilson 1994: 39-43), the lack of any Cretan imports in the Cyclades (Broodbank 1993: 326) parallels the absence of any Egyptian, Levantine, Cypriot, or Syro-Mesopotamian imports, with the possible exception of a dagger of Cypriot or Anatolian affinity from Naxos and a cylinder seal from Amorgos, which is of dubious date and provenience (Lambrou-Phillipson 1990: 62-63, 73, 90, 373; Broodbank 1995: 7-8). The foci of maritime activity in the Cycladic archipelago are reflective of distinctively internal dynamics, although ceramic contacts with the Helladic and Anatolian mainland, and the arrival of tin, or tin-bronze, demonstrate that long distance Aegean maritime links existed (Broodbank 1989; 1993; 1995; Stos-Gale, Gale & Gilmore 1984). The Helladic mainland is similarly devoid of secure finds from the East; however, scholars have long noted the similarities between the glyptics

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124Mellink (1991) sees the contacts with Cyprus as being driven by the desire for Cypriot copper. Scientific analysis seems to refute the utilization of native copper at this stage (Gale 1991b), although more analysis is needed (Peltenburg 1996: 20, n. 5).

125Warren's (1995: 1) argument for the lack of gold coming from the north, where it is plentiful at Troy and Poliochni, is based on its absence in the “intervening Cyclades”. Barber (1987: 106), however, notes a single gold bead on Naxos. Numerous explanations may be offered for how north Aegean gold bypassed the Cyclades or made its way via the coast of Anatolia.

126If Cycladic metalsmiths had the requisite skill to cuppellate silver from lead ores, then this may have been a catalyst for more distant exchange. Note that lead isotope analysis suggests that while Cycladic silver was derived locally, Cretan examples, including a cylinder seal, come from an unknown, perhaps eastern (this author's suggestion), source (Stos-Gale & Macdonald 1991: 270-1, fig. 8c).
of the southern Levant and Syria and the administrative seal system and symbols at Lerna in the Greek Argolid (Ben-Tor 1978: 67-69, 96-99). The strong similarities, which led Ben-Tor (1978: 96) to seek “geographical way-stations” to explain their transmission, may have been confirmed by a recent study of new evidence from Limantepe in southwestern Anatolia (Weingarten 1997). Lastly, a complex, cross-cultural relationship appears to exist among the decorated bones in the eastern Mediterranean, with examples from Syria being stylistically similar (motifs and patterning) to those from Greece (Cycladic and Ionian islands), but closer in shape to those from the southern Levant (Zarzecki-Peleg 1993).127

5.8 The “Byblos run” and the southern Levant

The rise of a unified Egypt and eventually the Old Kingdom brought about an intensification, both in terms of scope and quantity, of its demand for foreign materials. This intensification led to state-sponsored maritime ventures that are described and depicted, respectively, in royal inscriptions and reliefs. The abandonment of the land-based colonial apparatus of EB I was in part the result of a need for products more readily available in the northern Levant and by the introduction of larger sea-going vessels that enabled bulk items (e.g., timber) to be transported and, concomitantly, for the mass shipping of smaller items that had previously been transported overland. During the ED/EB II period, organic imports in ceramic containers from southern Canaan are gradually replaced by products carried in specialized containers from northern Canaan and the Lebanon. By the Old Kingdom, Egypt's interests shift further north and Byblos emerges as the principal focus of Egyptian maritime activity, inaugurating what Stager (1992: 40-1) has termed the “Byblos run”. Beyond the Lebanon, remote maritime connections with coastal Syria, Cilicia, Cyprus, and even the Aegean may have been facilitated by middle-men, or by expeditions perhaps undertaken by Levantines (e.g., Byblians). To what extent Byblos served as a gateway for Egyptian materials (e.g., gold) being transported east is unknown. Throughout the “Byblos run” the southern Levant was probably still a secondary supplier to Egypt of some organic products, along with irreplaceable commodities such as copper and bitumen, through a number of coastal settlements that could have served as ports of call. These early ports are still largely unexplored and only future investigation will elucidate their role in the international and local regional exchange networks.

6. The First Intermediate Period and the South Levantine Intermediate Bronze Age

With the last documented CW jar to arrive in OK Egypt, sometime in the early years of Pepi II's reign, appropriately the last king to be mentioned in Sinai or Byblos (Ward 1971: 46; Saghieh 1983: 99), the “Byblos run” and state involvement in the acquisition of foreign goods appears to have

127The function of these objects is unclear, but traces of kohl on examples from Greece suggests they were used as paint tubes or containers (Zarzecki-Peleg 1993: 11). Further scientific analysis of the craftsmanship and residues might shed further light on this enigmatic artifact and its distribution.
begun its decline. For reasons beyond the scope of this work, the OK Egypt collapsed and a two hundred year interregnum ensued before the re-establishment of a central authority in the Nile Valley.\textsuperscript{128} As the above portends, the First Intermediate Period is a lull in the Egyptian-Levantine relationship. In general, this period is characterized by social and political malaise, civil war, and a cessation in foreign contacts and trade. However, a “total” cessation would not be an entirely accurate characterization, even if it seems insignificant compared to the preceding and succeeding periods. Some overland and perhaps maritime contacts existed, probably fueled by the continued demand by local rulers and nobles for foreign materials. By the 11th Dynasty, which some see as the beginning of the Middle Kingdom (Hayes 1971), an aggressive foreign policy of military expeditions, may have laid the groundwork for the re-establishment of formal contacts with the Levant and Byblos.

The First Intermediate Period is considered to be coeval with the south Levantine Intermediate Bronze Age, a non-urban interlude that has been one of the most contentious and enigmatic archaeological periods under study.\textsuperscript{129} This period is characterized by the end of EBA urban society, particularly in the region west of the Jordan rift. On the eastern side and, the western side of the Central Jordan Valley (Maeir 1997a: 190-6), better evidence for the continuity of habitation and material culture, and some vestiges of the former urbanism, suggest that this region was the socio-economic core of the southern Levant. The region to the west shows a seeming stratigraphic discontinuity, with no more than meager squatter encampments inhabiting EBA tells, rural sites, some cult centers, in a low-level mixed agricultural-pastoral mode of subsistence. The high archaeological visibility in the marginal arid zones is a hallmark of this period and extends as far as the Egyptian Delta (Finkelstein 1995a; Haiman 1996; Oren & Yekutieli 1990). Despite the rural, pastoral-agricultural character of this period, evidence for complex craft specialization and interregional exchange in ceramics, copper, and tin-bronze, demonstrates that interaction existed between procurement zones, production centers, and consumers.\textsuperscript{130}

\textsuperscript{128}Many studies have dealt with the nature of this collapse and the character of a politically fragmented Egypt (Ward 1971; Bell 1971; Kemp 1983: 112-6; 1989: 25; Wenke 1991: 290, 316-8; Redford 1992: 57-63).

\textsuperscript{129}This chrono-cultural term is preferred here over MB I, EB IV, or Intermediate EB-MB because it emphasizes the socio-economic and political character as a non-urban phenomenon between the urban Early and Middle Bronze Ages. This preference does not ignore the EB III legacy inherent in this material culture, nor does it preclude potential relations that may be identified with the subsequent MB IIa period. For the various approaches to the collapse (endogenous or exogenous), origin of the population (local or foreign), socio-economic character, and its relationship to the preceding and succeeding cultures, see, most recently, Dever (1980; 1995), Palumbo (1991), Finkelstein (1989; 1995a: 87-101).

\textsuperscript{130}For the ceramics, see Porat (1989b) and Goren (1991a; 1996). Copper alloys objects are widespread (Philip 1988: 196-7; 1989: 165-8; 1995c: 152-3; Palumbo 1991: 109-12; Miron 1992), with the copper apparently arriving by way of arid zone populations, who had access to the mining areas in Feinan, Sinai, and Wadi Arava (Haiman 1996: 14, 18-25, n. 9; Hauptmann, et al. 1992: 7; Rothenberg & Glass 1992; Avner, Carmi & Segal 1994: 283; Finkelstein 1989: 137; 1995a: 100). Analyses of weapons show primarily arsenical copper to have been used, although tin-bronze appears
6.1 Pictorial depictions and textual references in Egypt relating to the Levant

A number of pictorial depictions and brief textual references make either direct or indirect mention of the Levant, its population, or its products. From the first beginning of this period, just after the end of the Sixth Dynasty, is a reference to a nobleman who buries his father with an offering of sfšt oil (Ward 1971: 49). Later, in the Tenth Dynasty, a door is reportedly constructed of št wood (Ward 1971: 50). In addition, some important literary works derive from this period, including the Instructions for Merikare (Ward 1971: 22-36; Redford 1992: 66-68). Apart from its didactic lament over the state of Egypt, the text refers to military activities in the western Delta as far as the seashore, to the receipt of mrw and wšt, perhaps juniper, wood, and to Asiatics as robbers inhabiting the eastern Delta, against whom fortifications should be erected (Lichtheim 1973: 97-109, lines 81-83 and 91-100). This advice may have been heeded by the rulers of the Eleventh Dynasty, who demonstrate a more aggressive foreign policy. Under Mentuhotpe (Nebhepetre) I, in addition to texts and pictorial scenes of the familiar “smiting of the Asiatic” formula, other references report an expedition to Sinai, a military campaign to the Qedem (eastern) lands, and a, presumably sea-borne, expedition to the “cedar slopes” to cut wood (Ward 1971: 58-62, fig. 8; Redford 1992: 69-70; Hayes 1949: 46, n. j). The tomb of Antef includes a rare depiction of the siege of a fortified Asiatic stronghold (Arnold & Settgast 1965: pl. 2), and a riverine engagement (Settgast 1969), but the location of this walled settlement and the engagement are unknown. The acquisition of coniferous timber may be reflected in a funerary stela that mentions a coffin made of fresh št wood (Ward 1971: 62), and an expedition by Henu, who records the building of a “Byblos-ship” for a voyage to Punt (Breasted...
1906: §432-§433; Säve-Söderbergh 1946: 48), although the precise construction material is unspecified.

6.2 Imports to Egypt from the Levant and beyond

Since Ward's study (1971) no one has detailed the extent of FIP imports. Although there is no precluding a re-use of previously imported products at the beginning of the period, the textual and archaeological evidence suggest that fresh goods were imported, albeit in smaller quantities. Cedar was used for the construction of boxes and coffins, and a model was made of an unidentified conifer (Lucas & Harris 1962: 430-2; Ward 1971: 62; Davies 1995: 146-7, n. 31, table 1, pl. 10:1). Some ceramic forms of southern Levantine or Syrian origin, or inspiration, are found in the Delta and Upper Egypt (Shaheen 1992; Bietak 1996: 9). Copper, most likely imported via northern Sinai, was used for a range of objects, including a bowl, a statuette, epsilon axes, and plaques (Ward 1971: 51-4, fig. 7; Hayes 1971: 464; Lucas & Harris 1962: 219; Hayes 1953: fig. 92; Shaheen 1990; Garenne-Marot 1984: 116-7). Silver is also reported (Lucas & Harris 1962: 246). Lastly, Ward (1971: 54) reports a lapis lazuli bead, which is one of the materials acquired in the aforementioned expedition to the Sinai.

6.3 Foreign imports in the southern Levant

Continuing the EB III trend, imports from Egypt decreased to almost nothing, while contacts and influences from the north continued to increase. Petrographic analysis has identified Egyptian pottery at two sites in the central Negev (Goren 1996: 56). These occurrences are the tail end of a trickle of Egyptian ceramics documented across the northern Sinai (Oren & Yekutieli 1990). Northern (Syrian) exchange and influences are reflected in ceramics, tin-bronze, and possibly the whetstones for local metal production. A rare luxury import from somewhere in the regions to the northeast is the silver goblet from Ein es-Samiyeh (Dever 1980: 50; Gates 1986; Palumbo 1991: 119). Another rare find is an Aegean or Anatolian double-axe from a shrine at Megiddo (Kempsinski 1989a: 41, fig. 18:12; Miron 1992: 85, #310). Shay (1983: 32), following Lucas & Harris (1962: 391), suggests that carnelian beads were imports from Egypt, but other sources in the nearby arid zones may have been

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133The fragmentary IBA handmade cooking pots from Tell el-Dab’a were examined by N. Porat and found to be made locally (Bietak 1991a: 31, n. 9), but their precise date will have to be re-assessed in light of the new levels found at the site (see infra n. 180).


135Among these are ceramics (Palumbo 1991: 118-20; Mazzoni 1985; Dever 1980: 50-2); tin-bronze (Philip 1989: 182-3; Palumbo 1991: 105-7; Stech, Muhly & Maddin 1985); and the whetstones from ‘Enan, for which (1985) suggests sources in the far north or south. Perhaps the most intriguing question is whether the tin used derived from Anatolian or more eastern sources.
utilized (see supra n. 17). Beads of other semi-precious stones (e.g., agate and chalcedony) and materials (e.g., alabaster and frit) are also found in sites throughout the region (Palumbo 1991: 117-8).136

6.4 Byblos and northeast Mediterranean trade

Apart from the implications of the limited evidence for the importation of coniferous woods, there is a general cessation of contacts between Egypt and Byblos. However, this important port continued to thrive as a fortified city, as part of the cultural milieu of coastal and inland Syria (Saghieh 1983: 85, 122-5, 131-32; Mazzoni 1985; Van Loon 1992; Prag 1974: 107).137 Its maritime interests clearly shifted, accordingly, to the northeastern Mediterranean, where evidence for trade is documented between the northern Levant, Cyprus, southern Anatolia, and the Aegean.138 These relations, perhaps, are the context within which to place the few finds of Egyptian origin or inspiration (Ward 1971: 71-125; Warren 1995: 2), and several examples of south Levantine pottery, a late EB III or early IBA jar and two late IBA pithoi, which were found in tombs in northern Cyprus, at the site of Bellapais-Vounous (Ross 1994).139

6.5 Dim trade in a Dark Age?

In recent years, most scholars have shied away from a direct causal relationship between the absence of central authority in FIP Egypt and the decline of urban culture in the IBA southern Levant (cf. Palumbo 1991: 5-22).140 Instead, complex multi-causal explanations have been sought,

136 A necklace made of carnelian and “gadrooned” lapis lazuli beads is on display with IBA pottery in the Hecht Museum, University of Haifa, but the assemblage is without provenience.

137 A late Ur III economic text from Drehem, which mentions Byblos and its ruler, Ibdati, along with an Ur III tablet found in an IBA level at Byblos (Saghieh 1983: 64; Ward 1964: 129-30), are indicative of inland interaction as far as southern Mesopotamia. For the coastal region, see also the evidence for continued occupation at Tyre (Bikai 1978: 6, 70, pls. LIV-LVI); note the carnelian bead (LVI:21) and the CW jar (LVI:22). For the late appearance of this class in Syria, see Mazzoni (1987: 150-2).

138 Briefly, examples of this trade include a deposit of Cypriot pottery in a sacred context at Byblos (Negbi 1972; Saghieh 1983: 34-5, 38, table 3, fig. 11); a Cypriot amphora at Knossos (Catling & MacGillivray 1983); similarities in metal forms between the Aegean, Cyprus, and the Levant, and the continued supply of tin-bronze to Cyprus and the West (Balthazar 1990: 72-73; Philip 1991a; Knapp 1994: 280, fig. 9.4; Branigan 1974: 119-23; 1982); and other possible links in pottery and stone (Manning 1995: 90-91, 106-7). Note that during this period, masted sea craft begin to appear in Aegean iconography (Agouridis 1997: 3).

139 The lack of precise parallels has left their origin somewhat equivocal (Amiran 1971; Richard 1980: 24; Ross 1994). Clearly, petrographic analysis is needed to resolve this question. Note the resolution to the misidentified Cypriot bowl from Jerusalem (Maeir, Yellin & Goren 1992). An example of ivory is noted at Byblos (Saghieh 1983: 7), but its type and origin are unknown.

140 It should be noted that the FIP-IBA synchronism is quite unrefined as the few exchanged artifacts are not enough to provide anything but a broad correlation. Thus the temporal coincidence of
predicated on environmental instability and degradation, with the cessation of trade relations treated either as a symptom of, if not a contributor to, an already deteriorating situation (Dever 1989; Esse 1989a). Whatever the case may be, the absence of a strong Egyptian market underscores the trade roles that the southern Levant had previously enjoyed: as a terrestrial and maritime intermediary, and as a source of horticultural products and raw materials.

The role of intermediary was naturally contingent on exogenous developments, to which the southern Levant could offer little remedy. The absence of any significant longshore maritime and terrestrial movement during this period would have negatively impacted on those sites on the coastal plain, whose growth and prosperity until the EB III period may have been partially amplified by servicing or interfacing with this traffic, an impact reflected in the paucity of substantial remains along the shore and immediately inland (Prag 1974: 70; 1984: 66). Sites further inland, particularly those in the highlands, may have been negatively impacted by the decline in Egyptian demand for horticultural products. If the intensification of horticulture is seen as a positive stimulus in highland settlement growth, and in the economic integration that contributed to the urbanization process (Esse 1989a; Finkelstein & Gophna 1993), its decline may be seen as a negative stimulus (Dever 1989). Esse (1989a) argues that Egypt's demand for cash-crops was a catalyst for socio-political stratification, but sees “hyper-integration” into that economic system as ultimately resulting in a loss of resilience for a subsistence strategy that relied on risk-abatement (Joffe 1993: 24-9). The palynological record of the EBA indicates an intensification of cash-crops, particularly oleaculture, followed by a sudden decline (Baruch 1986; 1994b; Rosen 1989: fig. 2; Finkelstein & Gophna 1993: 13). Whether this decrease preceded or succeeded the deterioration of urban culture is so far unclear. Analysis of settlement patterns from highland surveys shows that during the IBA “the classic horticultural niches on the western slopes were not occupied . . . [and] the IB population subsisted by means of dry-farming/animal husbandry, with no large-scale orchard activity” (Finkelstein 1991: 43). The current difficulty in distinguishing between EB II and EB III ceramics in the highlands (Finkelstein & Gophna 1993: 2; Palumbo 1991: 42) precludes a refined diachronic study of rural sites, which might elucidate the trend leading to the IBA settlement pattern. However, some major changes in the socio-political organization, and a general impression of a decline in settlement number and density in the northern Central Highlands, occurred from the EB II to EB III periods (Finkelstein 1995b: 55-64; Palumbo

these two phenomena is based primarily on historical allusion and temporal bracketing between the preceding and succeeding periods.

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141 The wide standard deviations of the limited radiocarbon dates from the Kinneret (RT-552A+B: 5372±505 B.P.; RT-564A+B: 3550±215 B.P.) and the Hula (HV-1724: 4565±75) cores preclude any fine synchronization with archaeological periods, such as suggested by Stager (Rosen 1989: 250, fig. 2). However, the lowest terminus post quem for the first peak in olea and vitis frequency in both cores is 2900 (calibrated to 2σ). Thus the decline probably occurred sometime in the third millennium (Baruch 1986: 45; 1994b: 52), but this cannot be confirmed independent of the archaeological and historical evidence. Moreover, the catchment areas reflected in these cores is only a part of the southern Levantine environment. For the period in question, the Dead Sea cores do not provide enough detail or chronological refinement (Baruch 1994b).
1991: 44-5; Zertal 1993: 1312). If the gradual abandonment of horticultural lands was a feature of the second half of the third millennium, it may have been a result of the decline in oleaculture, as the southern Levant became a secondary supplier to Egypt's primary sources in the northern Levant. By the Intermediate Bronze Age, this role had disappeared entirely, and the agricultural specialization that may have fed into this demand collapsed, leading highland inhabitants to shift to more diverse subsistence level strategies, leaving oleaculture to supply only local demand. Regarding other natural resources, little is known of the utilization and trade in bitumen and Egyptian demand for copper during this period is unclear, although Haiman (1996) makes a strong circumstantial case for a link between arid zone settlement, metallurgy, and land-based trade with Egypt.

Thus trade, or rather its absence, was an important factor in shaping the IBA. Syria could not have “replaced Egypt as a trading partner” (Dever 1989: 233-4) as, unlike in the case of Egypt, there was little that Syria could obtain from its southern Levantine periphery that it could not acquire from more proximal and sophisticated economic networks. Without Egypt, the southern Levant became something of a backwater, or an end-of-the-line to the Syro-Mesopotamian economic complex that flourished during this period. It is probable that the scale and scope of these contacts, and particularly environmental constraints on agriculture, meant that relations with this cultural core, which is archaeologically visible in ceramic influences and some traded items, reflects primarily technological diffusion (Mazzoni 1985: 12-5), and did not act as a stimulus for more sophisticated socio-economic developments.

7. The Middle Kingdom and its foreign relations

Although signs of socio-political recovery were apparent during the Eleventh Dynasty, most scholars mark the beginning of the Twelfth as the inauguration of a reunified Egypt under a central authority that is known as the Middle Kingdom. For Egypt, this period was characterized by great political, economic, and literary achievements. In terms of social organization and policy, the Egyptian state resumed patterns familiar from the Old Kingdom (Hayes 1971: 468; Kemp 1983: 71). Political and military expansion was directed to the south, and economic relations with the Levant were re-established and strengthened. As in the Old Kingdom, these relations are based on a strong maritime link with Byblos, although less intensive terrestrial and maritime contacts with the southern Levant are also evident. Egyptian attitudes towards the Levant and its diverse inhabitants varied from hostility to cordiality. On the one hand, the “smiting the Asiatic” theme was repeatedly declared, while on the

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143 Various interpretations of Egyptian-south Levantine relations have been suggested, from Albright's long untenable notion of a southwestern Asian empire (1928; 1941), to merely regular diplomatic and economic relations (Posener 1971: 547; Ward 1961), to a minimalist negation of any substantial contact (Weinstein 1974; 1975). This last position is no longer tenable (Marcus 1991; Weinstein 1992; Ilan 1995a: 308).
other Levantines were plainly involved in Egyptian activities in the Sinai. Additionally, their increasing presence as a community in Egypt proper, particularly in the Delta, as slaves, craftsmen, shipwrights, and merchants, culminated in a large expatriate Egyptianized Canaanite population. In political circumstances that are vague and poorly understood, this large and economically powerful population seized control over the Delta and lower Egypt during the Thirteenth Dynasty, establishing what is known historiographically as the Hyksos period.

The extensive epigraphic and archaeological evidence is anchored in an astronomically-based historical chronology, although even this is not without controversy (Table 2). The extensive material relations between Egypt and other contemporary cultures provide important evidence for synchronizing the relative sequences of these cultures with absolute calendrical dates.

7.1 Pictorial depictions and textual references relating to Levantines and the Levant

Royal inscriptions and pictorial depictions relating to the Levant and other east Mediterranean lands are scarce during the Middle Kingdom, a period known for its unbalanced range and distribution of texts (Posener 1971: 547-548; Lichtheim 1973: 113; Parkinson 1991: 28-9). This scarcity is probably a result of the destruction wrought by long periods of violent struggle with the Asiatics (Hyksos) near the capital at Memphis. What remains are either fragmentary inscriptions, texts in private tombs that record royal activities (Parkinson 1991: 11, 17, 23-4), literary allusions, or texts found elsewhere, such as in Sinai.

7.1.1 Brief references

Many brief references and epithets preserve the seemingly contradictory relationship of animus and cordiality that the Egyptian's had with their northern neighbors. Early in the Twelfth Dynasty the northeastern frontier was secured with a series of border posts known as the “Wall of the Ruler”, a system that did not prevent occasional foreign herdsman from grazing in the Delta (Hayes 1971: 497; Posener 1971: 537). In the twenty-fourth year of Amenemhet I's reign, Nesumontu was involved in attacks against peoples to the north and east (i.e. Asiatics), their fortresses, and “sand dwellers” (Breasted 1906: §470-§471; Ward 1961: 38; Redford 1992: 77). In Senusret I’s reign, reference was made to “his numerous emissaries in every land and his couriers”, while he himself is

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144 For current views on MK chronology, see summaries by Ward (1992) and Kitchen (1987; 1989). The discrepancies among the so-called “High, Middle, and Low” chronologies derive from an inability to determine whether the heliacal rising of Sothis (Sirius) in the seventh year of Senusret III’s reign was observed at Memphis, Thebes, or Elephantine (Luft 1992). Recent re-analysis of the synchronization of the Egyptian and Julian calendars have demonstrated some gross discrepancies between the calculated date for the beginning of the Sothic year and lunar observations (Rose 1994). For the consistency of the “wandering year” and the implication of possible corrections, see Depuydt (1995). A recently discovered inscription from Dahshur may again raise the possibility that the reign of Senusret III was thirty-nine years, following the Turin papyrus, rather than the corrected nineteen years (Arnold 1992). Until these discrepancies have been resolved, the chronological foundations of the eastern Mediterranean and Near East will undoubtedly be the subject of continued revision. In the following discussion, time is related to regnal years only.

-65-
“one who severs the neck of those who are among the Asiatic” (Posener 1971: 538, 540; Rowe 1939: 188-91). His vizier Mentuhotep was “one who pacifies the sand dwellers,” a written allusion, perhaps, to the vanquished Asiatic depicted on a block from this ruler's funerary temple (Posener 1971: 538). A similar theme was repeated during the reign of Amenemhet III on a pectoral from Dahshur that reads “smiting the Asiatic” (Posener 1971: 538). A hymn to Senusret III declares that “his speech confines the Asiatic” (Delia 1980: 122). Although best preserved in later versions, the Middle Kingdom “Satire of the Trades” mentions the dangers couriers faced from the Asiatic (Lichtheim 1973: 184, 188; Simpson 1973: 329, 333, n. 11; Wilson 1950c: 433).

Brief references to Asiatic products, such as cattle, are documented during the reign of Amenemhet II or III (Blackman 1915). In Senusret III's reign, a reference from the Medamoud temple mentions “Asia, their products are presented to the palace of the king” (Delia 1980: 121-2). Numerous temple donations mention products such as lapis lazuli, silver, and various woods whose origin lay to the north (e.g., Delia 1980: 124). Asiatic workers, craftsmen (e.g., weavers) and domestic servants (e.g., butlers) are documented, particularly in the Delta, such as at Kahun (Griffith 1890: 45; Fischer 1959: 264; Posener 1971: 542; Delia 1980: 109; David 1986: 189-94; 1991; Quirke 1990: 129, 148, 197, 205, n. 9). Apart from MK references to Byblos the city (Horn 1963: 53-5), a “Byblos-boat” is mentioned in the partially preserved late Twelfth Dynasty text in Papyrus Lythgoe from El-Lisht, perhaps part of a literary tale of an Egyptian who traveled to the Levant (Simpson 1960).

7.1.2 Beni Hasan

The paintings from Beni Hasan Tombs 2, 3, and 14 are the most well-known and oft-cited depictions relating to Asiatiens and the Levant. In the absence of any other detailed contemporary or later MK depictions, which might have shown Asiatiens in other less nomadic modes, it has made a lasting visual impression on scholars regarding the character of the Levantines of this period.

The tomb (no. 14) of Khnumhotep I, who was a contemporary of Amenemhet I, includes a martial scene that depicts different groups of foreigners, among them bearded Asiatiens who brandish weapons, such as a socketed fenestrated axe and dagger (Newberry 1893: 84-85, pl. XLVII). An inscription from this tomb records a naval expedition to Upper Egypt involving twenty ships of cedar, and attacks against Asiatic groups (Newberry 1893: 84, pl. XLIV; Breasted 1906: §463-§465; Ward 1961: 38; Redford 1992: 74).

In the tomb of Amenemhat (No. 2), who was buried in the forty-third year of Senusert I, Asiatic soldiers also appear in a battle scene, which may or may not be part of scene depicting the siege of a fortified city (Newberry 1893: 24, 32-3, pls. XIV, XVI; Schulman 1982: 176-78). Here the Asiatiens carry non-socketed fenestrated axes and javelins.

The tomb of Khnumhotep II (No. 3), which dates to the sixth year of Senusert II, has the famous scene of Abisha, prince of the Amw of sw, leading a donkey caravan of thirty-seven individuals
Among the realia depicted or mentioned in the accompanying text, some of which may have been brought as trade items or gifts, are textiles, kohl paint, antelope, and weapons, including spears, a duckbill axe. In another part of the tomb, Arnold et al. (1995: 18, 20; Newberry 1893: pl. XXIX, left, reg. 2) identify a Levantine dipper juglet among some of the ceramics depicted. Nearby, among the shipwrights constructing a boat, is a figure who sports a beard, suggesting that he is an Asiatic (Newberry 1893: pl. XXIX, left, reg. 2; Fig. 4a-4b).

7.1.3 Sinai

Turquoise mining and, possibly, copper working was carried out by the Egyptians in Sinai (Wadi Maghara and Serabit el-Khadim). These activities are documented both in Egypt proper, in royal and other texts, and in inscriptions and archaeological evidence from the region itself. Attested royal names range from the founder of the Twelfth Dynasty, Amenemhet I, through the penultimate ruler, Amenemhet IV. The peak of activity occurred during the reign of Amenemhet III, from which the greatest number of inscriptions are known and the largest expedition ever mounted was recorded (Hayes 1971: 498, 509-510; Posener 1971: 539; Kemp 1983: 141). During this peak period Asians were well-represented in the mining activities. References are made to groups of “foreigners of Retenw,” a group of ’Amu of Hami, a number of non-specific ’Amu, some Semitic names, some domestic servants, a chief steward conceived of an Asiatic mother, and especially Khebded, “brother of the prince of Retenw”, whose name appeared perhaps as many as six times during the reign of Amenemhet III (Gardiner, Peet & Czerný 1955: 18-9, 103-4; Bietak 1996: 14-9, figs. 13-15). In some instances, these references are accompanied by depictions of Asians, some carrying duckbill axes, as soldiers, donkey handlers, and honored guests or nobles, with the latter generally riding donkeys (Gardiner, Peet & Czerný 1952: pls. XXIV; 1955: 206, fig. 17; Bietak 1993-1994: fig. 1a-c; 1996: fig. 14).

Various inscriptions mention donkey caravans numbering as high as six hundred head (Gardiner, Peet & Czerný 1955: 11). However, the numerous naval titles suggest that shipment may

For a possible relationship between this group and the su-tu of the Excreetion texts, see Worschech (1997: 229-30), who places their origin in Transjordan.

Arnold et al. (1995: n. 36) also identify a pair of two-handled globular amorphiskoi of IBA type depicted in a mid-Twelfth Dynasty tomb at Meir (Blackman & Apted 1953: 15, pls. XVIII, XXX:2). While some superficial similarity exists with the IBA parallels they cite, the handles depicted are of a thin, open loop type, including one with a fluted rim, none of which are found among IBA forms. It is possible that these are metal vessels.

Note the epigraphic evidence for metallurgical tools (Colless 1990).

See also various primary sources and secondary works (Breasted 1906: §602, §606, §713-738, §750; Gardiner, Peet & Czerný 1952; 1955; Wilson 1950a: 229-30; Giveon 1977; 1983).

Another toponym in gentilic form may refer to an Arwadite (Colless 1990: 18-9).
Maritime transport may be reflected by the ship graffiti at Rôd el-`Air, including the depiction of an animal, possibly a donkey, being transported (Gardiner, Peet & Czerný 1952: pls. XCIII, XCV; 1955: 218-22; Wachsmann 1998: 32-7). It is most likely that the eastern Delta sites along the Wadi Tumilat, where many Canaanites eventually settled, formed part of the logistical network that supported the Egyptian presence in Sinai (Bietak 1996: 14-9; Holladay 1997: 203-9).

The wider historical importance of this Egyptian-Canaanite relationship cannot be underestimated. Through the administration of this enterprise, which presumably involved the recording of all activities and the personnel involved, possibly in both Egyptian and Canaanite languages, the seeds for the Proto-Sinaitic alphabet were sown; at the very least, the Sinai mines have preserved the earliest documented evidence (Sass 1988; 1989; Colless 1990).

7.1.4 The Tale of Sinuhe

The Tale of Sinuhe recounts the sojourn of an Egyptian noble in the Levant during the reign of Senusret I, the second ruler of the Twelfth Dynasty. A MK classic of the narrative genre, the text was widely copied in the New Kingdom, but is best preserved in versions from the Twelfth to Thirteenth Dynasties (Simpson 1973: 57; Parkinson 1991: 36). Given the paucity of other evidence, this text is considered one of the most detailed contemporary descriptions of the Levant, although the equivocal characterization of the socio-political landscape has made it somewhat contentious. Redford (1992: 82-87; 1996) sees the events, and its terminology, as reflecting a completely “nomadic” way of life that indicates a continuation of IBA society in the early Twelfth Dynasty. In contrast, Rainey (1972; 1994) does not see anything in the text that is inconsistent with the complex, urban society of the MB IIa period. However, Sinuhe is a narrative work, whose construction and idiom may have more to do with storytelling and embellishing its subject, than the type of historical accuracy and extensive detail of other genres. In any event, much of the text is silent about the southern Levant. Apart from a brief episode in the eastern desert of Egypt or Sinai, all of the events took place either in Egypt or in regions described as east of Byblos (B 29-30), perhaps somewhere in

150 These schematic ship depictions do not have sails. Their location, at the mouth of a valley leading from the coast to Serabit el-Khadim (Gardiner, Peet & Čzerný 1955: 13), may provide a contextual parallel for the LBA ship graffiti found at the outlets of valleys into Mt. Carmel (Artzy 1994: 138-9). The use of Red Sea craft for travel to the Pharaoh's mines is reflected in the Tale of the Shipwrecked Sailor (Simpson 1973: 51, n. 3).

151 A number of translations are available (Wilson 1950b: 18-22; Simpson 1973; Lichtheim 1973: 222-35; Breasted 1906: §486-§497). All textual references herein derive from the Lichtheim translation, which is a combination of two MK versions.

152 Numerous literary, historical, and geographical studies of this text have appeared with extensive bibliography (Rainey 1972; Baines 1982; Green 1983; Goedicke 1992; Redford 1992: 82-87; Tobin 1995). Although preserved as a literary text, it is reminiscent of a stela or tomb biography (Lichtheim 1973: 235, n. 26; Redford 1992: 85, n. 81).
the eastern Beqa’ Valley, near the modern Syrian-Lebanese border (Green 1983; Goedicke 1992). The intervening region between Sinai and Lebanon is merely segued over with the phrase “land gave way to land” (B 28). Thus, the complete lack of any description of the southern Levant excludes this text from any discussion of its social, economic, or political character. What we do learn is that the rural inland regions of Lebanon were blessed with agricultural and horticultural wealth (B 80-92) and suffered periodic internecine warfare, in which personal combat was revered (B 96-146). The foreign toponyms provide an insight into the geographical knowledge and familiarity of the Egyptians with the Lebanon. The presence of Egyptians in the region is represented by couriers and the fact that Egyptian is spoken (B 31-3, 94-5). Lastly, the role of gift giving in the text (B 174-7, 244-5) has been noted as one possible mechanism for the transmission of Egyptian objects and artistic styles (Teissier 1996: 7).

7.1.5 The Mit Rahina inscription

Given the scarcity of contemporary royal records of Egyptian involvement in the Levant, the Mit Rahina (Memphis) inscription is of singular importance. This text is part of the court annals of Amenemhet II and, in chronological order, records numerous temple endowments and events including the bringing of tribute by Asiatics and others, an expedition to the Sinai, and two expeditions to the Levant for either military or commercial purposes. Large quantities of raw materials and finished products are listed among the donations, tribute, and goods, perhaps booty, brought back by Egyptian forces. The detailed entries illustrate the types of goods that the Egyptians valued, the scale of the shipments, and some indication of how they arrived.

Several entries record Egyptian foreign military or commercial initiatives. Of the two recorded expeditions to Lebanon, the first is merely recorded as fact (Altenmüller & Moussa 1991: 7, M 7). The second, some fourteen entries later (Altenmüller & Moussa 1991: 14-6, M 18-21; Redford

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153 Redford’s (1996: 79) insistence that the description of intensive orchard crops and viticulture could be indicative of a society practicing seasonal migration is not borne out by archaeological and ethnographic evidence, apart from rare exceptions, such as the Jebaliyeh Bedoin of Mt. Sinai, who maintain small-scale horticulture plots (Stager 1985: 177-8). The description of individual combat is consistent with the development of a warrior class during the late third and early second millennium (Philip 1995c).

154 Following an initial presentation (Farag 1980), a full publication of the epigraphic study by the Egyptian Exploration Society is expected (Malek & Quirke 1992: 13-4). In the interim, a number of articles have detailed the provenance and provided a collated facsimile copy of the original inscription (Malek 1992; Malek & Quirke 1992), while others have offered preliminary comments (Posener 1982; Goedicke 1991) and translations (Altenmüller & Moussa 1991; Redford 1992: 78-80). The discovery of the two text fragments on stone blocks that were reused in a Ramesside temple underscores the dire fate of many inscriptions of this period.

155 In some instances, the translators have had difficulty identifying specific items and suggested only general material, i.e., metal, stone, and wood. For the varieties of copper, see Giumlía-Mair & Quirke (1997: 96-97). The weight of copper is expressed in a copper-\textit{dbn} of 27.3 gm, and everything else in a standard-\textit{dbn} 13.6 gm; volume is expressed in \textit{\textdegree q}t of 4.785 liters; a unit sack equals 10 \textit{\textdegree q}t (Altenmüller & Moussa 1991: 46-8).
1992: 79), details the return of two ships laden with 1675.5 dbn silver, X dbn of gold, 4882 dbn of bronze, 15,961 dbn of copper, 1410 dbn of lead, 16 bronze, gold, and silver (perhaps inlaid) daggers; 21 bronze and ivory (perhaps pomeledd) daggers; various stones, possibly including 13 pieces of marble, 16,588 dbn of emery, and 39,556 dbn of a so-called grinding stone sand; seals of stone, ivory, gold, and silver; aromatics, oils, and resins, such as X 5/8 ąd' t ʾš and 66 3/8 ąd' t ʾ sf ʾ, 5 3/8 ąd' t moringa (sic, rather olive, see supra, p.), 271 sacks of ti-ʾsp, perhaps a type of camphor or cinnamon (Manniche 1989: 88-89), 92 jars of sntr, which seems to be terebinth resin (Haldane 1993: 353); other plant and fruit products, including 55 3/4 ąd' t of coriander, and hundreds of other items in sacks; trees such as fig and sycamore; 65 Asiatic men and women; and 231 trunks of cedar.  

Specifically military expeditions included an attack made by the commander of elite troops against the Asiatic Stt in a foreign land called lvʾs, and the return of forces sent to attack the walled towns of ivʾi and iasy, the latter of which may refer to Alashiya, i.e., Cyprus (Altenmüller & Moussa 1991: 7, 12, M 8, M 16-8; Redford 1992: 79, n. 47; Helck 1989). These forces returned with 1,554 Asiatic prisoners; over 300 assorted hafted copper and bronze weapons, tools and other objects (e.g., balance pans and wheels); 646 dbn of copper, perhaps scrap; 125 dbn of new copper; copper and silver jewelry (possibly inlaid); 58 dbn of amethyst, 1,734 dbn of malachite, and other semi-precious stones; 4 ivory furniture parts, perhaps inlay parts; 54 examples of Asiatic household goods, (possibly pottery), a box, 13 combs, and 375 dbn of lead. A procurement expedition to Sinai brought back 14 13/32 ąd' t turquoise, 8,700 and 5,570 dbn, respectively, of two types of unknown minerals, 26 13/16 ąd' t of alum, 10 9/16 ąd' t natron, eight sea-stones, forty-one sacks of aromatics, 9 3/4 dbn silver, ten head of cattle, three young ibex, and a leopard skin (Altenmüller & Moussa 1991: 10-1, M 13-4; Redford 1992: 79).

Among the foreigners who arrive bearing tribute are the Asiatic Stf, who brought 220 dbn of silver, gold, 56 heads of domestic animals, 1002 'Amw slaves, 6 dbn of lead, and 55 dbn of white lead (Altenmüller & Moussa 1991: 10, M 12-3; Redford 1992: 79). The hrw nomads from Tmpʾw brought 238.25 dbn of lead (Altenmüller & Moussa 1991: 12, M 15; Redford 1992: 79, n. 47).

Many distributions and donations to temple cults and endowments are listed, which include materials of foreign origin. These include both individual finished products and quantities of finished products and raw materials. Examples of the finished products include various objects and vessels of silver, bronze, and copper, including combinations of metals, such as 920 dbn in the form of sickle blades, “Asiatic” copper, and cedar wood. Examples of the raw materials include 32 dbn of raw silver.

156Altenmüller and Moussa translate ʾš as fir. Redford (1992: 79) claims ten ships were involved, a reading previously suggested with some dubiety (Farag 1980: 79, col. 2; Goedicke 1991: 90, n. 11). Examination of the entry (Malek & Quirke 1992: 15, M 18) shows Altenmüller & Moussa (1991: 14) to be correct. O’Connor (1996: 53) suggests that the two expeditions actually refer to two endowments.

157Redford (1992: 79) identifies lapis lazuli among the minerals, but this term ʾswd (Faulkner 1962: 197) is not in the copy provided by Malek and Quirke (1992). Perhaps he is referring to the unidentified mineral ʾwswʾd (Altenmüller & Moussa 1991: 13, M 18).
and 20 individual vessels, 25 $dbn$ of copper in clumps, and 73 cedar logs from Lebanon (Altenmüller & Moussa 1991: 6, 8, 16-7, M 5-6, 9-10, 22-3; Giumlia-Mair & Quirke 1997: 96).

The goods listed are impressive in their variety and quantity, although admittedly there are no contemporary written parallels with which to compare such wealth. However, the imports from the northern Levant, particularly the silver, may provide a context for the contemporary Tôd treasure. In terms of the nature and means of contact with the Levant, the quantities are instructive. Both examples of the tribute brought by foreigners could have arrived by land, as the total weight of the goods only amounts to about 3.8 and 3.2 kg, respectively, and the remaining items are self-transporting (slaves and cattle). Although only the second expedition to the Lebanon is specifically stated to have occurred by ship, the first presumably may have been as well. The two ships of the second expedition to the Lebanon brought back raw materials weighing 80,073.5 $dbn$ (1,308 kg), and whose goods measured 140 7/8 $\mu q't$ (674 liters). The following items of unknown measure were also brought back: 16 stones; 472 sacks (22,585 liters), 99 containers, 73 trees, 231 trunks/logs of cedar, and 65 passengers, not including crew. Similarly, if the toponymic identification of Alashiya is correct, then that expedition may also have been by sea. While the total measured weight of goods, 2,938 $dbn$ (50.5 kg), is not nearly as great, the number and type of items, including 1,554 passengers, may suggest a sea voyage. The seventy-three logs of cedar included among the donations could have come from the aforementioned, or another, maritime expedition.158

7.1.6 The Khusobek stela

Prior to the discovery of the Mit Rahina inscription, the only example of a MK military foray into the Levant was the stela of Khusobekh.159 Khusobekh fought in the Egyptian army's rear guard under Senusret III, who led an attack against the $mntyw$ $stf$ Asiatics in the region of $skmm$ or $skmkm$, i.e., Shechem, which fell along with “vile” Retenw, or they both “fell” upon the Egyptian army (Baines 1987: 51, e6). A new reading suggests that Shechem withstood the attack, and the verb “fell” refers to the wish or prediction that “it and Retenw will fall” (Goedicke 1998). Numerous historical interpretations of this event have been suggested, such as an inconsequential raid (Hayes 1971: 508; Wilson 1950a: 230; Delia 1980: 115-20; Baines 1987).

158 The quantities transported from Sinai, 14,280 $dbn$ (194 kg), 57.78 $\mu q't$ (276.4 liters), and forty-one sacks (1998.8 liters), are consistent with the size and carrying capacity of donkey caravans.

159 A number of translations and discussions are available (Breasted 1906: §676-§687; Wilson 1950a: 230; Delia 1980: 115-20; Baines 1987).

160 The toponym $skmm$ is generally associated with the $skmimi$ of the Exegretion texts, both of which are identified with Shechem (Posener 1971: 555; Hayes 1971: 508; Delia 1980: 117; Baines 1987: n. 10). In both instances the toponyms are accompanied by the term $sp't$ “district” and the hill country, rather than the city determinative, is used (Delia 1980: 118). Helms’ (1989: 159-60) rejection of the identification is substantiated. No year is indicated for the events in the Levant, although Senusret III's name is the only one mentioned. Sobekkhu was born in the twenty-seventh year of Amenemhet II's reign and was between the ages of twenty-five and sixty during Senusret III's reign (Delia 1980: 116-7).
Ward 1961: 39-40), a punitive raid against attackers of caravans (Weinstein 1975: 11), an attempt to secure the main land route to Asia (Na'aman 1982: 143), the putting down of a revolt (Wilson 1950a: 230), or even political subdual (Goedicke 1969-1970: 11-2, n. 6). As this text is perhaps little more than a “brief diary entry of an NCO after the event” (Delia 1980: 120), and not a royal text, perhaps it is prudent to avoid any wild extrapolation of Senusret III's intentions. Together with the Mit Rahina inscription, it is clear that MK rulers were capable of applying force in the Levant, but, if Goedicke's reading (1998) is correct, success was not always a certainty.

7.1.7 The Excreetion Texts

The three groups of inscriptions that comprise the Excreetion texts contain the names of Semitic rulers, various social groups, towns, and cities written on ceramic bowls and figurines; they are known individually as the Berlin, Mirgissa, and Brussels groups (Sethe 1926; Posener 1940; 1966; Koenig 1990). As the richest source of onomastic and toponymic evidence for the Levant, they have been the focus of extended and heated debate in connection with the social, ethnic, and political make-up of the Levant during the Middle Kingdom (e.g., Redford 1992: 87-93; 1996; Rainey 1972; 1994).

The provenance and dating of these texts are among the chief obstacles to a full understanding of their significance. The Berlin and Brussels texts were acquired, respectively, in Thebes and Saqqara; only the context of the Mirgissa group, found during the excavation of a Nubian fortress, is known (Koenig 1990: 101-2). Still, even the precise date of this group is unclear, and although a date in the first half of the Twelfth Dynasty is preferred based on orthographic terms (Posener 1966; Koenig 1990; Redford 1992: 88), the texts could have been deposited any time from the construction of the fortress, no earlier than the reign of Amenemhet II, until the Thirteenth Dynasty.

In relative terms, again based chiefly on orthography, the Mirgissa group is considered to have antedated the

161 Note, however, the clear distinction made between the Shechem district and Retenw, the latter of which Goedicke (1969-1970: 11-2, n. 6) identifies with the Coastal Plain. His variant reading of the text as Shechem fell “to Retenw, which was miserable” evokes comparison with the Amarna correspondence of the Late Bronze Age, when the Shechem region posed a threat to caravans (Ahituv 1970: 322, n. 18).

162 A variety of interpretations have been offered for these formulaic incantations against various persons, groups, and cities in the Levant, Nubia, Libya, and Egypt, such as sympathetic magic associated with Egyptian rule (Albright 1928: 223; Giveon 1984b: 8-9), the protection of commercial interests (Ward 1961: 142), or merely as a symbolic rite against perceived enemies (Na'aman 1982: 146; Redford 1992: 87). For the toponymic and onomastic readings, and extensive bibliography, see Wilson (1950e: 328-9), Ahituv (1984) and Teissier (1996: 3-4, n. 19).

163 For a possible Saqqara context for the Brussels group, see Sass (1989: n. 15).

164 Koenig (1990: 102) sees no reason why the group could not be contemporary with the construction of the fortress, but there is an impression that most of the principal monuments belong to the Thirteenth Dynasty (Kemp 1983: 160-1). In Redford's opinion (1992: 88, n. 98), the early years of Senusret III's reign are the terminus ante quem for this group.
Berlin group, which was then followed by the Brussels group. However, if the genealogy of the Nubian rulers in the Berlin and Brussels groups is properly understood, then they are probably separated by only a generation or two (Redford 1992: 88; Ward 1987: 528, n. 87; Koenig 1990: 102). Redford (1992: 88) dates the Berlin group to Senusret III - early Amenemhet III, which is consistent with the mid-Twelfth Dynasty form of the ceramic bowls on which they were written (D. Arnold cited by Rainey 1994: 83). The use of Senusret III's name as a component in some Egyptian basileophoric names provides a terminus post quem for the Brussels group (Sass 1989: 44). Given these wide ranges and other reservations, until new and sorely needed research provides some chronological resolution, it is prudent to treat these texts as belonging to the mid-Twelfth to Thirteenth Dynasties.165

The geographical scope of the texts is wide and includes a good sample of identifiable toponyms from the southern Levant to coastal Syria (e.g., Akko, Ashkelon, Byblos, Ullaza, Arqata, Shechem, and Rehov), and possibly even the arid zones of Transjordan (Redford 1992: 90-2; Worschech 1997: 229-30). Still many toponyms defy identification or are otherwise undocumented. One particularly relevant prefix used is the morpheme iye, Semitic “island” or “coast” (Redford 1992: 91), which reflects a geographical distinction made by the Egyptians between coastal and inland areas. A similar distinction may be inferred by the term “tribes of Byblos” in contrast to the city of Byblos (Rainey 1972: 382; Redford 1992: 91). In general, there is a good representation of coastal towns and regions (Redford 1992: 90-91).166 One possible social group from the littoral region, which is singled out among the general references to `amw, is called the dmityw, or “those of the harbor” (Rainey 1972: 387; Marcus 1991: 35-6).

Despite the chronological difficulties and dubious origin of the texts, attempts to reconstruct the socio-political landscape have been made based upon spurious inferences. The relative increase in the number of towns, and the numbers of rulers per town from the “earlier” to “later” texts, is considered to reflect a trend from semi-nomadism towards urban life (Redford 1992: 90-93).167 The texts themselves provide no indication of whether they are meant to be a comprehensive gazetteer of all the towns, cities, and groups, or a subjective selection distorted by unknown criteria related to the act

165 Initially, based on grammatical grounds, Sethe (1926) argued for an Eleventh Dynasty date for the Berlin group, which led Rainey (1972: 382) to hypothesize an original more ancient source text. Stefan Wimmer (cited by Sass 1989: 45) suggests that the archaic grammar is an intentional characteristic of this genre and that all other attributes indicate a late Twelfth-early Thirteenth Dynasty date for all three groups.

166 Artzy (1995: n. 12) suggests associating the coastal toponym mgr “cave” with the Mt. Carmel Caves near Tel Nami. Based on the association of this toponym with cedars in a NK reference, it is more likely located in a more northern locale (Ahituv 1984: 133).

167 Redford is only the most recent in a long list of scholars, that have taken this view (Albright 1941; Posener 1971: 555-6).
of execration itself, or the fortunes of preservation. The presence or absence of a particular town, region, or group may be the result of chance. Regarding the issue of multiple rulers for single toponyms as a reflection of socio-political developments, a number of alternate explanations may be offered. Multiple names might refer to several clans or generations, living and dead (Ward 1987: n. 88). Dual dating formulas, listing living kings, sons, and brothers in the same texts, or two kings in the same city, are documented in Old Babylonian oath formulas (Rainey 1994: 83). This type of dual rule accords well with the existence of three contemporaneous palaces at MBA Ebla, which may indicate that the city was divided into quarters, each with independent administrative systems (Arcari 1988; Bonfil 1997: 86). A similar southern Levant political organization might be inferred from the toponyms Kiriat Arba, or “City of Four”, one of the ancient names of Hebron (Ofer 1993: 606). Lastly, given the short period of time between the Berlin and Brussels groups, it is difficult to explain the extraordinary growth in sites, from ca. twenty to sixty toponyms, and the revolutionary change in social organization. Until additional evidence is found, e.g., from Egypt or a contemporary Levantine archive, the socio-political landscape of the Execration Texts will remain enigmatic.

7.1.8 The Admonitions of Ipuwer

The Admonitions of Ipuwer belongs to a didactic literary genre in which the speaker laments the social chaos or malaise that has befallen Egypt. When initially published, the composition, which is preserved on a later copy, was considered to be describing FIP rather than the Second Intermediate Period (SIP) conditions (Gardiner 1909: 18). Since then some scholars have leaned towards a late MK or SIP background, based on terminology, orthography, and historical circumstances (Van Seters 1964; Lichtheim 1973: 149-50; Parkinson 1991: 60). If so, then the text offers, inter alia, a number of insights into MK Egypt's foreign relations, and its attitudes towards Levantines and, perhaps, the events surrounding the rise of the foreign “Hyksos” kingdom in the Delta. Phrases like “foreigners (h’styw) have become people (i.e., Egyptians) everywhere” (1:9), “the Delta cannot be seen” (4:6), “foreigners are skilled in the works of the Delta” (4:8), “the land is deprived of kingship by a few people who ignore custom” (7:2-4), and “what has come from it to let the Asiatic know the state of the land” (15:2-4), are just a few of many examples of conditions that seem to describe the takeover of the Delta and Lower Egypt by Egyptianized Canaanites (Van Seters 1964). Regarding the decline in formal trade, several passages decry the absence of particular goods brought from the desert and abroad. The most relevant passage 3:6-10 has been translated alternatively as:

“No one sails north to Byblos today. How shall we do for cedar (ṣ) trees for our mummies, with the produce of which priests are buried and with

168 The question of the reliability and completeness of the sample is particularly significant as two of the groups were purchased.

169 Numerous full translations of this text are available (Gardiner 1909; Wilson 1950d: 441-4; Faulkner 1964; 1965; 1973a; Lichtheim 1973: 149-63).
the oil of which [chiefs] are embalmed as far away as Crete (keftiuw)?
They come no more. Gold is lacking” (Faulkner 1973a: 214),
or
“None indeed sail north to Byblos today. What [is that] can we do
concerning cedar-wood for our noble deceased; one used to bury the pure
with its imports and one embalmed the appointees with its pitch in order to
last. The Cretans, they come no more. Gold is lacking” (Goedicke
1967).170

Although either version reflects maritime-based economic relations, Goedicke's translation resolves
the odd reference to Cretan embalming, and emphasizes the breakdown of maritime trade (none sail to
Byblos, none come from Crete). Both instances provide an illuminating perspective from Egyptians
living under foreign hegemony (cf. O'Connor 1997).

7.1.9 The Kamose Stela

In general, the period of the Hyksos kingdom is not rich in texts (Redford 1997: 1), and the
limited and fragmentary evidence is particularly silent regarding the Levant. However, a number of
later SIP texts provide some insight into the attitude of the victorious Thebans towards the Hyksos
(Redford 1997: 11-6). One singularly instructive passage comes from the Second Stela of Kamose,
which details his military accomplishments against Avaris:

“I haven't left a plank of the hundreds of ships of fresh cedar which were
filled with gold, lapis, silver, turquoise, bronze axes without number, over
and above the moringa [sic, more likely olive] oil, incense, fat, honey,
willow, bow-wood, sticks and their fine woods—all the fine products of
Retenw—I have confiscated all of it (Redford 1997: 14; Habachi 1972:
37).”

The passage is quite clear in its description of the prosperity of the Hyksos capital and, by allusion, the
source of this prosperity—maritime trade. The reference is clearly to the presumed harbor of Avaris
crowded with cargo vessels, whose function was to bring the riches of Asia. The text actually reads
“300 ships”, which has been translated to mean “hundreds” (Habachi 1972: 37, n. b), but the
implication is clear. In the eyes of the Egyptians, the source of the Hyksos power, which Kamose
sought to assume, lay in the geo-political role of Avaris as a maritime power that controlled the access
of goods into and out of the Nile Valley. In addition, the goods described are very reminiscent of the
range of commodities listed in the Mit Rahina inscription. Thus, these two rare references to Egypt's

170Lichtheim's (1973: 152, n. 5) translation is similar to that of Faulkner, but she does note
Goedicke's alternative.
economic or trade relations with the Levant are like bookends on both sides of the Middle Kingdom and the Second Intermediate Period.

7.2 Imports from the Levant

Excluding the Deltaic sites that had a demonstrable “Canaanite” presence, evidence of Levantine imports is limited, despite the textual references of their variety and extent. These include wood, copper, some ceramics, and other finished goods and raw materials, some of which are presumed to have been consumed in large quantities, but are rarely found, e.g., the bits of bitumen in T.756 at Lisht (Merrillees 1973: 55).

7.2.1 Wood and wood by-products

An inscription in the tomb of Khnumhotep I, during the reign of Amenemhat I, recounts a sea expedition in twenty ships made of cedar (Ward 1961: 38). Recent analyses (Davies 1995) confirm the impression given by Lucas & Harris (1962: 430) regarding the extent of cedar imports for the fashioning of coffins, axehafts, statues, and funerary items, such as models.\textsuperscript{171} Other imported woods included cyprus, box-wood, and one plum axehaft (Davies 1995: 149, table 1; Gale 1987).\textsuperscript{172} All four Dahsur boats were made of cedar timber (Haldane 1997: 176), as is a ship timber fragment from Wadi Gawasis (Sayed 1980: 156, fig. 3, pl. XXII:5; 1983: 36). Lastly, pine oil was found on two storage jar sherds from Dahshur (Arnold, Arnold & Allen 1995: 27).

7.2.3 Copper

Textual references and analysis of finds indicate a variety of MK copper alloys, with arsenical copper being gradually replaced by tin-bronze, leaded tin-bronze, and rare “shakudo” black-patinated copper (Davies 1987: 24, passim; Cowell 1987: 98-99, table 1b; Giumlía-Mair & Quirke 1997; Garenne-Marot 1984: 112, 114-7). The Mit Rahina inscription suggests that, in addition to, perhaps, the Sinai and the eastern desert and Nubia (Garenne-Marot 1984: 99-100, 104-5, 113; Lucas & Harris 1962: 209), Egypt received copper via intermediaries in the northern Levant.

7.2.3 Ceramics

Although the heartland of MK Egypt has been generally devoid of MB Iia ceramic imports, increasing evidence for these imports is beginning to be found in Lower Egypt (Arnold, Arnold & Allen 1995: 13-4; Bourriau 1990: 19*). The earliest import found is the sherd of a bowl with a rope

\textsuperscript{171}Davies (1995: 146-51, table 1) counts thirty-two examples of cedar.

\textsuperscript{172}The axe on this plumwood haft is considered to be a FIP-MK type (Davies 1987: 41). Recalibration of the radiocarbon determination, BM-1251 3550±60 (Burleigh 1987: 127), gives a date of 2040-1690 CAL BCE. Plum is native to Europe and western Asia (Lucas & Harris 1962: 439).
appliquéd from Lisht, which is either contemporary with the building of the pyramid of Amenemhat I or deposited by a Thirteenth Dynasty robber's trench, but both the type and the context suggest the earlier date (Arnold, Arnold & Allen 1995: 16-7, figs. 6:1, 7). Subsequently, two Levantine Painted Ware (LPW) juglets were found in Lisht North Pyramid T.756, together with Egyptian pottery from the reigns of Amenemhat II to Senusret III (Arnold, Arnold & Allen 1995: 17-8, fig. 2; Merrillees 1973: 53-5, figs. 4-5). Examples of other Levantine pottery were found in late Twelfth Dynasty fills and dumps at the Dahshur complex (Arnold 1977: 24, Abb. 2; 1982: 41-2, Abb. 13), although some of the material is associated with Thirteenth Dynasty contexts. The bulk of the Levantine pottery at Lisht belongs to later Thirteenth Dynasty contexts (Arnold, Arnold & Allen 1995: 27-30, figs. 3, 6), including Tell el-Yahudiyah Ware (TEY) juglets that appear to be typologically MB IIa or MB IIa-b forms (Merrillees 1974: 59-64, figs. 44, 48, 51). The famous MB IIa-b “dolphin vase” from Lisht, which is a composite LPW-TEY vessel, has now been demonstrated to be the product of a southern Canaanite production center (McGovern, et al. 1994). Mostly fragmentary LPW and TEY juglets were found in rubbish dumps at the Twelfth-Thirteenth Dynasty worker's town of Kahun (Petrie 1891: pl. 1:11, 16-22; Merrillees 1973: 51-3, figs. 1-3), and in tombs at nearby el-Haraga (Kemp & Merrillees 1980: 34-6, 39, figs. 15-16).

7.3 Imports from beyond the Levant

7.3.2 Cypriot and Anatolian imports

With the exception of a fragmentary WPPL jug from an unclear Twelfth-Thirteenth Dynasty context at Kahun, MC imports are unknown in secure MK Egyptian contexts (Merrillees 1968: 42-3, 145-7). When Cypriot copper began to arrive in Egypt has yet to be researched. A fragmentary spout from the MK fortress of Buhen, which Merrillees (1968: 141, 145, pl. 1:1) suggests may be an unparalleled example of Black Slipped II ware, looks suspiciously like an “Anatolian” cut-away neck teapot (see infra Chapter Four). Silver, which appears extensively (Lucas & Harris 1962: 246-7), is imported from either Anatolia or the Aegean (Gale & Stos-Gale 1981; Moorey 1994: 235).

7.3.2 Aegean imports

Until the Middle Kingdom, no secure examples of Aegean imports are documented in Egypt. A Middle Minoan (MM) I vase from T.88 at Qubbet el-Hawa, near Aswan, is thought by some to be a late FIP import (Warren 1995: 2), but its context might be early Twelfth Dynasty and its origin is controversial (Edel 1980; Kemp & Merrillees 1980: 215-9; Manning 1995: 107-8). Numerous examples of MM pottery, both complete and fragmentary, in both secure and mixed contexts, are also known at Harageh, Abydos, Lisht, Tell el-Dab’a, and at Kahun, where a Minoan stone vase lid was also found (Kemp & Merrillees 1980; Warren 1995: 3; Lambrou-Phillipson 1990: 57). The appearance of Aegean imports is complimented by the reference to keftiw in the Admonitions of Ipuwer, and the keftiw bean in Papyrus Ebers, which may have sections of MK date (Strange 1980: 93).
7.3.3 The Tod Treasure

The Tod Treasure was found under the floor of a Twelfth Dynasty temple, which was dedicated by Senusret I to Montu, and consists of four copper chests containing an assemblage of imported raw materials and finished goods from a number of sources in the eastern Mediterranean and Ancient Near East (Bisson de la Roque 1937; 1950; Bisson de la Roque, Contenau & Chapouthier 1953). The deposit probably dates to the period of Amenemhet II, whose name appears on all four of the chests. A dedicatory inscription to this temple, which mention offerings by foreigners (Posener 1971: 543), and the contemporary references in the Mit Rahina inscription to imported goods and temple endowments (including to Montu), provide a historical context for this unparalleled assemblage (Pierrat 1994: 23-4; Lilyquist 1993: 36).

A variety of raw material, including gold, silver, and lapis lazuli, occur in lumps and ingot form. Finished, partially finished, and fragmentary objects include the four copper boxes, nails, and two shafts; ten gold ingots, a cup, and two fleurettes; numerous silver rings (an ingot form?), bracelets, a mirror, zoomorphic figures, pendants (one stamp seal), an electrum-fastened holster, and over 150 shallow bowls or cups, some crushed; lapis lazuli cylinder and stamp seals, a scarab, pendants, figurines, plaques, beads, part of bowl, etc.; carnelian beads, and fragments of quartz, amethyst, and obsidian. In terms of quantity, the treasure includes nearly 7 kg of gold, at least 9 kg of silver, and the copper boxes, which vary from 14 to nearly 40 kg. Together with the raw and finished lapis lazuli, the totals are impressive and well within the quantities and range of goods described in the Mit Rahina inscription.

Regarding the sources of the materials and objects, regions near and far are represented. Material and stylistic analysis suggests that the raw silver and silver bowls may have been derived from the Aegean or Anatolia (Maxwell-Hyslop 1995; Pierrat 1994: 24-5; Walberg 1984; Menu 1994). The Aegean world may have been the inspiration for one of the silver pendants (Aruz 1995: 33-5). The raw lapis lazuli originated further east and arrived via Mesopotamia and Syria, which were the origin for the cylinder and stamp seals styles (Porada 1982). The semi-precious stones derive from more proximal

173 New architectural evidence, the stratigraphic context, the homogeneity of the assemblage, textual parallels, and a review of the foreign comparanda support this date (Pierrat 1994: 20-2; Lilyquist 1993: 35-6; Walberg 1984), rather than previous attempts to drastically lower the date to Thutmose III or even later (Kemp & Merrillees 1980: 290-6).


175 These estimates are based on the formal publication of the treasure without any consideration for state of preservation and the possible decrease as a result of oxidation. Note that weights of only ninety-six cups are provided, and thus the total of silver may be double the amount tallied here. Reference is made in the catalogue to “meters” of beads of all different types (Cat. 70706-70708, 70710, 70712-70713), which do not appear to have been weighed, or discussed in any detail.
regions. Although many suggestions may be offered, this eclectic collection of valuable goods from Afghanistan, Syro-Mesopotamia, Anatolia, and, perhaps, the Aegean, could have been assembled in some Levantine coastal center and sent or brought to Egypt, where it was placed in the chests for deposit, under the royal auspices of Amenemhet II.

### 7.4 Byblos and the Lebanon

As during the Old Kingdom, MK relations between Egypt and Byblos were extensive, and stand out in comparison with other Levantine sites. Secure stratified contexts are rare, however, and limited to some architectural complexes dated by foundation deposits or caches (Tufnell & Ward 1966; Negbi & Moskowitz 1966; Porada 1966), and tombs (Tufnell 1969; Baramki 1973). The upper phases of the stratigraphic EBA-IBA sequence, as reconstructed by Saghi eh (1983), provide a terminus post quem for some early MBA contexts and finds.

These and other finds, which may be dated by typology or the occurrence of a royal name, have been discussed by numerous scholars (Ward 1961: 129-34, 155; Lilyquist 1993: 38-44; Teissier 1996: 2-3, nn. 11-3; Ben-Tor 1998). The range of finds either imported from, or inspired by, Egyptian material culture includes jewelry, stone vessels, scarabs, weapons, statues, figurines, of various raw materials of, e.g., stone, metal, and faience. Other cultural influences included religious architecture and religion, language, and the assumption of Egyptian titles (Redford 1992: 97; Flammini 1998). This influence extended to resident foreigners, such as the son of a Lycian who dedicated an obelisk to Abishemu, a prince of Byblos, with an Egyptian inscription (Albright 1959).

Outside of Byblos, few sites in Lebanon have produced MK Egyptian finds. A sphinx of Amenemhet IV was found in a modern foundation trench in Beirut (Dunand 1928; Teissier 1996: 3, n. 17). Inland, at Kamid el-Loz, a stone vessel with an MK hieroglyphic inscription was found (Edel 1983; Goedicke 1991: 92), although Lilyquist (1993: 44) considers it of local production. At Tell Hizin, near Baalbeck, a sphinx of Sobekhotep IV and a statue of a Twelfth Dynasty nomarch were found (Montet 1954: 76).

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176 For the Obelisk Temple and its jar deposits, see Saghi eh (1983: 18-20, 24, fig. 7-7b, pl. XLI:15979). For the Champ des Offrandes temple and Enceinte Sacrée MBA jar deposits, see Saghi eh (1983: 31, 35, 38-9, figs. 9, 11, 12b, pl. XLI:10585). For the Temple Syrien (or Batiment II) and its jar deposits, including the Montet Jar, see Saghi eh (1983: 50-1, 57-8, fig. 13). These are assigned to her Period H, along with other MB IIa finds, including a LPW dipper juglets and an isolated jar deposit (Saghi eh 1983: 5, figs. 1:12472, 4:10882, pl. XLI:18903). Although difficult to substantiate stratigraphically, it appears from various plans and sections that the site was still fortified during this period (Saghi eh 1983: figs. 21, 21b, 23-24).

177 Royal names are attested at Byblos beginning with Senusret I and ending with one the early rulers of the Thirteenth Dynasty (Ward 1961: 129-33; 1971: 67-8, n. 272; Teissier 1996: 3, nn. 14-5).

7.5 Egyptian Exports to Syria, Cyprus, Anatolia, and the Aegean

Egyptian exports were fairly limited beyond Byblos, and in many cases were not found in secure contexts. Presumably, a portion of the gold found in these regions, such as the jewelry found at Ebla (Matthiae 1982; 1997: 407-9; Lilyquist 1993: 44-7), originated in Egypt. Among the few secure contexts are a number of Egyptian and Egyptianizing objects in the “Tomb of the Lord of the Goats” and in a temple at MB II Ebla, including jewelry, ivories, amethyst beads, stone vases, and a mace handle with the name of the early Thirteenth Dynasty ruler Hotepibra (Scandone-Matthiae 1987; 1997). Otherwise, the finds spots are often vague, such as the MK scarabs and stone vessels from Ugarit (Teissier 1996: n. 2; Caubet 1991: 208-9, pls. 1:3-10, VIII:1-10), although some of the MK statuary was found there in contemporary contexts (Ward 1979). These might suggest that other examples of MK statuary found in later contexts at Qatna (du Mesnil du Buisson 1928: 10-1, pl. XII), at Küçükkale and at Adana in Anatolia (Von der Osten 1927: 293-4, figs. 11-13; Allen 1927; 1929), and Knossos, originated in contemporary exchange. However, as with other MK finds in later or dubious contexts, e.g., scarabs at Terqa, an alabaster jar fragment from Tell Leilan, and a sphinx from Neirab (Teissier 1996: 1-2), their MK export is speculative (e.g., Ward 1979; Uphill 1984; Warren 1995: 3). As yet no MK finds are documented on Cyprus (Knapp 1994: fig. 9.4). In the Aegean, the only certain MK finds were found on Crete, and include scarabs, stone vessels, the famous User statue from Knossos, and, possibly, faience necklaces, but, except for some scarabs, which were also imitated locally, most have either broad date ranges or are from dubious contexts (Walberg 1987; Wotzka 1990; Lambrou-Phillipson 1990: 53-5; Warren 1995: 2-3; Yule 1987). However, a compelling argument has been made for the transference of various artistic motifs and the possible importation of gold (Weingarten 1991; Crowley 1989: 294-8; Warren 1995: 2-3; Wedde 1997).

7.6 Tell el-Dab’a and the rise of the Asiatic “Hyksos” kingdom in the eastern Delta

No other excavated site has contributed more to understanding of MBA Egyptian-Levantine relations than Tell el-Dab’a in the Nile Delta. This site is identified with Avaris, the ancient capital of the historically and historiographically maligned Hyksos—so-called “chariot-driving marauders”, who usurped control from the Egyptian rulers of the Middle Kingdom. Over three decades of investigation has demonstrated, based on the analysis of the finds and the historical record (albeit meager), that the origin of the “Hyksos” should be sought among the Canaanites of the MB IIa Levantine coast, who settled in the Delta during the Twelfth Dynasty (Bietak 1996; 1997; and bibliography). Apart from imported small finds that emphasize the close commercial and cultural relationship that was maintained with their “homeland”, the ethno-geographic derivation of these heretofore enigmatic people is supported by analysis of the onomastica (Redford 1997: 20-1), burial practices (Van Den Brink 1982; Bietak 1989b), domestic and temple architecture (Eigner 1985; Bietak 1991a: 32, 39; 1996: 10; 1997: 97-98), rituals, such as equid sacrifice and burial (Wapnish 1997), and various crafts, such as cylinder seal production (Porada 1984), metalworking (Philip 1995b), and ceramic production (Bietak 1991a: 31, 33, 38-40, n. 9; McGovern & Harbottle 1997: 150-3). The Egyptianized character
of this population, however, cannot be understated, and it is in the context of contacts between the Nile Valley and the Levant that these social and economic phenomena should be understood.179

7.6.1 Environment and economy

The site was established upon a sandy “turtleback” east of the Pelusiac branch of the Nile (Bietak 1991a: 28). This location afforded the inhabitants security, control of riverine communication, and proximity to lush farmland and pasture that could support an agro-pastoral subsistence economy that was augmented by fishing, hunting, and fowling. Besides the importance of riverine transport, such sites may have also benefited from a role as ferry or fording points for latitudinal land-based movement, or as starting points for caravans (Van Den Brink 1993: 297). Detailed surface survey and geomorphological investigations in the area of Tell el-Dab’a indicate that the site was at a split in the Pelusiac branch of the Nile (Bietak 1991a: 28). It was thus partially surrounded by water and internally divided by channels and lakes, making it something of a MBA Venice. Early in this century, a 50 ha natural lake basin existed just north of the mound, hence its previous name Tell el-Birka, “the mound of the lake”, a lake that connected to the Pelusiac branch by a still identifiable channel (Bietak 1986: 227-8). Such a paleotopography offered excellent harbor facilities, a feature alluded to by the Kamose stela. By the Twelfth Dynasty, the geography bestowed upon the site its toponymic epithet: “mouth of the two ways” (Bietak 1991a: 28-9). The site's maritime access to the Mediterranean and its proximity to the beginning of the “Way of Horus” made it a prime “gateway” community.

7.6.2 MB IIa Settlement

Although initially only a modest Twelfth Dynasty Egyptian settlement, the site expanded to an area of 1.5 km² in the 13th Dynasty and nearly doubled in size during the “Hyksos” period (Bietak 1997: 97). Four principal strata (H, G/4, G/1-3, and F) with MB IIa Levantine material culture have been published, in varying degrees of detail, from Areas F/I and A/II (Bietak 1991a: 31, fig. 3; Table 3). However, recent reports from excavations at Ezbet Rushdi indicate additional Twelfth Dynasty strata (N-I), some with MB IIa Levantine and MM Aegean imports, which confirm the re-dating of the Amenemhet I temple to the reign of Senusret III (Bietak 1997: 127-8). All of this new data will require some re-ordering of the intra-site and relative chronological sequence.180

179It must be emphasized that Tell el-Dab’a was the preeminent site of Canaanite settlement in the Delta, which later coalesced into the Hyksos kingdom. These include Tell el-Mashkuta on the Wadi Tumilat (Holladay 1982: 44-7; 1997; Redmount 1995), and other sites (Bietak 1991a: 28, fig. 1), but as these provide evidence primarily from the MB IIb period, they are not discussed here.

180Bietak also reported these findings in a lecture at Tel Aviv University on 24 February 1997. Regarding the intra-site sequence, note that the six newly discovered strata have ceramics that reportedly “seem younger” than material from the incipient strata in Area F/I, which was previously claimed to be more similar to FIP than Twelfth Dynasty pottery, although a terminus ad quem of Senusret II had been noted for the comparanda (Bietak 1991a: 31).
The Senusret III temple and associated habitation levels were the core of the initial settlement. Although completely Egyptian in character, the marginal presence of Levantines, perhaps pastoral groups, are indicated by locally-made MB IIa cooking pots found in Stratum I (Bietak 1991a: 31; 1997: 97). Following a hiatus, fairly Egyptianized Levantines, with a typically sedentary lifestyle, settled in Area F/I, Stratum H. This material culture was characterized by Levantine-type houses, burial traditions (i.e., intramural locale, position, grave goods, etc.), albeit in tombs constructed in Egyptian fashion, and donkey sacrifices (Van Den Brink 1982; Bietak 1991a: 32; 1997: 97-100). In Area A/II, open compounds, perhaps animal pens, may indicate a community of herdsmen. Late-Twelfth Dynasty Egyptian pottery was found alongside MB IIa Levantine pottery, which comprises eighteen to twenty percent of the assemblage, of which only the handmade and wheel-made cooking pots were locally produced.

The emergence of an Egyptian-style palatial complex in Stratum G/4 of Area F/I (with an elaborate garden cemetery), which maintained the previous Canaanite mortuary tradition, marks a major change at the site, which continued its Egypto-Levantine character (Bietak 1991a: 34; 1997: 100-3). A robber's trench in the chapel of the largest tomb contained fragments of an intentionally smashed, monumental limestone statue of a smiting Asiatic dignitary, perhaps an inhabitant of the palace (Bietak 1991a: 34, 49-50). In contrast, the open compound and animal pens of Area A/II are supplanted by simple rectangular buildings or huts. The Twelfth and early Thirteenth Dynasty Egyptian pottery was found alongside a late-MB IIa component, which is still less than twenty percent of the assemblage.

A considerable change appears to have occurred in both areas during the period of Stratum G/1-3. A settlement of “egalitarian pattern”, which consisted of two-room “snail houses” surrounded by thin brick enclosure walls, was the norm in both areas (Bietak 1991a: 36-7). The prototype of the villa house, a common feature of succeeding strata, first appeared during this phase. Graves are found within the houses, courtyards, and in adjoining rectangular brick structures. A phenomenon of numerous shallow pits containing haphazardly placed bodies, which are occasionally in multiple interments and rarely with any grave goods, may be the result of an epidemic that ravaged the population (Bietak 1997: 105). Alongside Egyptian Thirteenth Dynasty pottery is an MB IIa Levantine component that increases from approximately twenty to forty percent, in part locally produced (Bietak 1991a: 36-8).

Despite the shocking end to the previous phase, continuity of settlement is evident in Stratum F, especially in the Area F/I, where the villa house, an Egyptian-derived form, dominates the architectural plan (Bietak 1991a: 38-9; 1997: 105-9). The large courtyards contain domestic installations as well as single and family graves, some with vaulted roofs. In contrast, the eastern suburb was abandoned following the epidemic and a large MBA Levantine temple was established in its place. This religious complex may be associated with the rule of king Nehesy, as two door jambs with his name were found in the area, albeit in nearby later contexts (Bietak 1991a: 39). Affluent cemeteries surround the complex, often with well-preserved remains, including warrior and donkey...
burials. Egyptian Thirteenth Dynasty pottery appears with a Canaanite component of forty percent, including MB Ila and some MB I Ib types.

### 7.6.3 Levantine Ceramic Imports

Although the influx of Canaanites into the Delta eventually led to the local production of much of their ceramic repertoire, imports continued to arrive from the Levant, particularly, but not exclusively, prestige items and containers. Some of these finds, such as LPW and TEY types and Canaanite jars, have been the subject of extensive INAA studies (Artzy & Asaro 1979; Kaplan 1980; Kaplan, Harbottle & Sayre 1982; Bagh 1988: appendix A/2; McGovern & Harbottle 1997). Although not all of the finds and their analyses have been published, some preliminary observations may be made.

The earliest example of LPW is unpublished, but is reported to have come from just below the Senusret III temple in the newly identified Stratum K. By far the most common occurrence is in Stratum H, when numerous fragmentary sherds of jugs, juglets, and jars are documented, although equal amounts of sherds can be found in Strata G/1-3, and scattered sherds can be found throughout the MBA sequence (Bagh 1988: figs. 1-31).\(^1\)

The earliest examples of TEY juglets are of the ovoid type, which appear in Stratum G/4 (Bietak 1996: 55; 1997: 91-94).\(^2\) In the following phase (Stratum G/1-3), ovoid and piriform juglets were imported from both the southern and northern Levant, and globular hand-made examples were locally-made with Cypriot production techniques; this pattern continues into Stratum F, when locally-made piriform vessels are added to the repertoire (Bietak 1996: 59; 1997: 91-94).

The most plentiful MBA ceramic type represented at Tell el-Dab’a is the Canaanite jar, whose total number is estimated at approximately two million vessels (McGovern & Harbottle 1997: 145). The results of INAA analysis indicate that as many as eighty-one percent of the MB Ila and MB Ila-b examples came from the southern Levant, with a few examples from coastal and inland Lebanon and the remainder of questionable provenience (McGovern & Harbottle 1997: 150-1). Other imported jugs and juglets, which were analyzed or classified by fabrics that have been correlated with INAA results, originated in the southern Levant or unknown regions.\(^3\) Among these are some “Anatolian” cut-away

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\(^1\) Seven of the examples from Stratum H come from a single pit (Bagh 1988: figs. 1-3a, 7a, 14). To illustrate the scattered nature of these LPW remains, parts of one of the only widely published examples, which is assigned to Stratum H, may have come from Strata G/4 and D/3 (Bagh 1988: figs. 8-8a; Bietak 1991a: fig. 4; 1996: fig. 29:4284). The earliest complete examples are jugs from Strata F to E/3 (Bagh 1988: figs. 11, 26).

\(^2\) Previously an ovoid juglet sherd was reported in Stratum H (Bietak 1991a: 33), but the excavator changed his attribution without explanation.

\(^3\) This refers to grave goods from Area A/II Strata G to F (Bietak 1991b: 42-4, 46, 49, 57-8, 68, 70-1, 317-33, figs. 18, 19:4-7, 10-1, 20:18, 21:2, 26:7, 29:30-31, 34:8, 35:29, 37:2; McGovern & Harbottle 1997: 151-3).
neck vessels and a spouted teapot from Stratum H to F (Bietak 1991b: 37, fig. 13; 1996: 31, fig. 29: top, lower center). 184

7.6.4 Cypriot Imports

Outside of Cyprus, Tell el-Dab`a has the largest assemblage of MC pottery (Maguire 1990; 1995: 54). By far the largest quantity and range of MC types belong to SIP/MB IIb contexts; however, examples of MCCL and MCPL wares were found in Stratum G and F (Maguire 1992: fig. 2). In addition, the Cypriot “thrust-through” handle attachment was employed in the manufacture of TEY juglets from Stratum G, which may suggest the presence of Cypriot potters (Maguire 1995: 55, fig. 11; Bietak 1997: 94, 99). Copper tweezers from Stratum F may be a Cypriot or an Aegean import (Philip 1995b: 73).

7.6.5 Aegean Imports

Sherds of a Middle Minoan (MM) IIb Kamares Ware cup, probably from north central Crete, were found in the palace gardens in Area F/I in an early phase of Stratum d/1 (Bietak 1991a: 36; MacGillivray 1995 pace Walberg 1991: 117). An unpublished MM Ib amphora was reportedly found in an early phase of Stratum M. A MM golden pendant was found in one of the palace tombs (Bietak 1991a: 36; Walberg 1991), although the Minoan attribution is not universally accepted (Aruz 1995: 44-6). Lastly, Bietak (1995: 20, pl. 14:2) suggests that a veined dagger with interlocking spirals is a syncretism of Levantine and Minoan features.

7.6.6 Metal Finds and Evidence for Production

The preliminary publications indicate that copper-based weapons of Levantine types were found in abundance, particularly as grave goods that equipped so-called “warrior burials” (Philip 1995a; 1995c; Bietak 1996: 13-4, 26, figs. 22). Molds, crucibles, and a tuyère from Stratum G indicate that weapons and tools, of both Levantine and Egyptian type, were produced locally (Philip 1995b: 71; Bietak 1996: 31, fig. 28). Metallurgical analysis shows that a range of unalloyed copper, low arsenic alloys, and tin-bronze (some leaded) were in use (Philip 1995a; 1995b: 74). The inverse relationship between relative arsenic and tin content suggests that either two different copper sources were used, or that the varying arsenical content is the result of the degree of repeated recycling (Philip 1995a: 525-7; 1995b: 74-5). Strata H-F daggers and axes are uniformly composed of tin-bronze, while later examples show limited amounts of tin, a pattern that may suggest a less functional and more symbolic role for these particular objects (Philip 1995b: 77). Lastly, apart from a rare occurrence of two spearheads, silver is limited to rings and occasional fastenings for scarabs and weapons (Bietak 1991a: 36; 1991b: 59-60, fig. 29; Philip 1995b: 71-3).

184 Many of the imported examples of this class, and other related forms, have three incised lines at the base of the neck (Bietak 1991b: figs. 13, 18:2, 19:6), which are similar to examples at Kabri, see infra Chapter Four.
8. Northeastern Mediterranean Trade

Textual and archaeological evidence indicates that extensive trade took place among Mesopotamia, coastal Syria, Anatolia, Cyprus, and the Aegean Sea. This trade was carried out on land and at sea, and involved the long distance transport of raw materials, finished goods, and people—all in sophisticated, but highly particular and, seemingly, restrictive, commercial relationships. These networks of exchange complement the evidence from the southeastern Mediterranean, in terms of the commodities and regions involved, in illustrating the varied modes of exchange (i.e., entrepreneurial, royal, or temple-based), and in the material overlap, such as the distribution of LPW vessels (Thrane 1978: figs. 79, 82, 85, 88, 91-92; Gerstenblith 1983: 64-70; Tubb 1983; Bagh 1988; Saidah 1993-1994: pls. 5-6, 9:2, 10:1b, 11:1-2, 12:1, 16:1-2).

More than any other phenomenon, the Old Assyrian (OA) caravan trade (ca. 1950-1755), which is detailed from the archives at the karum-Kanish at Kültepe, demonstrates the complex commercial apparatus that was implemented in order to transport goods, principally textiles, tin, copper, silver, and gold, between Anatolia and Mesopotamia (Veenhof 1972; Larsen 1977; 1987; Gerstenblith 1983: 7-9; Dercksen 1996). Although solely a land-based network, the establishment of an Assyrian commercial colony, which has left little if any evidence of Assyrian material culture (Larsen 1987: 55; Postgate 1992: 215), is an important caveat for those seeking to identify ethnic or cultural origin of expatriate groups in the archaeological record. Although the published texts show no indication of any contact between these merchants and any sea-based networks, the discovery of a MC WPPL juglet at the site (Åström 1987: 62; 1989) suggests that there exists, somewhere on the shores of Cilicia, an MBA precursor of Ura, the LBA Anatolian gateway to the Mediterranean (Beal 1992; Blue 1997: 38-41).

The Old Babylonian (OB) texts from Mari are the only source of information, albeit indirect, of MBA maritime trade in the northeastern Mediterranean. Numerous studies have considered Mari's relations with the Upper Jordan Valley (i.e., Hazor and, possibly, Laish/Dan), the northern Levantine coast, Cyprus, and Crete (Malamat 1970; 1998g; Dalley 1984: 1-7, 51-65; Limet 1985; Larsen 1987; Heltzer 1989). Mari appears to have been an important transshipment point for tin,
which arrived from the East via Susa (Heltzer 1989: 15-23). The southernmost identifiable recipient of this tin was Hazor, whose ruler apparently had a close relationship with his counterpart at Mari (Bonechi 1992; Malamat 1971). Various texts from Mari recount how the ruler of Hazor sent wine, gold and silver vessels, and gold jewelry to Zimri-Lim, the king of Mari, who, for his part, sent textiles, cattle, and mules, or dispatched an official to Hazor in order to obtain silver, gold, and precious stone (Malamat 1998b; 1998e). An unpublished OB text recently found at Hazor reportedly details commodities and sacrificial animals that were sent to Mari (Horowitz 1996). A reference to a gold vase sent to the king of Mari by Yantin-`Ammu, ruler of Byblos, is the southernmost identifiable contact along the coast (Albright 1940: 27; 1964; Kitchen 1967). In other texts, Byblian-style robes are mentioned (Bonechi 1992: 11-3; Malamat 1998f: 37).

Another important recipient of tin from Mari was the port of Ugarit, which appears to have been a major transshipment point for tin going overseas and for Alashiyan (Cypriot) copper going east (Heltzer 1989). This city's importance for Mari is underscored by references to the transfer of gold jewelry, lapis lazuli, and silver vessels to Ugarit, perhaps partly on the occasion of Zimri-Lim's visit, who had previously received an envoy of Ugarit (Sasson 1984; Limet 1985: 16-7; Villard 1986; Malamat 1998b: 43). This port also served as the domicile of a Kaptaran (Cretan) merchant delegation, which was led by a head merchant and aided by a translator, all of whom received tin from Mari (Heltzer 1989: 12-3; Malamat 1998f: 34-6). Various references to Cretan, or Cretan-style goods, include weapons, such as a lance, a gilded mace inlaid with lapis lazuli, sandals, textiles, precious metal, pottery vases (perhaps Kamares Ware), other unidentified objects of leather and bronze, and a wooden boat (giš mā tur kaptaritum), perhaps a model, decorated with lapis-like stones (Heltzer 1989: 13-4; Guichard 1993; Porada 1995; Malamat 1998f: 37-8).

Despite no specific reference to the import of Dilmun copper, the Mari texts allude to contact with this Persian Gulf locale, which was one of the main suppliers of this metal to Mesopotamia during the third millennium, hence the use of the terms “Dilmun copper” and “Dilmun shekel” (Potts 1986: 391-6; 1990: 85-92, 226-31; Eidem & Højlund 1993). The Mari texts, however, are replete with references to the Alashiyan copper mines, its “copper mountain”, copper refinement, and even Alashiyan bronze (Heltzer 1989: 8). Moreover, a rare mention of ıra ki a-la-ši-ia “the city (lands) Alashiya” (Charpin 1990), indicates that the Marian scribes knew of a city with this name that was also applied to an entire land, which is a common phenomenon among islands (e.g., Rhodes or Samos). Thus, even if the supply from Dilmun to the north continued into the early second millennium, this network was apparently eclipsed by a new source, a change that is reflected in an OB text of unknown provenance that records the latest attestation of Dilmun copper, coincidentally with the earliest references to Alashiyan copper outside of Mari (Millard 1973; Potts 1990: 226).

Although the Mari texts provide only indirect evidence of maritime trade, the 500 km distance that separates Mari from Ugarit must be factored into the importance ascribed to these references.

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188 Zimri-Lim may have married a princess from Hazor (Malamat 1998a: 14).
Presumably, only a small and selected portion of the sum total of goods and information from the coast passed through this geographical filter. Based on this supposition, a contemporary archive from Ugarit, or another port, should provide more voluminous and detailed data on maritime activity and trade.

Cretan and Cypriot ceramic imports from both coastal and inland sites provide the only unequivocal archaeological evidence for maritime trade from the northern Levant. Cretan MM Ib-MM II imports of Kamares Ware include one intact and two fragmentary cups from tombs at Ugarit (Schaeffer 1949: figs. 109-109A; Saltz 1977: 53-5), a cup sherd from a debris fill at Qatna (Smith 1965: 14, fig. 20c), one intact and one restored bridge-spouted jar and a cup sherd at Byblos (Dunand 1937: pls. CLXIV:4170, CLXXVII:2986; 1939: 191, 311-312; Smith 1965: 13, figs. 19, 20d; Baramki 1973: 30, fig. 4:2, pl. IV:1), and two intact cups from a tomb at Beirut (Saidah 1993-1994: 206, pls. 17-18). However, only the examples from Beirut, the intact example from a rock-cut tomb at Byblos (Baramki 1973: 27), and one example from Ugarit (Saltz 1977: 55) have relatively secure attributions.189 The distribution of MC imports in the northern Levant has been discussed by numerous scholars (Åström 1972: 206-33; Dever 1976: n. 104; Åström 1987: 59; Maguire 1990). In addition to dubious and clearly later contexts along the Syrian coast, MC WPPL and WPCL jugs and juglets, and Red Polished sherds were found in various Ugarit Moyen (UM) 2 (i.e., MB IIa), and end-of-UM 2/debut of UM 3 (i.e., MB IIb) contexts and tombs at Ugarit (e.g., Schaeffer 1949: figs. 102:15-16, 131; Åström 1972: 214-5, 218; Gerstenblith 1983: 71). At Tell Sukas WPPL vessels are found in an MB IIa-MB IIb multiple tomb (Thrane 1978: figs. 43-44, 55-56, 62). South of this region, and along the Lebanese coast (including Byblos) there is an absence (Maguire 1990: figs. 17, 25, 26); the only remotely possible contemporary MC imports in Lebanon are two WPPL jugs in mixed MB IIa-MB IIb (and LBA) tombs at Qraye and Majdalouna, near Sidon (Guiges 1939: pl. XIIb; Chéhab 1940: fig. 3e).

Imports to Cyprus include both Cretan and Levantine ceramics and metals.190 Cretan ceramics from secure contexts include an EM III/MM Ia bridge-spouted jar from Lapithos-Vrysi tou Barba and an MM II Kamares Ware cup from Karmi-Palealona, both typologically earlier than examples from the Levant (Grace 1940; Stewart 1962; Walberg 1992). Although these examples are limited to the northern coast of the island, a Kamares sherd was found out of context at Kourion in the south (Knapp 1994: fig. 9.4). Levantine ceramics include a juglet from Larnaca-Ayios Prodromos, and a Syro-Cilician jug from Nicosia-Ayia Paraskevi (Merrillees & Tubb 1979; Herscher 1988: 153, 87).

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189 A number of silver vessels from Byblos have been considered to be Aegean in origin or inspiration (Kantor 1947: 20; Jidejian 1971: 27, figs. 40-41; Cadogan 1983: 514), but may, like the silver vessels from the Töd Treasure be of Anatolian origin.

190 Foreign influences on the Cypriot ceramic repertoire are not considered here (Herscher 1975: 53-6; 1979; Merrillees 1979).
fig. 3:12). Typological and metallurgical analysis of metals (e.g., weapons, tools, and jewelry) show a very selective import and adoption of Levantine and other forms, which may have partially influenced the haphazard implementation of imported tin-bronze and its technology (Gale & Stos-Gale 1989; Balthazar 1990; Philip 1991a).

Imports of Near Eastern cylinder seals and Cypriot pottery in the Aegean were limited to Crete, but most are from later or dubious contexts (Cadogan 1983: 516-7; Lambrou-Phillipson 1990: 62-3, 68-9, 85; Phillips 1991). The few exceptions are some cylinder seals from MM tombs at Arkhanes and some WP sherds from MM Ib levels at Kommos (Watrous 1992: 172). In addition, North Syrian, i.e., Levantine, amphora sherds were reported from a MM IIb context at Knossos, but are still unpublished (MacGillivray 1995: 82). Branigan (1966; 1967) identified a number of imported Levantine daggers, although some of his specific parallels have been questioned (Philip 1991a: 85). While lead-isotope analysis indicates only a limited import of Cypriot copper (Stos-Gale & Macdonald 1991: 265-7), extensive use of tin-bronze in the Aegean (Branigan 1974: 73-6; 1982; 1989: 66-7) is a firm archaeological correlate for the Kapataran merchant activities at Mari. Raw materials for inlays and seals, such as hippopotamus ivory, and semi-precious stones, including agate, carnelian, and lapis lazuli, were also imported (Krzyszowska 1984; 1988: 217, 228; Yule 1987: 171-5; Younger 1989: 53-4). Less tangible, but more meaningful imports may have been faience technology (Foster 1979: 58-60), the Minoan sealing system, which Weingarten (1990) has argued is Near Eastern in derivation, and some artistic transferences (Crowley 1989).

9. Summary

As this longue durée approach has demonstrated, Egypt's external relations were molded fairly early in the formation of its society and state, whose growth and size necessitated a maritime connection to the outside world. This maritime commercial activity brought about indirect contacts with other maritime and land-based networks, and increased the geographical scope of cross-cultural interaction. These connections are clearly supported by the textual, pictorial, and archaeological evidence, both in Egypt and abroad. While the social and cultural impact of this phenomenon on the northern Levant,

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191 In addition to parallels cited, examples of this ceramic family are known from Tell Judeidah, Ugarit, and Ebla (Schaeffer 1978: 208-9, figs. 4:4, 4a; Tubb 1983: fig. 1:1-2; Matthiae 1989). Another Syro-Cilician jug is reported from Lapithos-Vrysi tou Barba (Knapp 1994: fig. 9.4), but an illustration was unavailable at the time of this writing. Other possible Levantine forms have been illustrated, but they have not been properly examined by specialists in years. These include vessels from Kalopsidha T.11, such as a carinated bowl and platter, both wheel-made and with a loop handle, which were found with what appears to be an MB IIb TEY juglet (Åström 1966: 19, figs. 10: row 2:1-2, 51; row 1:4; 1972: 129-31, 232, fig. XXX:21); two black burnished piriform juglets, one from Milia and the other unprovenienced (Åström 1972: 133, 240, fig. XXX:19-20); and a wheel-made handleless jar (Åström 1972: 129, fig. XL:8). A wheel-made handleless painted jar, with a crude pendant decoration around its neck and two rows of net-pattern-filled triangles (Åström 1972: 129, 232-3, fig. XL:9), shows a strong affinity to LPW examples from the mainland. Numerous other suspiciously Levantine sherds can be seen on the plates from Kalopsidha and Ayios Iakovos (Åström 1966).
particularly Byblos, is clear, its impact on the southern Levant requires a more sophisticated approach that considers its role as an ancillary trade partner and a maritime intermediary for Egypt. The mechanics of the latter are the subject of the following chapter.
Chapter 3
By Land or by Sea in the Southeastern Mediterranean

The previous chapter surveyed the contacts between Egypt, the southern Levant, and beyond, and examined the changing role of the southern Levant from primary to secondary supplier of raw materials. Implicit to this survey was the notion that when required, the southern Levant functioned as a required nexus for all Egypt's contacts whether terrestrial or maritime. This chapter considers this role in depth and, in particular, identifies the mechanism of these contacts. While it is obvious that no land-based movement between Egypt and the Near East can avoid the southern Levant, to date no detailed discussion has considered the role of the southern Levant as a maritime nexus, or the long term evidence for maritime activity in this littoral zone. In order to elucidate these features, the following section considers the relationship between physical geography and technology, first by land and then by sea.

Geography, whether terrestrial or maritime, imparts character to the nature of all communication, determining possible and probable axes of movement, and setting a rhythm to that movement. While physiographic factors are paramount, human agency may overcome obstacles, ignore rationale and, in the seeming “Brownian movement” of human interaction (Bloch 1962: 64), cause what would otherwise be an unnoticed geographical nexus to emerge as a focus of activity. It is the contention here that increasingly sophisticated maritime technology enabled the coastal inhabitants of the southern Levant to become part of much larger world.

1. Terrestrial movement and transportation

Humans themselves are the most ancient beasts of burden. A healthy individual can travel an average of 30 km per day, a figure that depends on the terrain, the climate, the load borne, and other factors (Dorsey 1988: 895; Murmane 1990: 95). Regarding load, Broodbank (1995: 54) suggests that 20-30 kg is a reasonable burden for any extended journey; any load beyond this weight limit required animal drawn vehicles (Table 4). Even when that cargo threshold was surpassed, speed was not necessarily increased, as the animals may have been led by people walking beside them.

The physical landscape imparts character to the nature of terrestrial communications, as the movement of people, animals, and thus commodities is dependent on the ease of the traverse. Geographically amenable conditions lead to an increased frequency of movement along regular axes, and ultimately to the establishment of a road network. Amenability was naturally dependent on the

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192I owe this reference to a stimulating series of lectures on island history given by Nicholas Purcell at St. John's College, during Trinity term, 1993.

193Note that Haiman (1996: n. 13) confuses Russell's figures (1988: 120, table 24) for draught (i.e., pulling or traction) potential and load carrying capacity, and thus underestimates of the potential cargo weight for donkeys by at least twenty percent.
gradient, the obstacles, available drinking water, grazing land for animals, and security. Unlike the broad alluvial plains of other regions, the fragmented geography of the southern Levant focused movement within fairly rigid constraints. While analysis of these networks requires a broad historical, geographical, and archaeological approach, it bears the risk of being tainted by anachronism. Not all roads known in later periods were traversed or frequented in earlier ones. Moreover, delineating a road is not merely a process of connecting the dots, i.e., sites, on a map; physical geographic factors might not always outweigh political or economic ones that favored one road over another.

Given these parameters, logistics are therefore an important aspect to be considered. If unavailable along part or all of the journey, water, food, and other supplies had to be carried, increasing the requisite load to be transported.\textsuperscript{194} Security during the journey may have depended on local authority, from whom safe passage might be solicited through gifts or tolls, or the strength in numbers (i.e., a caravan), an armed escort, or simply the deterrent threat of one's powerful patron. Where protection waned, travellers would be at the mercy of brigands. For this reason, it is assumed that travel was carried out during the daylight hours, and individuals, caravans, and even armies bivouacked at night, preferably in or near a settlement.

In the study of the historical geography of the ancient Near East, it is almost axiomatic that a combination of water, arable land, topography, and access to roads were the four main factors contributing to the establishment of a permanent settlement at a given site, and the geographical reason for the formation of the Near Eastern tell (Aharoni 1979: 106-7). However, is this a “chicken and egg” scenario where it is not clear whether all roads led to (the creation of) Rome, or whether Rome lead (to the creation) of the roads? Each case must be considered individually, but it is clear that the survival and the prosperity of a given locale depended on a means of communication with the external world. Few sites could survive solely on the existence of a road, but surely there were some sites whose genesis resulted from a well-travelled highway. Given the carrying capacity, daily distance covered, and logistics described above, it may be assumed that a particular road was preferable if it has an amenable topography, and if it had a settlement, on average, every 30 km. This assumption should not be construed as a negation of the existence of a road along a potential geographic route that does not have sites at this regular interval; such a case, however, requires further elaboration and substantiation.

Apart from Dorsey’s study (1991), which presents the Iron Age culmination of millennia of movement and communication in the southern Levant, no major work has considered the question of earlier routes in any detail. The following discussion considers the evidence for the use of pack animals and focuses on terrestrial communication networks in the coastal area, with the regions further inland considered only inasmuch as they shed light on exchange with the coast.

\textsuperscript{194}There are numerous examples of the provisioning of the Egyptian army during long journeys. An FIP text refers to three thousand men each receiving two jars of water and twenty loaves of bread every day (Breasted 1906: 209).
1.1. Chalcolithic-EB I network

Nearly all excavated Chalcolithic and EBA sites have produced faunal remains of equids, although usually in small numbers (Grigson 1993: 645-6; 1995: 258; Horwitz & Tchernov 1989: 290, fig. 2). Domesticated horse has also been found in the Negev area, but its use as a draft animal is not clear (Grigson 1993). Cattle may have been used for pulling heavy loads, possibly even wheeled vehicles, whose use may have been more widespread than generally thought (Grigson 1995: 258, 267-8). Ceramic figurines commonly depict donkeys, cattle, and other animals bearing storage jars and other vessels (Epstein 1985; Grigson 1987: 229-30).

Chalcolithic sites in the Coastal Plain are fairly evenly dispersed, providing coverage of nearly the entire region (Gophna & Portugali 1988: 12-3, fig. 1). A longitudinal route running along the inland corridor is clearly apparent, as well as occasional latitudinal routes that follow the main drainage systems. The shoreline is poorly represented except on the Carmel coast, near Dor, and at the Yarkon river outlet. This suggests less frequent terrestrial travel along the shoreline; however, submerged or eroded sites may have skewed the sample. A concentration of sites is found near the northern Negev coast, which is related to the Beersheva culture core. This inland region is linked to the shore by the Gerar and Besor river system, and from there to the northern Sinai coast. Another important concentration is at the exit from Wadi Milik, which may be related to settlement in the inland valleys. In general appearance, this system seems to be a harbinger of the dendritic networks of the Early Bronze Age that “drained” the coastal catchment systems towards the coastal road.

The early part of the EB I period saw a reduction in settlement along the Coastal Plain, making any reconstruction of the road system difficult. The only significant concentration of sites is located in the northern Sharon and Carmel Coastal Plains, both near mountain passes leading to the inland valleys. An important development were the small sites along the southern shoreline, near Ashkelon, and the Nahal Besor sites, which herald the road system in use during the Egyptian colonial period. This network of sites was fundamentally shaped by the Egyptian colonial apparatus, whose presence is documented at sites in the inner Coastal Plain and Shephelah, e.g., Tel ʿErani, Tel Halif terrace, and ʿEn Besor, and which was linked in a dendritic network leading towards the coastal road to Egypt (Harrison 1993).

1.2. EB II-III network

Faunal remains attest to the continued use of equids (Horwitz & Tchernov 1989). In addition, pottery figurines depicting laden pack animals (cattle and equids) continue to appear in EB II and EB III contexts (Greenberg 1996a: 139-42). During the EB II period large settlements are located solely on the inner corridor of the Coastal Plain, which declined in number during the EB III. This inland artery seems to be the sole longitudinal land route, as a near absence of sites along the shoreline precludes the reconstruction of an additional one. Latitudinal links may be suggested with Ashkelon, Tel Poran, Tel Gerisa, and Khirbet Kurdanah, the latter two on possible inland waterways. Fargo (1979) describes this as a dendritic network leading to the coastal road and, by extension, to the few potential ports.
1.3. IBA “Vectors”

Faunal remains of equids are known, but are generally rare during this period (Horwitz 1989a: 46, fig. 2; 1989b). However, this may be a result of the limited number of excavated settlement sites.

This non-urban interlude is characterized by an evenly distributed, but sparse pattern of squatters on former cities, small settlements, and cemeteries, both along the shore and the inner Coastal Plain. Haiman (1996) interprets the arid zone settlement pattern as reflecting a pair of “vectors” connecting groups involved in copper specialization with the routes across Sinai. The extensive IBA metal remains from Tell el-‘Ajjul (Tufnell 1993: 49) might be a reflection of this network.

1.4. MBA Network

Equid remains are generally found in most faunal assemblages that have been studied (Horwitz 1989a; Weinstein & Helving 1988). The role of the donkey as an essential pack animal may also be construed from its extensive appearance at the Sinai mines and at Beni Hassan. Donkeys also take on an increased role as a symbol of status and as part of ritual activities, such as the practice of donkey sacrifice and burial (Ziffer 1990: 64*-65*, 79-85; Bietak 1996: 25; Wapnish 1997).

The extensive rural and urban settlement along the Coastal Plain has been well-documented (Gophna & Beck 1981; 1988). Apart from the clear contrast to the preceding periods, the urban settlement array is characterized by a phenomenon of “twinning”, with a coastal site at an anchorage and an inland site within the fertile inner plain (Raban 1985; Marcus 1991). With the exception of the sparsely settled inland Sharon Plain, longitudinal routes, both along the shoreline and the inland corridor, may be reconstructed, which linked up with “Way of Horus”, a series of northern Sinai coastal sites, which possessed a mixed assemblage of Egyptian, Canaanite, and local material culture (Oren 1987a; 1993: 1388). Latitudinal links along the coastal river systems may be posited, which link up with the inland valleys and transmontane routes. Initially, the Jezreel or Beit Netofa valleys served this function. Later in this period, the Wadi Fara-Shechem and Jericho-Jerusalem corridors became additional latitudinal routes across the Central Hills. Only in the MB IIb period was a transmontane Hebron route added. These latitudinal routes are most likely related to Highland developments, an increase in settlement in southern Transjordan, and, perhaps, the apparent settlement shift towards the southern Coastal Plain and Shephelah during the MB IIb period (Gophna & Portugali 1988).

2. Seafaring and seamanship

With winds varying in both direction and intensity, the “wine-dark sea” is a challenge to the modern mariner just as it was to his ancient counterpart. Weather systems originating over Europe, Red Sea jet streams, low pressure systems hovering over the Persian plateau and, indirectly, the effects of the Indian Ocean Monsoons meet over the potential sea routes of the eastern Mediterranean and cause challenging havoc (Mediterranean Pilot 1976: 17-9, 36-7). Presumably, these risks were faced by all ancient seafarers, from the earliest hunter-gatherers to venture from the shore to the merchant seafarers of the Bronze Age and later. In order to minimize potential disaster, and to enable travel to desired destinations, the mariner's art relied on an intimate knowledge of the environment and cumulative experience based on trial and error. Success was passed on from generation to generation,
with esoteric knowledge codified in ritual, song, and symbolic behaviour. Failure, however, found its way to the bottom of the sea, in some instances reported by fortunate survivors. In this maritime process of “natural selection,” the pressures of time were not necessarily a critical consideration, as the lack of urgent schedules meant that all navigators, whether paddling, rowing, or sailing, could wait for advantageous sea conditions. Even so, cargo-bearing ships were far from infallible, as is demonstrated by the serendipitous nautical failures that underwater archaeology continues to uncover.

Limited direct evidence exists for the art of seafaring and navigation during the periods presently under consideration. The sailor's craft has remained fairly obscure because, unlike those from later periods, no pilot books or periploi have survived from the Bronze or even Iron Age textual record. Presumably, a cumulative body of experience and knowledge existed, but was transmitted primarily through an oral tradition. Considering the literacy of many of the various BA cultures, it seems unlikely that they were incapable of committing this oral tradition to writing had they chosen to do so. Either such direct evidence exists, but has eluded modern investigation, or the knowledge was so confidentially guarded that all that will ever be known about the art of BA seafaring and navigation will depend on indirect contemporary evidence, later sources, ethnographic parallels, and analysis of modern sea conditions (cf. Pryor 1988: 12-24).

2.1. Physiographic factors

Sea conditions are the complex result of the behavior of two dynamic factors, the current and wind, and one relatively static factor, the land. The interaction of these factors is governed by global and regional environmental phenomena of both a perennial and a seasonal nature, which are well enough understood to be applied to modern seafaring and navigation (Mediterranean Pilot 1976).

In order to apply these factors to the issues of ancient seafaring, a correlation must be found between over a hundred years of recorded observation and the conditions in antiquity. For the winds of the eastern Mediterranean, and by inference those currents they produce, detailed analysis of the two Classical meteorological discourses of Aristotle and Theophrastus shows that the wind conditions in this region have not changed significantly since the fourth century (Murray 1987; 1995). No earlier descriptions are available, but as no major long term changes have occurred in the climate during the last 7,000 years (Horowitz 1979: 343-344; Baruch 1986; 1994a; Bar-Matthews, Ayalon & Kaufman 1997: 166), the same physical phenomena that existed in the fourth century presumably were prevalent during the periods presently under consideration, perhaps with some minor short-term variations, that might have affected the relative frequency and timing of storms, and the intensity and shifting of winds.

While diachronic changes in the Holocene land-sea relationship certainly re-configured the seascape, the impact on currents and winds has not been explored. In island-studded regions, such as the Aegean Sea, the impact would have been considerable. In the region under consideration, it is assumed that changes in the land-sea relationship would have caused a lateral shift in the existing conditions.
2.1.1 Currents

Two principal factors govern the prevailing currents along the Levantine coast: the Coriolis effect and the orientation of the coastline vis à vis the wavefronts. In addition, bathymetry and intermittent winds create additional vectors that must be accounted for on a local scale (Nir 1988). The Coriolis effect explains the counterclockwise movement of fluids in the Earth's northern hemisphere, creating the longshore current in the Mediterranean. During both summer and winter, this current varies from one-quarter to one and one-quarter knots (1.9 to 2.3 km/hr) in intensity and is generally over one knot thirty percent of the time (Mediterranean Pilot 1976: diagrams 1.132.1-2). Nearshore currents are caused by wavefronts that strike the shore at an oblique angle creating a net discharge of water northward (Carmel, Inman & Golik 1985). As such currents are nearshore, they are only of significance to ships seeking haven or setting out to sea. The intensity of the wavefront is dependent on the fetch, which is the result of the intensity of the wind, the length of time that the wind blows over a body of water, and the total surface area of that body that the wind blows in the same direction. In the case of the southern Levantine coast, the western wind that comes with storm depressions can cross a few thousand km and result in powerful winter storms (Flemming 1983: 146-50, figs. 4-6).

2.1.2 Winds

The variability of the winds in the eastern Mediterranean is typical of all seasons. However, in open sea, the winter and spring winds are most variable, and in the summer, southwestern and northwestern winds, the latter known as the Etessians or Meltemi, dominate conditions (Mediterranean Pilot 1976: 17). Along the Levantine coast, when winter winds come from the southwest or northwest, they can occasionally reach near gale force of thirty-three knots (Mediterranean Pilot 1976: 18). During certain periods of the year, such as the transitional seasonal months of September and April, strong, dry, dust-raising eastern desert winds, called locally ʿamsin, can last for several days (Mediterranean Pilot 1976: 18). The resulting offshore wind makes it difficult for any non-motorized vessel to reach the shore and causes decreased visibility. But these episodes tend to be short-lived and would not usually have placed a ship in the face of any immediate obstacle, apart from Cyprus.\footnote{This, apparently, was the sad fate of Wenamon's penultimate voyage (Lichtheim 1976: 229; Wente 1973: 154; Wachsmann 1998: 300-1), which occurred during the month of April (Egberts 1991: 67).}

The most important regular phenomenon along the shore is the diurnal variation of the land-sea breeze, which becomes increasingly pronounced from spring to autumn. This phenomenon, caused by the greater terrestrial temperature differential, is characterized by a shift in the wind from east to west around midday, as the higher intensity Mediterranean wind pattern prevails. The morning offshore breeze is crucial for enabling ships to leave shore in order to catch the open sea winds, and to avoid being thrown against a lee shore. This danger is particularly prevalent along the northern Sinai coast, where limited meteorological observations, ca. 6,966 measurements over thirty months at El Arish, show that offshore winds occur only seven percent of the time (Klein 1987: 263, table 1, fig. 2).
Long-term observations from stations at Port Said, Tel Aviv, and Beirut present significantly more amenable conditions, but show how the offshore winds vary by location, season and hour (table 5). These figures indicate that, in general, the morning is the most opportune time to set out to sea. Moreover, during certain seasons, vessels might have to spend considerable periods in port waiting for an easterly wind.

2.2 Ancient Navigation

Nothing supersedes a sailor's lifetime of experience, based on the observation of currents, winds, and weather patterns through their daily, monthly, and annual changes. In antiquity, the results of these observations, albeit cloaked in religious beliefs or superstition, served as a reservoir of information which could be drawn upon for long-term planning and for extricating a vessel from danger. A corollary of these observations would be an ability to discern position and direction based on familiar landmarks: terrestrial features, winds, currents, and celestial bodies. These are considered presently within the traditional nautical division between coastal, and what McGrail (1991: 86) has called “environmental” navigation. Visibility is critical in both instances, as without a point of reference it is impossible to navigate. For this reason, more so than the inhospitable sea conditions, winter sailing was generally avoided in antiquity, since during this season the days are shorter and the skies are more likely to be overcast (Casson 1971: 270-3; Tammuz 1985: 41-53).

Even in optimum conditions, maximum range of visibility at sea is limited along the coast of the eastern Delta and Sinai, but increases along the Levantine coast because of the mountain range which first reaches the shore at the cape of Mount Carmel.

In table 5, any offshore wind is included, e.g., southeast to northeast from Tel Aviv and Beirut, or southwest to southeast from Port Said.

Numerous traditional navigational techniques are known from the study of maritime cultures around the world (Terrell 1986: 68-74; Irwin 1989: 171-173; 1992: 42-53; McGrail 1991: 86-87; Wachsmann 1998: 299-301). These examples clearly illustrate possible means by which Mediterranean sailors may have navigated, but they are difficult to substantiate.

This preference did not absolutely preclude winter sailing in antiquity, as the occasional exception demonstrates, e.g., Wenamun (Egberts 1991: 60). However, Classical, Talmudic, and other sources attest to the existence of a ‘sailing season’ and the aversion towards sailing out of season, because of its difficulty, and of its cost in money and lives (Casson 1971: 270-2; Sperber 1986: 99-101; Wachsmann 1998: 300-1, n. 1). Although later codified in calendrical or festival terms, in prehistoric times the beginning and end of the sailing season may have been marked by the appearance of migratory birds.

For the application of nautical tables to the question of visibility in ancient coastal navigation, see Chapman (1990: fig. 59) and McGrail (1991: 86, table 1).
2.2.1 Coastal navigation

Coastal navigation refers to sailing within sight of land, often called piloting or cabotage, and relies on terrestrial landmarks as a means of judging position and for fixing a course heading. Currents, surf, and observation of nearshore terrestrial features are important; even from a great distance the trained eye can distinguish a rocky from sandy shore, or a cliff from a rivermouth. Far more important for advanced maritime activity is the ability to determine one's position relative to the terrestrial geography and the means by which one might navigate to a chosen destination. This is accomplished by familiarity with landmarks, such as mountains, islands, promontories, distinctive countryside, vegetation, fauna, and even odors. The use of prominent terrestrial features by seafarers is fundamental to this day, and even in the Bronze Age is reflected in celebrated toponyms, such as the Sixth Dynasty Egyptian reference to the “nose of the Gazelle's head”, perhaps Mt. Carmel, or the later Baal šafon (Redford 1992: 117). The navigational need for mountain landmarks, which are visible at sea for great distances, may be a basis behind the association between sailors and mountain-associated deities. A symbolic reflection of this association may perhaps be sought in a scene on a MBA cylinder seal from Tel ed-Dab’a, in which a boat and a weapon-wielding god standing bestride two mountains are juxtaposed (Fig. 5). While the main deity is identified with Baal šafon, a well-known, mountain-dwelling, patron of mariners (Porada 1984; Dijkstra 1991), Brody (1996: 21-30, 42-6) has pointed out that the accompanying snake and lion are symbols of Asherah, another protector of navigation. As the association of mountain, deity, and ship is clearly a central feature of this scene, an additional significance may be adduced from the position of the boat below and ahead of the two mountains, and the god astride two peaks; whether Baal šafon is to be identified with a particular mountain or not, this scene may reflect the use of mountains in navigation. 201

Relative position and progress of a vessel can be assessed by the use of naked-eye transit bearings. This method employs the visual intersection of two fixed objects on the shore line (e.g., a mountain peak and a promontory) to create a transit bearing for a vessel. Coastal settlements, sanctuaries, and monuments may have served such a purpose in places where natural transit bearings were insufficient, or to guide a vessel on the best course into an anchorage or harbor.202 Moreover, properly maintained signal fires could have served such a purpose at dusk or even at night, times when ships might have been on their last tack to shore.

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201 Although Safon derives from the name of the mountain abode of this patron god of mariners, it means north in both Phoenician and Hebrew (Albright 1950), appropriately the direction most easily determined by sailors at night. See Har-el (1981) for Biblical associations between mountains and directions.

202 See, e.g., M. Yon's ideas regarding the relationship between Ugarit's temple towers and its twin ports of Ras ibn-Hani and Minet el-Beida (1992: 116, fig. 14.2). For the Classical period, see Semple (1931: 613-37). An example of this phenomenon was recently noted by the author at Foça, Turkey, the traditional home of the Phoceans, where, of the three prominent hills behind the harbor, the ancient inhabitants established their cultic high place on the central peak that marks the safest, and still recommended, transit bearing for entering the harbor.
2.2.2 Celestial and “Environmental” Navigation

When great distance and poor visibility deny a view of the land, sailors are left without any terrestrial reference point. Instead, dynamic environmental phenomena and celestial objects are the only means of reference at a navigator's disposal. Possible terrestrial environmental phenomena that may have been employed include: orographic clouds; the character and direction of known winds and currents; the swell, which undulates parallel to land; the color of the sea; the appearance of particular birds, both migrating and local species; and the occurrence of certain species of fish (McGrail 1991: 87; Georgiou 1997: 118-9; Wachsmann 1998: 299-301).

Traditional celestial navigation relies on the position of the sun, the polar star, and the circumpolar stars for establishing direction. Although observation of the heavens existed long before recorded time, with the advent of writing a small part of the ancient pedantry for noting the movements of the sun, moon, and various stars has survived (Depuydt 1998). The ancients saw these celestial objects as reflections of the supernatural world and sought to record, with great accuracy, the conjunction of events in the heavens with events on Earth. In addition, for both practical and spiritual reasons, public and even private dwellings were oriented towards the compass points (Bar-Yosef, et al. 1983). Despite this apparent cognizance of celestial mechanics and bearings, no direct evidence exists for the conversion of this sacerdotal knowledge into a secular navigational method prior to the end of the Bronze Age.

Circumstantial evidence, however, in the form of traffic between points requiring an overnight sail, suggests that celestial navigation may have been practiced even earlier. The most obvious example is archaeological evidence from Marsa Matruh (White 1986; White & White 1996), which might suggest that the sea route from Crete to North Africa was in use during the fourteenth century (Lambrou-Phillipson 1991). This voyage, which according to Strabo (10.475) lasted three to four days and nights (Casson 1971: 287, n. 75; Lambrou-Phillipson 1991: 12), is immortalized in the *Odyssey* (XIV: 252-9). Elsewhere, Odysseus notes how he “watched the Pleides and late setting Boots, and the Bear, which men also call the Wain, which ever circles where it is and watches Orion” (V: 270-5).

203 Note the knowledge of the behavior of migratory birds reflected in the Report of Wenamun (Egberts 1991).

204 Wachsmann (1998: 297-299) suggests this open water route was in use as early as the Middle Kingdom, as, otherwise, references to wood imports from the western Delta mentioned in the Instructions for Merikare do not make any sense. Moreover, the Keftiu and their land are always vaguely indicated as being in the west (Lambrou-Phillipson 1991: 12). Similarly, Mark (1997: 128-129) suggests, based on the finds of Uruk material culture at Tell el-Fara’in (Buto) in the western Delta, that the route from Anatolia to Egypt was being utilized. While there is no reason to preclude a voyage from the northeastern Mediterranean to North Africa or Egypt—in fact, it is one of the easiest Mediterranean voyages to carry out for the experienced sailor—both of these arguments are, unfortunately, not very convincing. The fact that Egyptian cognitive geography places Keftiu in the west does not have to mean that they always came from that direction.
Earlier textual references may also hint at the use of celestial navigation. The crew manning the vessel in the MK *Tale of the Shipwrecked Sailor* is reported to be “the pick of Egypt. Looked they at the sky, looked they at the land . . . they could foretell a storm before it came, a tempest before it broke” (Lichtheim 1973: 212). Similarly, ca. 1100, Wenamon reported that he avoided Tyre “by taking the light [of the stars as the only guidance]” (Goedicke 1975: 45-6, nn. 57). A number of spells in the MK Egyptian Coffin Texts make reference to navigational directions and celestial bodies (Faulkner 1973).205 Lastly, there appears to be a symbolic juxtaposition of, or association between, the boat and the stars. The celestial barque in Egypt was seen as carrying the sun disk in its nocturnal journey among the stars. In the Aegean, the longboat and the sun, or star, have some degree of iconographic equivalency on Early Cycladic frying pans, a juxtaposition that reappears in the mid-second millennium miniature frescoes at Akrotiri, Thera (Broodbank 1989: 335; 1993: 327). In any event, temporal chauvinism should not exclude us from considering some degree of nocturnal, open water sailing in ancient times, however exceptional it may have been, or how difficult it is to prove.

### 2.2.3 Depth

Changes in depth must have been known to early fishermen, who operated both from the surface and underwater. Surface fishing, whether with a line and hook or by net, would have exposed mariners to the changes in depth associated with the distance from the shore. Free diving, in order to collect sponges, release nets, and other activities, would have reinforced this association and contributed to their knowledge by exposing them to a variety of sea bottom types.206 Such familiarity with sea bottom types would have gone far towards explaining the varying dark shades (subaquatic features) visible on the surface of the water. It must be assumed that a relationship between the breaking of waves and the distance to the shore was also noted. Approaching the shore in limited visibility would have been mitigated by knowledge of the depth and type of sea bottom.

In addition to observations with the unaided eye, simple equipment, such as a long pole or a weight on a rope, was developed to permit a reasonable measurement of depth. One of the earliest references to such a device comes from the MK Coffin Texts: “I cause you to act as pilot with a sounding-pole of forty cubits, of planted cedar of Byblos” (Faulkner 1973: 58). Such a device is

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205 E.g., Spell 227: “I am Orion . . . who navigates in front of the stars of the sky” (Faulkner 1973: 180); Spell 482: “it is the Great Bear which has made a path for me to the western horizon (Faulkner 1977: 127); Spell 571: “it is the Donkey-face who is upon the polar sky who brings ships to this mansion of mine” (Faulkner 1977: 173); and Spell 1030: “I will navigate in her in company with Re’, I will navigate in her with Mgf-ib, I will act as pilot in her to the polar region of the sky” (Faulkner 1978: 128). Georgiou (1997: 120) suggests that the Homeric “night watch”, a necessity for nocturnal navigation, derives from a stellar clock system that is documented as early as the Middle Kingdom.

206 Evidence for early subaquatic activity is limited. The Epic of Gilgamesh provides one textual reference for diving, and osteological remains from the submerged Neolithic site of Athlit-Yam suggest that some individuals spent long periods of time underwater (Galili, et al. 1993: 152-3).
clearly used by a sailor depicted on the prow of a ship in the Tomb of Kenamun (Davies & Faulkner 1947: pl. VIII; Fig. 6). In addition to the use of the pole note the position of the crew member: high on the bowpost of the ship, perfectly situated to note visually any potential shoals ahead.

While no sounding weights have yet been identified, it is difficult to imagine that such a device did not exist during periods when stone anchors were in use. Perhaps small stone weights often identified as net weights served this purpose (Frost 1985).

2.3 Ancient seafaring in the eastern Mediterranean: a theoretical model

In light of the physiographic and navigational parameters discussed above, it is nearly possible to suggest some working theoretical model for the nature of seafaring in the eastern Mediterranean during the periods under consideration. The only missing component is the performance capability of the contemporary seagoing craft. For the Classical period and onwards, written records provide us with a fairly clear indication of the capabilities and the operation of seagoing ships, and the routes they travelled (Casson 1971: 270-99; Pryor 1988: 32-9, 51-7). During earlier periods, however, such detail is lacking. Instead, later historical and ethnographic examples, and experimental archaeology, which employs replica craft, provide the means for investigating the potential of more ancient vessels.

2.3.1 Paddled craft

The earliest type of craft, whether made of wood, reeds, or skins, presumably relied on human brawn for propulsion. Paddling and rowing depended on the strength and endurance of crews, whose size might increase the range, but also limit the cargo capacity of a vessel. The earliest depicted examples of human-propelled seagoing craft in the eastern Mediterranean are the Aegean island longboats and canoes of the third millennium (Broodbank 1989; 1995: 56-9; Agouridis 1997: 3, fig. 4a-e). Using a variety of archaeological and ethnographic comparanda, supported by the results of experimental replicas voyaging, Broodbank (1995: 59-61, table 1) infers the following performance capability for these craft: a one to four person canoe was capable of attaining a maximum speed of 5 km per hour, for a sustained daily range of 20 km, and a cargo capacity of 50-150 kg; a longboat, with a crew perhaps greater than twenty-five, was capable of attaining a maximum speed of 10 km per hour, for a sustained daily range of 40-50 km, but had a minimal cargo capacity when fully manned. Slightly greater speeds and daily ranges are attested in the literature (Broodbank 1995: 60-1), but as a working hypothesis, these figures provide a reasonable upper and lower estimate (cf. McGrail 1988; 1990).

In the southeastern Mediterranean, the currents place very definite limits on the capabilities of paddled craft. As the longshore current has a net counterclockwise flow, there is a clear advantage for sustained paddling in that direction. The maximum vector of two knots (3.7 km/hr) could increase or decrease the daily progress of a vessel by as much 15 km. Without any current, the voyage from the ancient mouth of the Pelusiac branch of the Nile to the Carmel Cape (ca. 360 km) would take eighteen days for a canoe and seven days for a longboat. Paddling with the maximum current, this voyage would take ten days for a canoe and five days for a longboat. Paddling against the current could take a maximum seventy-two days for a canoe, but only ten days for a longboat. The actual vogages were probably somewhere in between these figures, as crews presumably waited for the most opportune
conditions, which might require long waits on shore. Given the limitations of cargo and rate of progress, paddled craft may not have been an effective means of long distance transportation, but were probably used for short range cabotage, fishing, hunting, and foraging. Unlike the archipelagoes of the Aegean Sea, where maritime movement was a necessity, the potential demands on southeastern Mediterranean longshore traffic could have been accomplished by land. However, this presumed lack of advantage should not exclude the theoretical possibility that paddled craft were used for extended longshore voyages, bearing low-bulk prestige items.

2.3.2 Sail boats

By the mid-fourth millennium, pictorial and clay representations indicate that humans had learned to harness the power of the wind (Casson 1971: 12, 22, n. 6; Bass 1972: 12-3; Vinson 1994: 16). With this technological achievement, a seemingly endless supply of energy enabled increasingly larger ships, and their cargoes, to ply the seas. However, as indicated by pictorial representations of oars on seagoing sail-powered vessels, human brawn was still called upon for maneuvering and rowing out to sea in light winds, but probably not for sustained propulsion, which was limited by the wind's velocity and direction.

Until the mid-second millennium ships utilized a double-boomed square sail. This type of rigging enabled a vessel to sail with a side or following wind, but not to sail close-hauled, i.e., upwind from mid-beam (Casson 1971: 273; Cotterell & Kamminga 1990: 250-1; Roberts 1991: 55-6; 1995: 308-10). Ships probably did not sail with the wind dead-astern, because the shallow, keel-less hulls would have a tendency to roll, perhaps violently, with the danger that the lower yard might catch a wave (Roberts 1995: 56). This inability to sail to windward meant that the wind direction permitted a finite range of effective courses for BA vessels. Only in the latter half of the second millennium, with the introduction of the loose-footed square sail with brails could the sail be reduced and reefed

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207 The use of paddle craft in this region may be inferred by two clay models, of unknown date, found in northern Sinai and Gaza (see infra p.118).

208 The only exception is the one-off occurrence of a triangular sail on a raft, carrying Puntites arriving at the Red Sea during the Eighteenth Dynasty (Säve-Söderbergh 1946: 22-4, fig. 6).

209 Two hypothetical double-boomed square-sail rigs are suggested to have been employed for windward sailing. The first involves tilting the sail so it behaves like a lateen (triangular) sheet (Gifford & Gifford 1997), but requires a means of trimming the luff (forward edge of the sail) in order to be effective. The suggested representation of this rig in MM ship depictions (Gifford, et al. 1997: 201-3, fig. 6:c-d) is not convincing, as the booms are presented perpendicularly. This rig is more like the ethnographic parallels brought by Basch (1987: 108-10), which appear to use a following or side wind. The second suggestion involves bringing one side of the two yards together, to create a triangular sail (Georgiou 1991; 1997: 119), but this type of rig is not documented, nor has it been tested. Both hypotheses present stimulating and innovative ideas, but require a deep-shape hull to limit leeway. For a consideration of leeway when sailing with a side wind, see Roberts (1995).
for windward sailing (Casson 1971: 37-9, 273-7, nn. 19; Millet 1987; Roberts 1991; Vinson 1993). Nevertheless, unless windward sailing was absolutely necessary, e.g., to avoid a lee shore, it may have been more effective to simply wait for an advantageous wind shift (Roberts 1995: 313).

While the course that vessels could take vis-à-vis the wind can be reasonably established, determining their speed is another matter. Relying on the writings of Pliny, Casson (1971: 282-91) infers that vessels could sail between four and six knots with favorable winds, but could not hope for more than two and one-half knots in unfavorable winds. No such detail exists for the Bronze Age. The experimental sailing of the Kyrenia II replica demonstrates that Casson’s estimates are well within reason. During her sea trials, Kyrenia II averaged 2.95 knots over 414 nm between Piraeus and Paphos, and 2.85 knots over 482.3 nm on the return voyage (Katzev 1990: 250, 255; Cariolou 1997). On various legs, she averaged up to 4.6 knots in four to sixteen knot winds, could reach a safe cruising speed of six knots in seventeen to twenty-seven knot winds, and once sailed safely at twelve knots in winds up to twenty-five knots (Katzev 1990: 248, 252; Cariolou 1997: 94).

With the physiographic conditions and sailing capabilities thus outlined, the following theoretical model is suggested for seafaring in the southeastern Mediterranean through the Middle Bronze Age. This model incorporates maximum progress in ideal conditions, and is divided into four major legs: Delta to the Gaza region, Gaza to the Carmel cape, the Carmel cape to Byblos, and alternate return voyages to Egypt. This model does not detail an actual, specific course, but, rather, to illustrate the character of seafaring.

Ships sailing from the mouth of the Pelusiac branch of the Nile could sail eastwards with a southwestern to a northwestern wind, enjoying the benefit of the longshore current. Given the general preponderance of winds from the northwest to northeast, and the scarcity of offshore breezes in northern Sinai, it would have been prudent to maintain a safe distance from the coast, in order to avoid

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210 The ability to sail to windward is supported by experimental voyaging with replica ships. The Kyrenia II, a reconstruction of a late fourth century merchant ship, which was rigged with a loose-footed brailed sail, was able to sail close-hauled, 50-60° off a light breeze (four to six knots) and safely reached a speed of over two knots (Katzev 1990: 254). Note that there is no indication whether this was a measurement of the true or the apparent wind. In stormy conditions, with gusts upwards of forty knots, the Kyrenia II averaged seven knots over a three hour period on a close-hauled tack (degrees off the wind not mentioned), reaching speeds of ten to twelve knots. This resulted in the breaking of her tiller and eventually the ripping of her brails; she was taken under tow to safe haven by her accompanying tugboat (Katzev 1990: 253). For the results of the Sutton Hoo and Graveney half-scale trials, and the problem of leeway, see Gifford & Gifford (1996: 140-1, 149-50).

211 Only a vague reference to the time required for sea voyages may be derived from two passages in the Report of Wenamun (Egberts 1991: 60-1). Wenamun traveled from Tanis to Byblos in four months, which also includes a delay in Dor, and possibly visits to Tyre and Sidon. The journey of a messenger from Byblos to Tanis and back may have taken as much as three to four months, but may have involved unknown delays and ports-of-call.

212 For the routes between Cyprus and the Aegean, see Mantzourani & Theodorou (1989). While east-to-west voyages are generally considered the norm, an Ugaritic text refers to a ship returning from Crete (Hoftijzer & Van Soldt 1998: 340), although there is no indication if it was a direct voyage.
being pushed towards a lee shore, which lacks any natural protection, apart from the treacherous Bardawil Lagoon.

Whether or not ports-of-call along the southern Levantine coast were made, the voyage northwards would utilize the diurnal variation in the land-sea breeze. This leg of the voyage is governed by the offshore breeze, without which a ship could not leave port or might be pushed towards the shore (cf. Pryor 1988: 1-7, table 1). This wind enabled a vessel to sail out to open sea, where the dominant sea breezes could be engaged. The higher velocity southwestern to northwestern winds enabled the ship to make significantly greater progress. In instances where winds were unfavorable, ships could lower their sail and wait, which would have been an anathema to the crew. In this model, a vessel is envisioned as tacking, or zig-zagging, its way up or down the coast, although the latter involves going against the predominant current.

In order to return to Egypt, a vessel would most likely sail westwards, as far out as possible, in order to catch the northwestern to northeastern winds. The northeast African coast could be reached using a route via the seas south of Cyprus or via the southern Levant. However, the latter route demanded that a ship sail sufficiently out to sea to avoid being thrown against the northern Sinai coast. The difficulty in sailing against the predominant winds and current in the region immediately east of the Delta made Cyprus, and later Crete, crucial points for embarking on a voyage to the Delta, and partly explains the role of the western Delta in maritime connections between Egypt and the eastern Mediterranean.

2.4 Seafaring and maritime activity along the Levantine coast from Prehistoric times through the Middle Bronze Age

Evidence for pre-LBA seafaring is meager at best, which is one reason why no attempt has been made, even among maritime-oriented scholars, to fully utilize and synthesize the available data. In addition, the temporal chauvinism, geographical separatism, and other myopic perceptions among the general scholarship required no search for, or consideration of, new or existing evidence of maritime activity. The overwhelming LBA evidence for extensive long distance cross-cultural relations has led to what some have called a Mediterranean cultural koine, a phenomenon predicated on a degree of communication that only developed and sophisticated seafaring could sustain. Thus, research on that period has pieced together a complex and distinctly maritime mosaic, consisting of, inter alia, scattered cargoes and shipwrecks, the Ugaritic, el-Amarna, and other archives, Egyptian and other pictorial representations, and widespread foreign terrestrial finds, whose pattern is rich in detail and vibrant in its extent and intensity (e.g., Lambrou-Phillipson 1990; Cline 1994; Wachsmann 1998).

While it is true that no pre-LBA Cape Gelidonya-like or Uluburun-like shipwreck has yet been found, scattered wreck sites and jetsam have. Similarly, although nothing akin to the “maritime” texts of Ugarit or el-Amarna, with detailed direct evidence of Levantine seafaring, has yet come to light, some 213It is not known whether the floating sea-anchor, which creates resistance to a ship's movement, was in use during pre-Classical times (Kirtland 1985).
indirect textual references do provide some insight. Moreover, surely LBA seafaring and maritime acumen owes something to its EBA and MBA antecedents, although it would be methodologically flawed to simply project backwards our well-founded understanding of LBA seafaring into earlier contexts. It would be equally flawed, given the long-distance cross-cultural relations in early periods, to conservatively limit our explanations of interaction to terrestrial communication without considering the evidence for early seafaring. The reality inferred should be posited somewhere between these two extremes, and supported by a thorough consideration of the evidence. Only then can the myopia be overcome and clarity brought to a long-term maritime mosaic that has hitherto been seemingly unimaginable for want of requisite tesserae.

Lastly, regarding evidence from underwater surveys, a number of aspects must be considered in order to evaluate the significance of the submerged archaeological record. Relative to its terrestrial counterpart marine archaeology is a fairly young discipline and has only been active in the southern Levant since the early 1960s. As the pioneers of this field, the Underwater Exploration Society of Israel, and its later professional practitioners, the Israel Department of Antiquities/Israel Antiquities Authority and the Center for Maritime Studies at the University of Haifa, were based on the Carmel Coast, a still unassessed statistical bias may exist in that the most extensive surveying and the greatest site numbers are located in this region. For the periods under consideration, sites consist of a few submerged settlements and some one dozen scattered wrecks, whose survivability and detection are largely dependent on natural processes, with which modern development has interfered (Raban 1973; Raban & Galili 1985a: 321; Galili 1985a). As there are few offshore obstacles, such as islands or reefs, most ships sank near the shore as a result of foundering in the breaker zone. While the more buoyant artifacts, including the hull, floated away, the heavy and durable remains of metal and stone were scattered on the sea bed to be covered by sand until modern times. The combined impact of the building of the Aswan High Dam, which halted the supply of sand to the Delta and to the Nile littoral sand transport cell, unrestricted sand quarrying, and the construction of marine installations, such as harbors and breakwaters, significantly depleted the sand reserves of the southern Levantine beaches and nearshore (Inman 1978; Nir 1982; 1986-1987; 1988). Already with the advent of scuba diving, previously hidden archaeological remains began to be randomly exposed, specifically in the breaker zone after sea storms. These random exposures, which are limited to a 200 to 300 m

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215 Apart from Frost's work (1995) on BA harbors, and initial surveys in Syria (Haldane 1993), the submerged heritage of the northern Levant remains unexplored.

216 A critical history of maritime archaeology in Israel is still unwritten (cf. Linder & Raban 1975), but details on early and current archaeological research can be found in the Center for Maritime Studies Newsletter, and various reports of underwater surveys and excavation (Raban 1981a; 1983a; Wachsmann & Raveh 1984; Raban & Galili 1985; Galili, Dahari & Sharvit 1993; Galili & Sharvit 1997).
wide strip along the southern Levantine coast, represent a randomly-sampled ever-increasing accumulation of data, which continues to offer profound insight into the maritime heritage of the southern Levant.

2.4.1 Prehistoric Mediterranean voyaging and Levantine Neolithic coastal settlement

Bass' (1972: 9) oft-repeated statement that "before there were either farmers or shepherds there were sailors" is more of a truism today than it was over a quarter century ago. Better use of radiometric dating methods, comparative maritime ethnography, and consideration of navigational parameters permit us to identify the “overseas” presence of humans—or even their hominid predecessors (Bednarik 1997; Gibbons 1998)—and to extrapolate technological uses for the prehistoric toolkit beyond those normally attributed to hunter-gatherers (McGrail 1991). With the demonstrable antiquity and élan of early voyagers and sea-borne migrations in the Pacific Ocean (Irwin 1992), it is not surprising that equally early crossings might have occurred during the long prehistory of the Mediterranean basin and Near East. Similarities among lithic finds in Spain and Morocco may suggest evidence for the crossing of the 10 km wide Straits of Gibraltar between 500,000 and 300,000 years ago (McGrail 1991: 85, 93; Dennell & Roebroeks 1996). Aurignacian finds at Fontana Nuova di Ragusa in Sicily certainly demonstrate that as early as 30,000 years ago the ca. 12 km wide Straits of Messina was traversed (Chilardi, et al. 1996).217 No evidence of equal antiquity has been found in the Levant, but recalling Trump's (1980: 21) observation, future discoveries of the bones of deep-sea fish found in rubbish deposits may yet indicate some sort of venturing from the shore.218

Regular water crossings are unknown prior to the appearance of Melian obsidian in Mesolithic levels (ca. 13,000 BP) of the Peloponnesian Frankthi Cave (Cherry 1985: 14-16, 21-22; Torrence 1986; Williams-Thorpe 1995). The continuous exploitation of this source throughout the Neolithic period required island hops of at least 20 km, a distance that increased with the changing...

217 Other early examples include a Middle Paleolithic crossing of 6 km to the Greek island of Kefallinia is also suggested (Bednarik 1997: 183) and, possibly, an early Pleistocene crossing of the Bab el-Mandab (Whalen & Schatte 1997).

218 Marine shells appear in varying degrees throughout the southern Levantine Upper Paleolithic, Epi-paleolithic, and early Neolithic sequence (Bar-Yosef & Belfer-Cohen 1989; Gilead 1995: 135; Goring-Morris 1995: 151, 153, 155, 161-162, 164; Valla 1995: 170-172, 177, pl. 1; Goring-Morris, et al. 1995: 54-55), which indicates some littoral foraging, but the role of fish in subsistence is unclear. The possibility of paleolithic coastal sites now submerged as deep as -100 m MSL (the minimum sea level during Pleistocene glacial maximum) is worthy of consideration (Bar-Yosef & Belfer-Cohen 1989: 457), although their detectibility and survivability are unknown. The most ancient submerged site found thus far in the eastern Mediterranean is the late Pre-Pottery Neolithic B (PPNB) village of Atlit-Yam. Among the reported lithic finds are some Middle Paleolithic tools (Galili, et al. 1993: 140), but no indication is made of their precise provenience or condition. Other Paleolithic tools have been reported at shallower depths, where they are assumed to be the result of erosion of sites sandwiched within the coastal sandstone ridges (Raban 1983b: 221) or in re-use by the later Neolithic or Chalcolithic inhabitants of these areas (Galili & Weinstein-Evron 1985: 40).
seascape shaped by the Holocene rise in sea level (Van Andel & Schackleton 1982; Lambeck 1996; Agouridis 1997). At around the same time, in radiocarbon terms, the first humans reached Akrotiri-Aetokremnos in Cyprus where they occupied a cave or overhang and hunted the local fauna (Simmons 1996; Simmons & Wigand 1994; Manning 1991). Although the origin of this group (e.g., coastal Anatolia or the northern Levant), their intention (e.g., one-time sojourn, seasonal exploitation, or colonization), and their final disposition (e.g., extinction, intra-island migration, or abandonment of the island) are all debatable, the implications of this evidence for early seafaring acumen are quite clear. Even at the maximum sea level drop of -120 mmsl, ca. 18,000 BP, no landbridge connected Cyprus to southwestern Asia, and the minimum water gap between the Cilician paleo-shoreline and a now submerged island stop northeast of Cape Andreas, would have been 30-40 km (Swiny 1988: 1-3, fig. 1; Held 1992: 109-10, fig. 3). When these hunter-gatherers first arrived at the Akrotiri peninsula, the sea-level and paleogeography indicate that the minimum water gap from the north would have increased to nearly 69 km (Held 1993: 26; Gomez & Pease 1992). Thus, according to Held (1992; 1993: 26-7), with the requisite navigational experience, paddling at an average speed of 2.7 knots, the crossing required nearly 30 hours at sea, although this may not be the best case scenario. The physical size of the site suggests a group of no more than fifteen to twenty individuals with a distinctly portable tool-kit (Held 1992: 120). Thus, the distribution of Melian obsidian and, for the Levantine maritime sphere, the evidence from Akrotiri-Aetokremnos, increases the likelihood that some Levantine hunter-gatherers had included seafaring among their repertoire of activities. The warm Mediterranean waters, the limited cargo demands (e.g., individuals, tools, fish, obsidian cores, etc.), and the technological level would have permitted a variety of small, simple, water-through, paddle-driven sea craft (McGrail 1991).

By the end of the seventh millennium, with the requisite package of floral and faunal domesticates in hand, Pre-pottery (or Aceramic) Neolithic groups first began colonizing the east Mediterranean islands of Crete (Cherry 1990: 158-63; Broodbank & Strasser 1991; Evans 1994: 1-4) and Cyprus (Stanley Price 1977; 1977; Todd 1986; Le Brun 1989; Cherry 1990: 154-7). The two to three millennia gap between the initial maritime exploration of the Mediterranean islands and these first colonizations probably derives from a combination of the general inhospitality of the island environment, which appears to have precluded successful hunter-gatherer migration, the inability to organize and transport a successful founder population, and the absence of a need or desire to risk an overseas migration to a less-than-suitable environment. These actual and perceived limitations were apparently overcome following the advent of agriculture and animal domestication, when the maritime migration of farmers may have outpaced even that of their terrestrial counterparts (Van Andel & Runnels 1995; Bogucki 1996: 244-5). The scenario for the initial colonization of Crete envisioned by Broodbank & Strasser (1991) underscores the logistical complexity of such an enterprise and the type of boats and cargo requirements, i.e., ten to fifteen vessels carrying a ton or two of cargo. Presumably, similar logistical complexities faced the initial colonists to Cyprus, wherever they originated along the mainland. The numerical success of the colonization process (Cherry 1990: 154-5, table 2) suggests that boats capable of carrying a significant cargo were not an exception along the northern Levantine
With this demonstrable transportation capability, it is perhaps surprising that some view the occurrence of Anatolian obsidian and carnelian, with the latter solely at Khirkitia, as merely part of the initial material cultural transfer to the island (Todd 1986: 15-6; Karageorghis 1982: 25; Ronen 1995: 189).

Although Held (1993: 27) bemoans the dearth of coastal culture along the surrounding mainland north of Lebanon, from which the first Cypriots and the seafaring expertise that transported them could derive, the evidence from the southern Levant suggests that the maritime cultures he seeks may now be underwater. Atlit Yam, the oldest and deepest (-12 m msl) submerged Mediterranean site, which dates to the PPNB period (ca. 7500-6200 CAL BCE), has produced evidence for extensive fishing in addition to the usual contemporary terrestrial activities (Galili, Kaufman & Weinstein-Evron 1988; Galili, et al. 1993). The Atlit-Yam fishermen exploited the gray triggerfish, which inhabits the sea bottom at depths of 25-80 m (Galili, et al. 1993: 149-150; Zohar, et al. 1994). Over ninety-five percent of the bones belong to this species (N=6000, MNI=83), and the treatment of the yield, particularly its limited spatial distribution, suggests specialized slaughter and, perhaps, preservation practices (Zohar 1994; Zohar, et al. 1994). A paleogeographical reconstruction of the shoreline suggests that the choice of site location may have been motivated to some degree by a nearby protected lagoon (Galili, et al. 1993: 152, fig. 6). Some of the lithic artifacts may have served as weights and spearpoints, perhaps tipped by a poison derived from the seeds of *styrax officinalis*, remains of which were identified (Galili, et al. 1993: 152). Human skeletal remains bear signs of maritime pursuits: auditory exostosis of the temporal bones suggests that some of individuals spent time in cold water; dental attrition might be the result of holding nets and straps in their mouths; and abrasions of the elbow, together with muscle markings typical of rowers, may hint at the use of boats. Given the habitat of the gray triggerfish, fishing was clearly carried out on some sort of craft, perhaps year-round, at some distance from the shore.

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219 Note the possible stone anchors from Khirokitia (Wachsmann 1998: fig. 12.34).

220 Note that a 10-15 km wide strip of land was lost along the southern Levant from glacial maximum to 8,000 years BP, the impact of which is not fully appreciated by Bar-Yosef & Belfer-Cohen (1989: 454).

221 Whether Atlit Yam is representative of a much greater Levantine PPNB maritime phenomenon is unknown. Hypothesizing the Levantine counterpart of Irwin's (1992) Pacific Ocean "voyaging nursery" may not be unwarranted, as Held (1993: 27) cautions. Chains of small offshore islands exist both in the southern and northern Levant. Some, like Tyre and Arwad, were large enough to eventually be settled. Smaller islands were, as today, breeding grounds for birds, which certainly would have attracted the attention of hunters. Other nearshore islands may have had freshwater springs like the examples at Dor and Jaffa (Wachsmann & Raveh 1984: 232, n. 8). The rocky sea bottom around these islands would also have provided shelter for fish, which would not have escaped the notice of prehistoric fisherman. Regarding the low biomass of the Mediterranean, it is interesting to note that the gray triggerfish is not nearly as represented in the modern marine fauna as it was when the fisherman of Atlit Yam were exploiting it (Zohar 1994), which along with other evidence may indicate oceanographic changes in the eastern Mediterranean during the Holocene (Stanley & Galili 1996).
Atlit-Yam may contribute to our understanding of island colonization, especially as the site was inhabited just before or during the initial colonization of Cyprus. Coastal sites of the following Pottery Neolithic period have yet to provide the same extensive evidence of maritime culture (Raban 1983b; Galili & Weinstein-Evron 1985).

2.4.2 Fishing and Sea Craft of the Chalcolithic Period

Some continuation of maritime culture into the Chalcolithic period is supported by increasing evidence for the exploitation of marine resources, including an ichthyomorphic figurine, fish hooks, and bones (Gilead 1988: 420). While pictorial and model representations of boats are certainly attested by this time in Egypt (Hassan 1988: 157), no definite Levantine boat depictions have been found. However, Baumgarten (1993) suggests that a high-ended vessel, similar to types appearing in Predynastic Egyptian art, is painted on a Chalcolithic ossuary from Azor (Perrot 1961: fig. 23:3, pl. IV). While examination of the original line drawing supports his identification, the photographic plate suggests that the roof of the ossuary is partially reconstructed with plaster, indicating that the boat was created by the erasure of a structure, perhaps a building. However, it is instructive to note that this ossuary's cover is decorated by a star or sun (Perrot 1961: fig. 34:1), which is a motif known from the contemporary iconographic repertoire (Elliot 1977: 11-2), but often occurs among seafaring cultures in juxtaposition with maritime motifs. Apart from this possible depiction, and the evidence for fishing, Chalcolithic maritime activity remains largely unexplored, which is a possible consequence of the rarity of excavated habitation sites in the Coastal Plain (Gilead 1988: 412; Gophna & Portugali 1988), or that the relevant sites are submerged (Raban 1983b; Galili & Weinstein-Evron 1985; Raban & Galili 1985).

A large quantity of triggerfish was also exploited at Aceramic Cape Andreas, Cyprus (Zohar 1994: 96), which suggests a priori that other east Mediterranean maritime groups were using similar subsistence strategies. It is these types of groups that may have enabled the successful transfer of a founder population to Cyprus.

A hint at what may yet be found is underwater at Neve Yam, south of Atlit, where a PN (Jericho IX phase) and Wadi Raba culture site has produced fish bones, net sinkers, and a pottery sherd incised with fish decorations (Galili, Sharvit & Nagar 1996: 56, fig. 73; Wreschner 1977: 271’). This site and others along the coast have yielded obsidian blades (Raban 1983b: 226-8; Wreschner 1977: 270’; Goring-Morris 1984: 81; Braun & Gophna 1996: 98), presumably from Anatolia (Perlman & Yellin 1980; Yellin & Perlman 1984; Williams-Thorpe 1995: 232-4), but whether they were transported by land or sea is unknown (Mellink 1993: 497; Yellin, Levy & Rowan 1996: 366). Regarding the trade in obsidian, it is interesting to note the absence of this material at Atlit-Yam, although it appears less than one kilometer away at the inland PPNB site of Nahal Oren (Noy 1993: 1169).

A pottery fish head was found at Besor Site E. Copper fish hooks were found at Tuleilat el-Ghassul and Bene Berak. Marine faunal remains include: a quantity of bones (e.g., shark, dolphin, and rays, etc.) from Qatif Y-2; a single vertebra of a Mediterranean fish at Gerar 100 (Gilead 1986: 82); six bones from the Nahal Qanah cave (Lernau 1996); and some bones from Shiqmim, although this site is 40 km from the sea, and the species identification could not exclude an inland freshwater source (Rosen 1986: 106, 114; Grigson 1987: 221).
2.4.3 Boat representations and longshore traffic during the EB I Period

Despite the evidence for long distance interaction during the EB I period, including theorized seaborne contacts between the Northern Levant and the Delta, whatever maritime activity occurred along the southern Levantine coast has left few remains, although some boat representations and underwater finds may lend support to this suggestion.

In her discussion of EBA art, Beck (1995: 11-2, fig. 7b) identified a number of possible EB I boat representations from among the incised sherds of the “Stages” V area of Megiddo, including the prow of a vessel (Engberg & Shipton 1934: 30, fig. 10H; Kempinski 1989a: 24). Her identification is much more convincing than the “scorpion or crab tail, or elephant tusk”, which is suggested by the excavators (Engberg & Shipton 1934: 30). The “tail” appears very similar to the termination of a reed boat, with the lines crossing the width of the “tail” being the ropes that tie the reed bundles together. Two possible reconstructions are offered here (Fig. 7a). One relies on the top of the bundle being the gunwale and thus the lone skewed line might represent some sort of mast stay; it seems premature to see this line as some sort of hogging truss for longitudinal support. The alternate reconstruction sees this lone line as the gunwale, with a significant change in the sheer of the hull. Either reconstruction is supported by parallels (Basch 1987: figs. 101, 105; Berger 1992: passim; Vinson 1994: fig. 3).

An additional boat from the same published plate (Engberg & Shipton 1934: 30, fig. 10G), to date unnoticed, is herewith presented with a partial reconstruction (Fig. 7c). This incised decoration recalls the stern end of a riverine boat, complete with a steering oar supported by a stanchion, a possible tiller, and part of what is termed, in Egyptian boat depictions, a cabin or kiosk.225 There are no clear criteria for determining whether this is a papyrus or wooden vessel, but a wood vessel seems more likely as the hull does not get thinner towards the stern. The height of the steering oar above the bottom of the hull indicates a vessel with a deeper draught. Another maritime motif that is depicted among these sherds is the middle part of a fish, complete with dorsal fin (Engberg & Shipton 1934: 30, fig. 10F).

Beck (1995: 11, fig. 7a) also identifies two more boats from the incised stone pavement (L.4008) of the Stratum XIX temple.226 Her interpretation, however, is far from convincing, even alongside the parallels she reproduces. Apart from the upper arc, which, presumably, she interprets as the gunwale, there is nothing to mark these objects as boats. The ends do not conform to any bow or

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225 In September of 1991, the late Doug Esse of the Oriental Institute in Chicago showed the author a line drawing of a flint fragment, apparently a tabular scraper, from the excavations of Beit Yerah, which had an incised depiction of the stern part of a boat with a steering oar. In the wake of Doug’s premature passing this artifact remains unpublished.

226 The renewed excavations at Megiddo indicate that both temple phases date to the EB I period (Finkelstein 1997), a point reported by D. Ussishkin at the HUC conference (see supra n. 4)
stern from Predynastic Egypt or later.\textsuperscript{227} The oars are similarly unconvincing in that they share none of the traits generally associated with paddles or oars.\textsuperscript{228}

Lastly, a miniature clay model boat was found at Tel Erani. The lack of any apparent structural details in the representation precludes any determination of the material from which it was made, although the object requires further study.\textsuperscript{229}

These representations suggest that the inhabitants of the southern Levant may have been familiar with at least two different types of boats: a papyrus or reed craft and a somewhat larger, probably wooden, vessel with a greater draught. However, it is impossible at this stage of the research to determine whether these depictions were inspired by Egyptian Nilotic or local craft. Beck suggests that the depictions reflect the activities of local people, although, as Amiran (1992) suggests for the incised pavement stones, they could be the work of Egyptian artists as well. Local inhabitants could have copied depictions of Egyptian boats, which may have arrived on imported pottery, such as the lone example of “D-ware” from Taur Ikhbeineh (Oren & Yekutieli 1992: 369, fig. 8:12, pl. 8). If these depictions represent local sea craft, little is known about the coastal inhabitants that produced them and even less about their construction. While it is assumed that wood is the a natural choice of construction material in the timber-rich regions of the Levant, the possibility of reed-built boats should also be considered, perhaps alongside other reed-built structures.\textsuperscript{230}

\textsuperscript{227}There are many boat depictions with asymmetrical hulls in the Predynastic repertoire, some with similarly thickened ends (Basch 1987: 58, fig. 97), but the opposing prows are quite different.

\textsuperscript{228}See Basch (1987: 52, fig. 86) for a somewhat similar internal design, but note the total difference in the shape of the steering oar. Kempinski (1989a: 173) interprets these incised decorations as logograms of “obscure objects with two legs”. This identification is not without merit, as there are certain similarities to various Sumerian signs, e.g., the similarity between the end of the axe and the sig7 sign and the extensions or "legs" to the si/sè sign (Labat 1963: 106-7, 160-1).

\textsuperscript{229}This object was identified and redrawn by B. Brandl, who presented it at the HUC conference (see supra, n. 4). Given the role he ascribes to these miniature objects, the presence of a boat might reflect a means of transportation or a maritime shipment.

\textsuperscript{230}The numerous Chalcolithic cemeteries in the Coastal Plain that contain ceramic ossuaries occur often with no nearby evidence for habitation. Although some objection has been raised to the notion that these burial containers are models of the typical Chalcolthic house (Porath 1992: 46-8), there is no reason not to view the shape as one type of house. Much as it is supposed that many bone piles represent decomposed ossuaries made of wood and other organic material (Porath 1992: 46), some of the “houses” that they are meant to evoke may have been constructed of perishable material, including reeds. A working hypothesis, which must still be researched and tested, is that reed construction techniques for domestic architecture were transferred to nautical construction. An ethnographic study of reed construction techniques has been carried out in southern Iraq (Ochsenschlager 1992), where both reed boats and buildings are known to have been used for millennia, and are even in use today (Roaf 1990: 51, 122-123). For reed structures observed along the Lebanese coast north of Byblos, see Dunand (1973: pls. III:2, IV:1-3). Reed boats were used on Lake Hula in the early part of this century (Karmon 1990: 38, 50-3).
Although no remains of EB I seafaring have yet been found in nearshore underwater surveys (Galili & Weinstein-Evron 1985), two rare deep water finds suggest that ships were plying the shores during this period. The first is a an EB I cup, which is now in a collection at Kibbutz Sdot Yam (Barag 1963: 1). The second is an Egyptian drop-shaped vessel that is reported to have been found off the coast of Gaza and is now in a collection at Kibbutz Saar. Both were found in the nets of trawlers that typically work in depths greater than 20 m. Although the context of these finds is unknown, the fact that both Egyptian and Canaanite ceramics were found in deep waters, far from any terrestrial context along the shore, suggests that ships were one of the means of transport for the pottery trade in both directions during the Egyptian colonial period. Given the quantities of imported Canaanite storage jars in Egypt, the possibility that they were transported by sea should not be excluded. Nothing is known of the type and size of such ships, but they were probably propelled by the sail, which was certainly in use by this time.

The involvement of the southern Coastal Plain in the contemporary longshore traffic is only beginning to attract attention (Brandl 1992: 448; Gophna & Lipschitz 1996). While the main demographic centers were located along the inner trough of the Coastal Plain, terrestrial and underwater surveys demonstrate the existence of sites in the shallow waters of the modern shoreline and further inshore, particularly along coastal troughs and river basins, where they may have been involved in maritime pursuits (Gophna 1974: 22-3, 70, pls. 24-25; 1997; Ronen & Olami 1978: 2-4, 1*; Gophna & Portugali 1988: 13-5, figs. 2-3; Gophna & Lipschitz 1996). The location of sites at or near modern sea level suggests that the sea did not inundate the Coastal Plain during this period. The lack of any detailed geomorphological study renders any attempt to reconstruct the EB I paleogeography premature, but, most likely, small bays, lagoons, and river mouths served as havens.

### 2.4.4 Seagoing sailing ships and the ports of the “Byblos run”

The increasing Egyptian dependence on maritime transport, which culminated in claims of state-sponsored ventures to Levant, and intimate relations with Byblos, is reflected in increasingly substantial archaeological, textual, and pictorial evidence for the technology and size of seagoing vessels. In particular, the use of of mortise-and-tenon joined planks, provides the earliest evidence for this nautical construction technique (Steffy 1994: 27-8). The increased role of seafaring in long distance contacts, which led to the abandonment of the northern Sinai overland route, may have partly affected the settlement pattern of the southern Levantine Coastal Plain, and led to the establishment of ports at the gateways of a dendritic land route.

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231 This find was reported by R. Gophna at the HUC conference (see supra n. 4).

232 In respective papers at the HUC conference (see supra n. 4), both R. Gophna and Ornit Ilan emphasized the specialized role of EB I coastal sites in longshore traffic.

233 However, such activity is still undocumented, apart from some marine shells at the Halif terrace (Alon & Yekutieli 1995: 181, fig. 1:1).
2.4.4.1 Textual references

The earliest textual reference to seagoing ships is the claim of the first ruler of the Fourth Dynasty, Sneferu, to having brought forty ships filled with cedar wood. Weni's Sixth Dynasty seaborne raid to the southern Levant, relied on seagoing ships capable of carrying soldiers. In addition, among his many diverse royal projects, Weni was also put in charge of the construction of river boats, which were made of acacia wood cut by foreign chiefs, a term often used to describe Asians (Lichtheim 1973: 22-3; Breasted 1906: §324), which may hint at foreign shipwrights active in Egypt. Lastly, Pepinakht, who lived during the reign of Pepi II, mentions going to the land of the Asians, perhaps the Red Sea, where a boat was being built for a journey to Punt (Breasted 1906: §360; Säve-Söderbergh 1946: 48).

2.4.4.2 Pictorial depictions

With all the limitations of the artistic medium, pictorial representations provide the only details for seagoing ships of this period. The two most notable examples are depicted at the temple of Sahure at Abusir and the causeway of Unas at Saqqara, both of the Fifth Dynasty. The Sahure relief is a narrative scene showing parts of four departing and eight returning ships, the latter depicting Asians and their children (Gaballa 1976: 24). The structural details depicted on the vessels include a partly sewn planked structure, a bipodal mast that is located forward of midship, oars for propulsion and steering, and, most importantly, a hogging truss to give the vessel longitudinal strength for sea voyages (Casson 1971: 20-1; Wachsmann 1998: 12-5). Although the sail and yards are not depicted, and the mast is lowered, it seems likely that this vessel could sail in a side and following wind. The complement of at least seven oars to a side suggests a large crew, which would have taken up space otherwise allocated to cargo. Estimating size based on artistic depictions is difficult, but it seems likely that these were vessels of significant size. The Unas relief contains another pair of similar ships with Asians aboard, although here the mast is tripod, and a ladder is depicted (Wachsmann 1998: 15-8; Hassan 1955), which may suggest that handling the rigging may have been quite difficult.234

2.4.4.3 Archaeological evidence

No remains of seagoing craft have yet been found from this period, but the size and construction techniques of riverine craft illustrate the capabilities and technologies that were probably employed in their maritime counterparts. The earliest evidence for large (ca. 18 m long) plank-built vessels are the twelve First Dynasty boats buried in pits at Abydos (O'Connor 1991; 1992; Haldane 1992a; Vinson 1994: 17-8). As these are still unexcavated, nothing can be said about the method of construction or the origin of the wood, but they will undoubtedly fill the gap left by the poor hull remains of seagoing craft from this period, but the size and construction techniques of riverine craft illustrate the capabilities and technologies that were probably employed in their maritime counterparts. The earliest evidence for large (ca. 18 m long) plank-built vessels are the twelve First Dynasty boats buried in pits at Abydos (O'Connor 1991; 1992; Haldane 1992a; Vinson 1994: 17-8). As these are still unexcavated, nothing can be said about the method of construction or the origin of the wood, but they will undoubtedly fill the gap left by the poor hull

234Although Peltenburg (1995: n. 38) warns against applying the term “Byblos ship” to these depictions, it seems reasonable to assume that the role of this ship type and its capabilities were not unlike the theoretical capabilities of the depicted vessels.
remains from the complementary boat pits at Saqqara and Helwan (Vinson 1994: 18)—all of which attest to the availability of long woods and shipbuilding technology. A number of graves from Tarkhan appear to contain re-used mortised boat planks (Vinson 1994: 18; Clarke & Engelbach 1930: 213-4, fig. 262), but their identification is not universally accepted (Wachsmann 1998: 218-9). The best preserved and oldest excavated boat is the Fourth Dynasty royal funeral barge of Cheops, which is nearly 44 m in length (Jenkins 1980; Steffy 1994: 23-9). This luxurious riverine vessel was built principally of imported wood, by rope-lashed, unpegged, mortise-and-tenon joinery, but lacks a keel or any other sufficient form of longitudinal support to make it suitable for sea travel (Steffy 1994: 25-9). Nonetheless, this vessel and its unexcavated sister ship (El-Baz, Moores & Petrone 1989) presuppose beamier, deeper, and structurally stronger seagoing ships capable of transporting at least 50 tons of timber per vessel, from which planks as long as 23 m were fashioned (Lipke 1984: 30; Steffy 1994: 25-28).

2.4.4.4 EBA Anchors and Shfifons

An important archaeological indicator of maritime activity, which makes its appearance during this period, is the hewn stone anchor, both in pictorial representations and in specialized terrestrial contexts.235 Pictorial depictions are found on both the Sahure and Unas reliefs (Frost 1979: 139, pl. 1; Basch 1985: 454-5, figs. 1-2; Wachsmann 1998: 256-7). The earliest example of a stone anchor in Egypt is apparently the symbolic boulder at the prow of the interred First Dynasty Abydos boats (O'Connor 1991: 11-2, fig. 13). Triangular stone anchors were used in the construction of a Fifth Dynasty tomb at Abusir and implanted in the floor of a Sixth Dynasty tomb at Saqqara, where other possible fragmentary anchors were found (Frost 1979: 141-4, 146-7; Wachsmann 1998: 258-9; Fig. 8a). A group of six chalk anchor replicas of non-uniform shape and size were used in the construction of a step leading up to the EBA Tower Temple at Byblos (Frost 1969: 429-30, figs. 23-28, pl. III; 1970: 384-5, pl. 2A). Apart from these few dated examples, no other anchors are included in this brief survey. The small sample and the heterogeneous morphological characteristics of the anchors of this period render any typological attributions of other anchors suspect.

Although found inland at sites along the southern shores of Lake Kinneret, anchor-like objects, called locally shfifon (pl. shfifonim), are an enigmatic artifact that has received only limited attention (Wachsmann 1985; 1998: 262-5). Much as their contemporary Mediterranean counterparts, the shfifonim have a very heterogeneous morphology, which hampers reliable dating. One example, found outside an EB II gate at Beth Yerah, shows some similarity to other examples from the Kinneret

235For a summary of the criteria used in identifying stone anchors, and their various utilitarian, symbolic, and cultic roles, see Frost (1969: 437; 1991), Brody (1996), and Wachsmann (1998: 255). In this study, attempts at ethnic attributions are eschewed, as are estimations of ship size, although it is recognized that the large LBA anchors (over 200 kg) suggest ships of relatively greater dimensions than those using smaller anchors (Frost 1991: 369-371), and crews capable of handling such weights, perhaps with the aid of halyards. Rather, the anchors found on land are seen as a reflection of a particular culture's orientation towards the sea, while those found underwater indicate sea traffic in those waters during the period to which they are assigned.
region and even the later BA Mediterranean (Wachsmann 1985: 395-6, figs. 3-5; 1998: 262). Unfortunately, most of the other shfionim were found outside any stratigraphic context, and none were found underwater, a lack ascribed to the absence of sport diving in this lake (Wachsmann 1985: 399). Although the symbolic use of these objects is clearly established, some utilitarian role should be explored.

In functional terms, it is not immediately clear why lake boats would carry such large anchors, although stone anchors weighing over 100 kg were used in the Dead Sea during the Hellenistic period (Hadas 1992; 1993). Perhaps the occasionally powerful winds demanded large anchors, or the shfionim were used as mooring stones that were buried in the muddy shore, which would explain their unfinished lower halves. In either case, the use of boats would have been essential at Beth Yerah, a site that may have been nearly an island during the Early Bronze Age (Esse 1991: 36-7). Thus, boats may have been used for fishing, for transportation in an inhospitable fording zone, and, perhaps, for shipping goods in a bi-polar lacustrine transportation network between the port of Beth Yerah and other contemporary sites, such as Tel Kinnerot or et-Tell (Bethsaida).

2.4.4.5 Nilotic anchorages and the first ports of the Levant

Just as riverine traffic along the storm-less Nile brought about the need for more sophisticated riverine ports and anchorages, such as the OK basins at Giza and Saqqara (Hassan 1997: 63; Goyon 1971: figs. 2-5), presumably contemporary seafaring involved Levantine havens and port facilities. Given the geographical conditions in the eastern Mediterranean, a number of potential types of natural anchorages may be suggested including rivermouths, offshore islands, embayments, peninsulas, or deltaic lagoons (Flemming 1980; Blue 1997). Unfortunately, geomorphological changes in the coastline, such as erosion, siltation, and lithification of sediments, may have obscured the paleogeography to an extent that impedes any attempt at reconstruction. For example, the anchorage of Byblos, the principal partner port of Egypt, presents little more than a small fishing anchorage (Jidejian 1971: 1, fig. opp., pls. 1, 25, & 131). In contrast, the island of Arwad, or the paleo-islands of Tyre and Akko (Frost 1995; Sivan 1981), would have made superb natural havens, although only Tyre has archaeological remains from this period. Indeed, remains contemporary with the

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236 Another explanation for this absence may be the sediment coverage of the EBA lake bottom.

237 Heavier weight anchors would be required in the Dead Sea because of the higher salinity and greater wind fetch. S. Breitstein, of the Center for Maritime Studies in Haifa, kindly pointed out the latter factor to me.

238 While Tel Kinnerot is still on the shore, the current excavations at Bethsaida, suggest that this landlocked site was on an open bay in the Hellenistic and Roman periods (Arav 1990: 178), which is a reasonable hypothesis, but still lacks geomorphological substantiation.

239 The indented sandy beach to the south of the tell may have been a much larger and deeper bay, but this has not been investigated.
“Byblos run” are so rare that a total abandonment of the coast has been suggested (Raban 1985: 14). To date, only Ashkelon has produced EB II-III ceramics (Stager 1993), although there is as yet no indication of any architecture, or any evidence for the character of the anchorage during this, or any other, period. In lieu of a proper haven, it is possible that the shore of this site functioned only in fair weather, using small boats, called lighters, which transferred goods to and from ships anchored in open waters. However, two other contemporary sites, Tell Gerisa and Khirbet Kurdaneh, on the Yarkon and Na`aman rivers, respectively, may have served as inland ports on navigable waterways. In the case of Tel Gerisa, the area served as an anchorage for boats as late as 1917 CE (Khalidi 1992: 246, photo; Herzog 1993: 480). Apart from surveys and salvage excavations (Esse 1991: 181, site 87; Maisler 1939), landlocked Khirbet Kurdane is still unexplored. However, given the distribution of Metallic Ware as far west as nearby Qiryat Ata, perhaps Khirbet Kurdane, along with Tyre, served as a gateway for the export of this ceramic class. Although nothing is known about the maritime acitivities of these coastal sites, it seems that a spatial relationship exists between these suggested ports and Fargo's (1979) dendritic network of sites.

The limited number of EB II-III ports should not lead to a disregard of the southern Levant's role in the “Byblos run”. In this regard, Stager's (1990) evocation of the concept of EBA “port power” is an important step forward in understanding the interface between latitudinal routes and maritime networks. A safe haven or port to serve ships engaged in the longshore traffic between Egypt and Byblos was always preferred, if not essential. This is best illustrated by way of analogy with the Roman period, when ships relied on small lighterage ports, apart from the deeper harbors at Caesarea and Akko. If during the centuries of Pax Romana, when maritime trade flourished and the scope of traffic required no more than three ports along the southern Levant, then, a minori ad majus, such could be the case during the OK period, when traffic was certainly lesser in scope. Thus, the fact that no more than three possible ports-of-call may have been identified is in no way a reflection of the scope of longshore traffic. Rather, it is a reflection of the socio-economic organization and orientation of the inhabitants of the southern Levant, who relied on a limited number of specific ports. In terms of modeling such traffic, a variety possible courses could have been used. Long tacks out to sea and back would naturally increase the distance and time, but may have been a necessity.

2.4.5 Intermediate Bronze Age

The decline in long distance interaction during this period is reflected in the paucity of

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240 In general, the paleogeography of the southern Levant and the location of the shoreline during this period is unclear. The possibility of a eustatic (global) sea level rise on the order of 2.5 m msl (Lambeck 1996: 49) may radically alter our view of the geographial history of the Coastal Plain, in that other seemingly inland sites may be more “maritime” than previously supposed.

241 Among the limited evidence for maritime subsistence is a possible marine fish bone from Tel Dalit (Horwitz, Hellwing & Tchernov 1996: 197, 204-6), and the bone of a dolphin found at `Ai (Wapnish 1995: 264), although the precise EB phase is not indicated.
2.4.6 The Middle Bronze Age

Following a nearly two hundred year gap, maritime activity between Egypt and the Levant resumed. However, the lack of any Egyptian depictions of seagoing ships spanning the more than seven hundred year period between the OK and NK representations of, respectively, Sahure/Unas and Kenamon/Hatshepsut ships, leaves an unfortunate gap that other sources of evidence must attempt to fill. Unfortunately, for reasons mentioned, our normally rich Egyptian pictorial well spring dries up at a crucial period, which is preceded by a few, and followed by a plethora of, unequivocally maritime depictions. Which seagoing vessels bridged the conceptual and technological chasm between the OK seafaring craft of Sakkara and those of Hatshepsut's Punt-bound fleet, or the Levantine floating bazaars depicted in Kenamon's tomb, is unknown.

The study of ancient shipwrecks has revealed a fundamental conservatism in the evolution of ship forms and a fairly slow-paced development in nautical construction technology (Steffy 1994: 24-78). With this perception in mind, sufficient leeway may be allowed for a hypothetical MK/MBA “missing link”, based on a comparison of the aforementioned depictions and archaeological evidence, which bridges the seven hundred year lacuna in evidence. Presumably this hypothetical vessel was constructed of some mixture of sewn plank and mortise-and-tenon plank technology. By this time, a single-poled mast was used, and was shifted toward mid-ship, which would allow better utilization of side winds by the double-boomed square-rigged sail. Although oars were used for propulsion on Hatshepsut's Red Sea ships, they do not appear on the Kenamon ships. Whether oars were used for propulsion on the Mediterranean Sea is unknown, but thin-bladed sweeps for maneuvering were found on the Uluburun wreck (Pullak 1994: 11). Regarding the existence of a keel, hugging truss, or other longitudinal and transverse support, the evidence is equivocal. All of these components may have been used, either individually or in concert. Evidence for the development of the keel from a thickened keel-like central strake has now been discerned on the fourteenth century Uluburun ship wreck.

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242 The maritime activity in the northeastern Mediterranean and Aegean regions is not considered here. Note, however, that this period marks the earliest demonstrable depiction of the sail in the Aegean (Agouridis 1997: 3).

243 It is not clear whether the anchors had a symbolic or utilitarian significance in this period. However, as a shfi fon was found at the foot of the apse of a Byzantine church, high above Lake Kinneret (Hirschfeld 1994), some local continuity is suggested.
(Steffy 1994: 36-37, fig. 3-15; Pulak 1993: 7-8; 1994: 12; 1997: 248-9), although an earlier appearance is possible. The crow’s nest may have appeared during this period, but its viability depends on the size of the mast, and the strength of the mast step, which is generally mortised into a floor timber or keelson (Steffy 1994: 275, fig. G-15). A crow’s nest afforded greater visibility: a 7.6 m mast may increase visibility by 5.7 nm (McGrail 1991: 86, table 1).

2.4.7 Textual references

Specific textual references to ships and their capabilities are rare during this period, but a number of literary and royal texts provide some insight into their size, the routes taken, and the ethnic groups involved. The *Admonitions of Ipuwer* contains a reference to what may have been the traditional counterclockwise eastern Mediterranean route expressed as “none sail north to Byblos” followed by “the keftiw, they come no more”, a literary parallelism noted by Goedicke (1967: 95), who suggests that the variant spelling used for *keftiw* indicates the boats rather than the people. In the *Story of the Shipwrecked Sailor*, a ship of one hundred and twenty by forty cubits, with a complement of one hundred and twenty sailors, was used (Simpson 1973b: 51, 53; Lichtheim 1973: 212-3). Using the unit measure for the standard cubit, this vessel measured 54 m by 18 m, or 63 m by 21 m using the royal cubit, which in any event is a fairly long vessel of a 3:1 length-to-breadth ratio (Wachsmann 1998: 10, n. 16). The most detailed source of ship capacity is the Mit Rahina inscription, which essentially lists the manifest of two ship returning from the Lebanon with an impressive quantity of bulk cargo. The cargo included at least 1,308 kg of raw materials, a total passenger weight of ca. 5,000 kg, and a volume of 23,259 liters, in addition to ninety-nine containers, seventy-seven trees, and two hundred and thirty-one trunks or logs of cedar.244 Not including the timber, whose size and mode of conveyance are unknown, these ships carried at least fifteen tons of cargo.245

As to the parties involved, the *Execreration Texts* mention the Asiatics of the *dnityw*, or “those of the harbors”. In terms of ship construction, the Coffin Texts credited Hathor, “mistress of Byblos”, with skill in manufacturing steering oars (Redford 1992: 40; Faulkner 1973: 56), which experimental replica voyaging has shown must be strong enough to withstand considerable forces (Cariolou 1997: 94). However, despite the possible depiction of an Asiatic overseeing the building of a boat, no Asiatic names appear in the dockyard records of Papyrus Reisner (Simpson 1963: 86; 1965: 19). Presumably, Aegean vessels may have brought the Kaptarans, their cargoes, and their model boat to

244Note that the goods brought back from Iasy total only 50.5 kg, but the weight of 1,554 passengers could be as much as 100,000 kg.

245Assuming a maximum length of 23 m, based on the longest cedar timber known (from the Cheops ship), and a diameter of one meter (Lev-Yadun 1992: 201), an extreme maximum volume per trunk of 18.1 m$^3$ may be suggested. Using a weight per volume of 560 kg/m$^3$ for cedar (Steffy 1994: 256), each trunk would weigh 10,136 kg. Thus, the two hundred and thirty-one trunks could add another 2,341,416 kg or 2,341 tons to the total cargo.
OB Ugarit. Unfortunately, if there is evidence of Aegean boats having visited the Levant (i.e., anchors), it has gone unrecognized.246

As to the potential size of the Asiatic merchant fleet at its peak, the Kamose stela refers to hundreds of ships bearing cargo. The type of boat mentioned is the b’w boat, which may also be mentioned in Papyrus Reisner, both possibly corruptions of the Levantine br boat (Vinson 1990: 147, n. 70). The number of ships recorded may not be hyperbole on the part of the Egyptians, but rather a very realistic indication of the scope of trade, as reflected by the archaeological record. For example, an estimated two million Canaanite jars were imported to Tell el-Dab’a over two hundred and fifty years, an average rate of eight thousand per year (McGovern & Harbottle 1997: 145). Assuming that cargoes were mixed, as suggested by both the Mit Rahina inscription and the Uluburun wreck, it is illustrative to compare the quantities of storage jars transported by ancient ships to this estimated rate of import. Three examples will suffice to illustrate this point: the two ships mentioned in the Mit Rahina inscription, which carried ninety-nine containers; the Uluburun ship, which carried approximately one hundred and fifty Canaanite jars (Peachey 1997: 14; Pulak 1997: 240); and the Kyrenia ship, which carried more than four hundred amphorae (Steffy 1994: 42). At a rate of fifty jars per ship, one hundred and sixty shiploads would be required per year; at a rate of one hundred and fifty jars per ship, only fifty-three shiploads would be needed per year; and, finally, a jar-burdened cargo of four hundred jars per ship would require a mere twenty vessels per year. Thus, unless there was a preponderance of amphorae-exclusive cargoes, which is unlikely given the scope of trade in other materials, the evidence from Tell el-Dab’a suggests that the numbers quoted in the Kamose stela are not necessarily an exaggeration.

2.5 Boat representations

Although no detailed MK depictions of seagoing ships have been found (Wachsmann 1998: 18), a locally made, Syrian-style cylinder seal with a boat was found at Tell el-Dab’a. Although no sail is depicted, the ship has a mast, fore and aft stays, and two oars. The incised boats at at Rôd el-Air, Sinai provide no indication if they were seagoing (Wachsmann 1998: 32-7).247

The bronze boat models from the foundation deposits at Byblos are similar in form to MK Egyptian riverine ships (Dunand 1950: pls. LX:8816, LXIX:10089, LXXIV:10642-10643; 1954: 219 [8816], 337-338 [10089-92], 738 [10086-87], fig. 874; Brody 1996: 74-5; Wachsmann 1998: 54).248

246To date, the lack of underwater surveys in the Aegean have prevented the identification of a particular anchor type to this region.

247Two stern-to-stern boats with steering oars appear on a cylinder seal now in the Louvre (Teissier 1996: 102, fig. 206; Porada 1983: pl. XXXVa). Although these are not specifically seagoing vessels, the presence of Hathor over the steering oars is indicative of her patronage of sailors (Brody forthcoming).

248Although some suggest that two other clay model boats are MK vessels (Dunand 1937: pl. CXL:3306, 6681; 1939: 223-224, 434; Wachsmann 1998: 54), the lack of a secure context
Despite the presence of a hole near the centerline at the mid-ship of some examples (e.g., Dunand 1950: LXXIV:10642), which is perhaps for a mast, these are unlikely to be representations of seagoing vessels. Rather, these are symbolic or ritual reflections of maritime activity. Models are common throughout the ancient world (Göttlicher 1978), but rarely is there an indication of their function. Texts from twenty-fourth century Lagash relate two instances where bronze models of Dilmun ships were dedicated to the goddess Nanshe in commemoration of the safe return of travellers from journeys (Potts 1990: 182-183). The purpose of the Cretan-style, stone-inlaid, wooden model boat mentioned at Mari is unknown, although the fact that it is made of perishable material suggests that these objects may be under-represented in the archaeological record. A symbolic offering of a boat, decorated with inlay, may be what is depicted on the Hagia Triada sarcophagus (Warren 1989: 106; Wachsmann 1998: 104). At Kultepe, a model clay riverboat depicts the transport of a goddess (Özgüç 1994). Models were often taken to sea, as is indicated by the clay boat netted by fisherman in the Bardawil lagoon (Basch 1976; Oren 1987b: n. 8), or as depicted on an incised stone graffito found near the Dakhleh oasis in Egypt, where men carry smaller versions of the very same ship type they are sailing (Basch 1994; 1997; Wachsmann 1998: 203-4). Thus, although the Byblian boats are not seagoing vessels, and their function is uncertain, their occurrence, along with the *ex voto* stone anchors, is suggestive of a common maritime ritual.

### 2.6 Archaeological evidence for ships

As in the OK period, riverine ships are the only source of evidence for ship form and construction. Nevertheless, an indication of the building technology and the strength of river vessels, as provided by the timber remains from el-Lisht and the ceremonial Dashur boats, give some indirect evidence of the potentials of their seagoing counterparts (Haldane 1984; 1992b; Patch & Haldane 1990; Wachsmann 1998: 220-1). The only probable seagoing ship plank is a mortised cedar timber found near a MK anchor shrine at Wadi Gawasis on the Red Sea (Sayed 1980: 156, fig. 3, pl. XXII:5; 1983: 36). Other evidence, albeit indirect, for mortise-and-tenon joinery comes from the furniture remains found in the MB IIb tombs at Jericho (Wachsmann 1998: 240-1).

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249 I thank Dr. A. Brody for pointing this out to me.

250 B. Foster noted, without any reference, OB texts that mention merchants dedicating gold and silver ships to a local temple (see discussion after Wiener 1987: 267).

251 This 12 cm thick plank is comparable to the heavy timbers from riverine ship remains at el-Lisht, although the mortises are narrower and shallower (Haldane 1992b: 104). In the absence of any evidence of pegs, Wachsmann (1998: 215-6) suggests that lashed construction was employed. However, the mortises and their dimensions may be misleading, as this timber may be from a section of unfinished planking, as seems likely from examination of the published photograph, in which only one side is planed (Sayed 1980: pl. XXII:5). For the relationship between plank thickness and vessel...
Two possible mast poles made of bronze, which bear MK dedicatory inscriptions, are currently in the National Museum in Athens (von Bissing 1905). Although their origin is unknown, if they are the typical equipment of MK ships, and not simply standard poles, then the use of only four halyard guide holes suggests a less sophisticated type of rigging than that depicted in early NK vessels.

2.7 Anchors

In contrast to the preceding periods, an abundance of datable anchors have been found from this period, distributed between Egypt and the Levant (Fig. 8b). The dating is made possible by the increased use of anchors in terrestrial contexts, primarily in symbolic or ritual contexts. Although appellation, such as “Byblian” or “Egyptian” are used to describe different types, no ethnic attribution should be assumed for these objects.

2.7.1 Egypt

Two Twelfth Dynasty contexts have “Egyptian” type anchors: an anchor shrine at the Red Sea port of Wadi Gawasis (Sayed 1977; 1978; 1980; 1983) and anchors in secondary use at the Upper Egyptian fort of Migrissa (Nibbi 1992). Both are securely dated by inscribed material.

2.7.2 Byblos and Ugarit

As in the Early Bronze Age, anchors continued to be used in temple construction, apparently as offerings (Frost 1969). At least two examples of “Byblian” anchors, and one “Egyptian” anchor were found. At Ugarit, one MK “Egyptian” type anchor was found in a possible MBA context (Frost 1969; 1991; Wachsmann 1998: 273).

2.7.3 Southern Levant

Ironically, the largest number of anchors of the “Byblian” type is found along the shores of the southern Levant, alongside examples of the “Egyptian” type (Galili, Sharvit & Artzy 1994). Underwater surveys have located numerous stone anchors, particularly along the Carmel Coast, at the anchorages of Dor and Atlit. Apart from one instance alongside an MBA storage jar, all the other anchors, including the Neve Yam group (Galili 1985b), must be dated by the terrestrial examples cited above. As no examples of these anchor types has been found in any securely-dated context earlier or

252 J. Malek kindly confirmed their MK date.
later than the Middle Bronze IIa period, a general MBA date for these underwater artifacts and the seafaring they represent is reasonable.\textsuperscript{253}

2.8 Anchorages and harbors

Although the specific character and dimensions of the anchorage of each MB IIa port city are considered in Chapter 4, some general points are outlined here. As during the Old Kingdom, MK riverine harbor technology continued to develop along the Nile (Hughes 1963: 124-5; Knudstad 1966: 176-7, fig. 2, pl. XXI). Along the Mediterranean littoral, the local and longshore traffic continued to have a need for safe havens, although not every anchorage was physically amenable to every ship. In the absence of artificial harbor technology, natural anchorages were utilized, although some physical augmentation may have been carried out. Based on the choice of settlement locales, the anchorage types used during this period along the Levantine coast relied on the following configurations: fairweather open shores; rivermouths with navigable rivers; lagoons on the lee side of elongated ridges, reefs or nearshore islands; and, possibly, coastal lagoonal swamps or basins (Blackman 1982; Raban 1985; 1987; 1991a; 1995b; Frost 1991; 1995). It must be remembered that the depths of such havens were much more modest than might otherwise be thought. For example, the fourth century 14 m long merchant ship that sank in the seas north of Kyrenia, Cyprus, had a draft of perhaps no more than 1.5 m (Steffy 1994: 42-59).\textsuperscript{254} Although no harborworks have been found from this period, it is possible that the actual harborfront utilized wooden wharves, built on pilings, such as those depicted in el-Amarna during the New Kingdom (Davies 1908: pl. V).

Although some debate continues regarding the viability of some of the paleogeographical reconstructions of anchorages, particularly based on rivermouths (Galili 1986: 71-3), enough circumstantial evidence from later periods has accumulated to suggest that amenable conditions existed earlier, when less sand had accumulated along the shore and more riverflow reached the sea, such as at Tel Gerisa.\textsuperscript{255} Recently, an installation constructed of hydraulic pozzolana cement was discovered at the bottom of Nahal Hadera some 900 m from the sea (Sharvit & Galili 1998). Based on technological and architectural parallels from the Herodian harbor at Caesarea, and the presence of

\textsuperscript{253}Note the absence of this type on the Uluburun shipwreck, where twenty-four anchors were found, ranging in weight from 121 to 207.9 kg, and totalling four tons (Pulak 1992: 8; Wachsmann 1998: 281-3).

\textsuperscript{254}This estimate is based on the midship height of the hull's upper wale above the keel, where the full-load waterline is presumed to have been (Steffy 1994: 50, fig. 3-31).

\textsuperscript{255}Shepstone (1937: 266) reports that the mouth of the Yarkon river was an unsatisfactory shelter for the Jaffa port lighters during storms, although he doesn't elaborate on the reasons for this inadequacy.
marine concretion on the concrete blocks, the excavators conclude that it was a quay for small vessels.256

2.9 Ethnographic aspects of east Mediterranean maritime activity

In seeking to utilize pre-modern maritime activity and trade as a means of elucidating ancient patterns of behavior, current scholarship is at a distinct disadvantage. As yet, no synthetic ethnographic research has dealt with the subject, although some occasional references and observations do crop up. The possibility of reed craft has already been mentioned in connection with possible prehistoric shipbuilding. European traveler accounts from the last few centuries, which mention shipping, shipwrecks, and lost cargoes (Wachsmann & Raveh 1984: 235-6), only serve to illustrate the type of cabotage that probably occurred throughout the long maritime history of the Levant.

As much of the remains of ancient maritime trade consists of pottery, both of the utilitarian and seemingly high-profile type, different interpretations of their presence aboard ships or at overseas destinations have been suggested, including piggy-back or sailor's trade alongside more valuable commodities (Artzy 1985a: 140; 1985b: 99), filler within light bulk cargoes (Gill 1988: 2), or as ballast (McGrail 1989). One particularly instructive and humbling ethnographic account concerns the trade in amphorae observed by Mallowan (1939) at el-Boss, south of Banias on the Syrian coast. On this open shore, while Arwadian ships waited at anchor, hundreds of amphorae were laid out on the beach to be traded for donkey loads of sheep dung brought from the hills. The dung was then traded along the coast, particularly at Tripoli, where it was used as fertilizer; occasionally, these ships sailed as far south as Mandatory Palestine. Depending on the class of ship, cargoes of from 200 to 400 or from 1,000 to 1,500 jars were carried, two of which were exchanged for a single sack of dung. To organize this trade, the shippers maintained an agent, who operated a seaside tavern and would inform the herdsman to prepare the dung for the approaching ships. Thus, the distribution of these particular amphorae had nothing to do with their contents, a point that would have been missed in the absence of residue analysis.257 Similar explanations, however malodorous, should be borne in mind when considering ancient pottery distributions.258

Descriptions of early twentieth century lightering ports, such as those at Haifa and Jaffa (Shepstone 1937), provide an illustration of how fairweather open-shore ports may have functioned in antiquity. Oceangoing ships arriving at these ports would anchor at sea and lighters would transport

256 There is extensive literature on the Roman harbor at Caesarea and its construction (e.g., Raban 1993c; 1995b).

257 One may wonder what interpretation might have been offered had one of these ships sunk along with its cargo of pottery and dung sacks.

258 For an instructive account of early twentieth century, CE Aegean pottery trade, see Casson (1938; 1951).
goods to the shore. However, the lack of sufficient shelter for the lighters prompted the construction of the Tel Aviv harbor near the mouth of the Yarkon river. The Egyptian Labor Corps of the British Expeditionary Forces during World War I employed this labor intensive means of transshipment at numerous inhospitable Levantine “ports” ([Lawrence] 1919: 109-110, pls. 44, 52).259

3. By land or by sea?

As the preceding review demonstrates, maritime activity and seaborne communication were a feature of the southern Levantine coast from prehistoric times onwards. Small fishing communities appear to have dot the coastline during the Neolithic and Chalcolithic periods, but only in the Early Bronze Age is there any evidence for cabotage along the southern Levant. By then the speed, cargo potential, and other advantages were realized enough to be fostered and utilized by Egypt. Evidence for the involvement of the southern Levant is indirect, and will require further research and substantiation. Following a hiatus along the southern Levant during the First Intermediate Period/Intermediate Bronze Age, seafaring resumed in earnest, involving Egypt, the northern Levant, and the Aegean, with the southern Levantine shores extensively trafficked. The extent of the impact of this traffic, i.e. the floruit of ports, traded items, and ultimately the settlement landscape itself, are considered next.

259 In colorful fashion, Lawrence described the scene as follows: “No less striking was it to watch the line of laden boats leaving the storeships off the coast and making their way through the surf to the beach, there to be hauled high up by teams of cheerful Egyptians working to whistle signal under their own officers.” Note authors placed in “[ ]” are for works whose authorship is known, but not specifically written.
Chapter 4
The Material Cultural Landscape of the MB IIa Southern Levant

The preceding chapters considered the nature of the long-term relations between Egypt, the Levant, and beyond, detailing the evidence for the terrestrial and maritime means of interaction up to and including the MB IIa period. The discussion now turns to the archaeological record of the MB IIa southern Levant in order to examine the evidence for trade, material prosperity, urbanization, city planning, craft specialization, as reflections of polity, economy, and society. As the material culture of the MB IIa has not been subject to a synthetic treatment since Gerstenblith (1983), the following is partly a review of the evidence placed in its proper geographical and relative chronological framework. Considerable evidence has accumulated in the intervening years, and although much has not reached the final publication stage, it may contribute to elucidating the issues at hand.

The presentation follows the physical geographical subdivision outlined in Table 6. The relative chronology, i.e., the ceramic synchronisation follows the sequence from Tel Aphek (Beck 1975; 1985).260 As this work focuses on the evidence for long-distance exchange, only those pertinent ceramic classes (Levantine Painted Ware, Tell el- Yahudiyah Ware, Middle Cypriot Wares, etc.) are dealt with in detail.

Archaeological epistemology, both in regional and intra-site terms, is a difficulty facing all synthetic studies. Excavations are as much a reflection of the excavator as they are a reflection of the partial record of human habitation. Different historical and archaeological periods attract varied research designs, excavation methods, and sampling strategies; as such the archaeological data set is both incomplete and inherently biased. The southern Levant has been the subject of extensive investigation over the last century. The excavation results are affected by later accumulation, which both destroys and prohibits access to these remains. As major urban sites, such as Tel Miqne, appear to conceal extensive MB IIa remains, and in some lowland areas, several meters of alluviation can cover smaller sites (Orni & Efrat 1971: 86; Gophna & Beck 1981: 52; 1988: 79; Gal 1991b), regional and intra-site assessments should always be considered an underestimate.

Regarding surface survey, which in recent decades has become both a common research tool and a means of cultural resource management, the lack of standardization imposes great limits on the synthesis of survey data, each of which demands critical assessment on a general level (Palumbo 1991: 41-43; Joffè 1993: 5-16; Esse 1991: 128-129), and on a sub-regional scale (Greenberg 1996b: 113-116, fig. 42; Maeir 1997: 3-5, 52-55). For example, the Archaeological Survey of Israel (ASI) has sought to offer a complete coverage of the region west of the Jordan River by parceling the country into individual “maps” of equal size, but with little geographical or archaeological logic to the division.

260Note the differences of opinion regarding the transitionary MB IIa-b or MB IIa/4 (Ward & Dever 1994) and the response by Beck and Zevulun (1996). Note the use of the designation MB IIa-b refers to contexts which either show mixed types, or depart significantly from the criteria for MB IIa/4 as defined by the Aphek sequence. As this period marks the lower temporal bound of this work, the precise assignment is not critical for the present discussion.
These are intended to be pedestrian surveys, but vary according to the approach of each surveyor. When part of a larger research design, some have gone as far as performing shallow probes in individual sites in order to better assess the significance of surface remains (Portugali 1982). In addition, continuous inspection by the Israel Antiquities Authority, formerly the Israel Department of Antiquities and Museums, has documented thousands of serendipitous site discoveries, which are archived, reported in preliminary form in Hadashot Arkheologiyot and Excavations and Surveys in Israel, and which have been collated in the ASI Maps, or in various gazetteers (e.g., Thompson 1979) and synthetic works (e.g., Esse 1991). Survey and site data from Jordan has been collated in a number of gazetteers (Homès-Fredericq & Hennessy 1989) and synthetic works (e.g., Palumbo 1991; Najjar 1992).

1. Northern Coastal Plain

The northern Coastal Plain is bounded in the north and south, respectively, by the Ladder of Tyre ridge (Rosh HaNiqra) and Mount Carmel, the only southern Levantine mountains that reach the sea. This plain is divided by the Hilazon faultline into the Galilee Coastal and Akko Plains. Each half is bounded in the east by the Highlands, respectively, the Upper and Lower Galilee, although the latter is offset to the east, along the faultline, making the Akko Plain the broader of the two. Aeolianite sandstone (called kurkar) ridges and sand dunes characterize the western coastal area of both units, while rich alluvial soils comprise the eastern valley. The former acts as an impediment to lateral movement and to the drainage of the moderately sloped plain. The coastal ridge is not entirely contiguous and has suffered erosion, resulting in alternating rocky and sandy shores, the latter of which often cover ancient water gaps. The formation of beachrock and young kurkar in consolidated sandy beaches and dunes makes their investigation and paleogeographic reconstruction difficult. With properly maintained drainage the eastern valley served as an excellent agricultural base for field and other crops.

The hills surrounding the Coastal Plain were sources of building stone, wood, intermontane valley agriculture, and a preferred location for orchards, olive groves, and vineyards. Water was available from both perennial and annual rivers, springs, the high coastal aquifer, and precipitation (600 mm near the shore and 750 mm in the nearby hills). The western Galilee coast is segmented by numerous rivers that reach the sea independently, while only two rivers, the Na’am and Kishon, drain the tributaries of the the broader Akko bay.

Prior to the MB IIa period, BA settlements were located primarily on the inner portion of the Coastal Plain. Some IBA remains were found at MB IIa sites and along the margin and in the

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261 Apart from specific references this section relies a number of general works (Orni & Efrat 1971; Karmon 1971; Aharoni 1979). All altitudes are assumed to be above mean sea level (msl), unless otherwise indicated.

262 This description is derived from a number of sources (Esse 1991: 1-14; Frankel & Getzov 1997: 9*-11*).
highlands of the Galilee. MB IIa sites were established on topographical rises both on the coastal and inland kurkar ridges and amidst the inland alluvial plains (Table 6.1).

1.1 Akhziv

The site is located on the western coastal kurkar ridge near what may have been the largest bay north of Akko. This bay, perhaps more than any other reason, accounts for the importance of Akhziv from the MB IIa period onwards (Prausnitz 1993; Raban 1985: 18-9; 1986). Unfortunately, excavations and surface investigations only permit a general assessment of Akhziv's role as a port.

1.1.1 The Settlement and fortifications

What little is known of MB IIa Akhziv is limited to its fortifications and a number of unpublished tombs (Prausnitz 1975; Mazar 1993). The fortifications are typical MBA sloping ramparts that enclose an area of ca. 7 ha. As no investigations were conducted on the sea side, it is not certain whether it was similarly fortified. According to the excavator, a fosse was excavated on the eastern side to connect Nahals Keziv and Sha’al, which enter the sea to the north and south of the site, respectively, thus creating a city that was completely surrounded by water (Prausnitz 1975: 205).

Based on the latest ceramic material in the rampart, Oren (1975) dated its completion to the MB IIa-b period, but did not clarify whether he is referring to the transitional period or to a time spanning both phases. Although there is no disputing the MB IIb date of many of the component layers, including much of the rampart and revetment, there are two reasons for suggesting that the initial fortification of the site may have been earlier. First, there are the MB IIa ceramic forms, which establish that the site was inhabited during this period. These forms are represented, particularly, in the assemblage associated with the rampart's brick core (Oren 1975; Prausnitz 1975: fig. 3). While it is true that many of the forms continued to be used during the MB IIb period, only one example, a flaring carinated bowl, is exclusive to the latter phase (Oren 1975: fig. 2:27). Second, the preliminary report shows clearly that the excavator, following a commonly held opinion, perceived the entire construction as a single organic entity and, in light of the ceramic analysis, did not even consider that the various components could belong to separate chronological phases (Prausnitz 1975: 209). Examination of the published section of the brick core suggests two separate construction phases, built using two different brick types. Unfortunately, the ceramic finds from these two phases are not presented separately. As to its function, no explanation is given why a 6 m wide core is “too wide” to have been a wall, or why its foundations are too low to support a wall that crowns the rampart (Prausnitz 1975: 208). In this limited excavation, subsequent erosion and construction have clearly obscured the area above the brick core and the rampart layers are nowhere shown to go over the core. Rather, the “core” appears more likely to have been a free-standing wall whose foundation is lower than the rampart because the core preceded, and was independent of its sloping layers. From the limited information it is not at all clear

263The existence of this water filled fosse may have been the impetus for the construction of a stone revetment at the base of the rampart (Prausnitz 1975: 207-8, fig. 3).
that the excavators reached the base of the brick core, or the earliest layers of the rampart. That the core, or its earlier phase, served as a wall might be inferred from the Prausnitz's remark (1975: 207-8, fig. 3) that the decomposed edges of the bricks were to be attributed to water erosion. If his observations are correct, they strengthen the notion that at some point the wall was free standing, as it is difficult to imagine such erosion occurring on a buried surface. Until further excavations are carried out, these issues will remain unresolved, but the evidence strongly suggests an earlier date for the initial fortification.

1.1.2 Akhziv's anchorages

Raban's (1986) study of the maritime installations in the area of Akhziv reveals a complex and long history of activity, part of which may be associated with the Middle Bronze Age. Of particular interest are the rock-cut features that provide artifactual evidence for maritime activity and sea level changes. The most important of these features is the artificial outlet of Nahal Keziv, north of the tell. At first glance this channel seems to be a natural outlet, as Prausnitz (1975) assumed. Geomorphological investigations demonstrate that the present outlet of Nahal Keziv, which drains much of the western Galilee, is a relatively recent phenomenon (Bowman 1972: 25-6, fig. 9; Raban 1985: n. 49). The original outlet is to the south of the tell, where the river meets the lesser Nahal Sha‘al and forms a 330 m gap in this kurkar ridge. This considerable water gap was formed by Pleistocene riverflow that prevented the consolidation of the ridge. In contrast, the present day outlet has no such gap, and the channel—a mere 25 m across—is only a low saddle in the ridge. In addition, the relatively limited amount of sediment at the modern river outlet is considerably less than would be expected for a rivercourse in use since the Pleistocene period. The river course was apparently artificially diverted at some time during the Holocene period.

Raban (1985: 18-9) has extrapolated on this interpretation and suggests that as sea level rose, the southern gap served as a natural river mouth bay. He associates the diversion of the river with the MBA fortification of the site. During this period, the deserted course to the east and south was deepened (Prausnitz 1975), providing material for the rampart, and serving as an inner anchorage for ships entering the bay. The hewing of the channel through the ridge to the north completed the fosse component of the fortification system and diverted a potential siltation agent away from the inner anchorage and the bay. Nahal Sha‘al, which has a much lower gradient and carries less sediment, continued to flow unimpeded into the sea via the bay. Evidence that an open bay existed can be found in the presence of stone bollards for mooring ships on the northern edge of Minet ez-Zib, where an MBA cemetery existed alongside other rock-cut installations (Raban 1986: 233; Mazar 1993). Other eroded bollards are found on the rocks to the west of the tell. With the stabilization of sea level, natural longshore transport began to form a sand bar at the mouth of the bay and silt it up. When the natural or diverted riverflow, and possible dredging, eventually failed to prevent the blocking of the bay,

264 Evidence from other sites, such as Akko and Dan, suggests that these massive and complex constructions evolved in stages, some over cores that may have been free-standing walls.
according to Raban, a rock-cut channel was hewn on the southwestern side of the tell to allow access to what remained of the anchorage. Dating this sequence of development is not yet possible, but clearly the northern channel, and hence the diversion of the river, was constructed with the MBA fortifications in mind. If the reconstruction is correct, then apart from the ca. 400 m seafront at the western foot of the tell for use during calm seas (Prausnitz 1975: 203, fig. 2), a bay of ca. 9.9 ha would have existed. Further excavation and geomorphological investigation, particularly in the southern bay, are needed to elucidate the history of this port.

1.2 Kabri

Investigations at Tell Kabri have attracted wide interest in particular as a result of the discovery of a MB IIb period palace with a decorated floor and fragments of a miniature wall painting, both inspired and executed in buon fresco by Aegean artists (Niemeier, et al. 1991; Niemeier & Niemeier 1992 and biblio.). The importance of Kabri during this period cannot be understated. With a rampart-encircled area of approximately 32 ha, a palatial complex covering an area at least four thousand square meters, and foreign connections with nearly the entire eastern Mediterranean (e.g. Lebanon, the Aegean, Egypt and Cyprus), this clearly is one of the most prominent sites of the Coastal Plain excavated to date (Kempinski 1993b). Its zenith in the MB IIb period, however, should not obscure its importance during the MB IIa period.

1.2.1 Environment and economy

Numerous physiographic factors affected the economy and history of Kabri including lush water sources, a catchment area near a highland-lowland border, its location astride a major land route, and its proximity to two ports: Nahariya and Akhziv. The preliminary reports of the Kabri expedition permit some observations to be made of the economy and paleoenvironment.

1.2.1.1 Water sources

Four major springs exist in the immediate vicinity of the site, and the importance of each one in different time periods is suggested by their spatial relationship to the site (Tsuk 1990). The temporally specific utilization of these aquifer-supplied springs could be the result of changes in the amount of water flow resulting from climactic shifts or local tectonic activity (Horowitz 1987; Tsuk 1990). An important change in water use occurred at the end of the MB IIa period, when the site underwent an urban reorganization. With this reorganization, ’Ein Shef’a, which today supplies more than half the of the available water in the region, was included within the confines of the city (Tsuk 1990),

265 This calculation is based on the length of the bay (N-S) being the distance between Akhziv and Minet ez-Zib, 330 m, and the width being that of the site ca. 300 m.

266 Other than pottery, no other artifacts are published from Akhziv. Among these are MC imports, albeit of MB IIb attribution (Prausnitz 1975: 210; Oren 1975: 221). Maguire (1990: fig. 17) reports the presence of MC WPPL style ware.
According to calculations made by Tsuk (1990: 6), this spring would have supplied 18 times the requisite water for the estimated number of inhabitants and their livestock. This water was an enormous advantage during times of siege, and normally the excess may have been drained via channels, or perhaps sewers, into the fields to the west of the city (Tsuk 1990: 6). *Ein Giaˁ*, which was intentionally excluded from the city by a break in the symmetry of the urban plan, could have been utilized for the irrigation of the eastern fields (Tsuk 1990: 6). These springs were critical as the nearby rivers are mostly seasonal (Horowitz 1987).

1.2.1.2 Agriculture, horticulture and herding

Kabri is situated on an extension of Cenomanian dolomite that is surrounded by rich alluvial soil, near the border of two phytogeographical zones characterized by Mediterranean Hill and Lowland vegetation. The former rises gradually to the east on the chalk and limestone hills of the Western Galilee and offered the inhabitants a source of wood (Lipschitz 1987; 1988; 1992; 1994), pasture for flocks and wild game (Weinstein & Helving 1988; Kishon & Helwing 1990), and a convenient landscape for their vineyards and olive groves (Horowitz 1987: 7). The considerable presence of olive wood and some stones provides evidence for oleaculture (Lipschitz 1994: *58, *62, table 2). Flocks appear to have been an important component of the economy. The ovicapridae from various contexts, which range between sixty-six to eighty-two percent of the MBA faunal sample, are characterized by ninety-five percent adults and a four-to-one ratio of sheep to goats (Weinstein & Helving 1988; Kishon & Helwing 1990), which suggests the exploitation of secondary products of milk and wool. Comparable species representation is reported from MB IIb remains from Emek Rephaim and Tell Jemmeh (Horwitz 1989; Wapnish & Hesse 1988), although age breakdown varies at the latter.

The lowland around the tell extending from the foothills westward is well suited for the dry farming of seasonal field crops, e.g., grain and vegetables, supplemented by irrigation from the ample springs. Evidence for agricultural activity is furnished by the contemporary lithic blade assemblage (Hershman 1990). As in most areas of the coastal plain, the low gradient and physical obstacles impeded drainage and the “blessing” of lush water sources had to be controlled in order to prevent the formation of swamps. Maintenance of the landscape depended on a strong central authority. The contribution of cattle and, to a lesser extent, equids to ploughing and landscaping can perhaps be inferred by their presence in the material record. Cattle comprise 13% of the general MBA remains (equids less than 1%) and ca. 15% of the assemblage from MB IIb palace (Weinstein & Helving 1988: 65; Kishon & Helwing 1990: 48). Of the latter, 99.07% were of adult or aging individuals (Kishon & Helwing 1990: 48), suggesting that they were also being exploited for more than their meat and hide.

Analysis of the lithic remains indicates that the assemblage is dominated by a limited range of flake tools. Hershman (1990) notes that sickle blades are made of superior raw materials that are absent in the local debitage, suggesting exchange with an unknown specialized production center. She further suggests that the high percentage of sickle blade tools in the assemblage indicates that during this period metal forms were already replacing the variety of flint tools that had been available (Rosen 1984).
i.e., milk and physical strength. The consumption of wine or beer is suggested by the presence of bone strainer (Maeir & Garfinkel 1992; Kishon & Helwing 1990: 49, fig. 23:3).

1.2.1.3 Communication

Kabri sits on the coastal highway, running at the base of the foothills of the Western Galilee, leading from the Akko Plain to Lebanon (Kempinski 1986). The principal lateral road was along the course of the Ga`aton river, which connected the site with the port of Nahariya. Diagonal routes may have existed to the port of Akhziv or the Lokhamei HaGetaot site (Dorsey 1991: 87-8, map 3). The current absence of material evidence for a nearby highland population precludes any attempt to suggest additional axes of interaction or areas of utilization. The limited presence of equids noted above may not necessarily be representative, but rather a result of the nature of the contexts/middens that have been excavated and reported thus far. At Emeq Rephaim, adult equids represent 8.3% of the assemblage (Horwitz 1989: fig. 2). Further, it is noteworthy that although two equid burials are reported from Tell Jemmeh, no disarticulated remains appeared included in the faunal analysis (Wapnish & Hesse 1988: 83). Lastly, the presence of fish and molluscs in the faunal assemblage indicates contact with the coastline communities (Weinstein & Helving 1988).

1.2.2 Summary of MB IIa remains

Following an extensive EBA sequence that ends in the EB III period, Kabri appears to have been abandoned until the MB IIa period (Kempinski 1990a; 1993b; Table 7). No conclusive evidence of an IBA occupation has been found on the tell apart from some equivocal sherds from previous sondages (Kempinski 1987a: 15-6; Giveon 1988: 12, IV). In light of the fact that the EB III remains were “shaved” off (Kempinski 1990a), and are represented by quantities of sherds alone, it is possible that this was also the fate of the IBA remains. However, within the confines of a Roman-Byzantine cemetery, one kilometer east of the tell, a single IBA tomb is reported (Getzov 1995).

Excavations so far suggest that the nucleus of the MB IIa settlement was on the remains of the EBA tell on the northern half of the site, but much of this was apparently shaved off along with earlier levels during the late MB IIa urban reorganization or during Ottoman times (Kempinski 1989c: table 1, fig. 1; 1994: *2). The earliest phase is represented principally by tombs 990, 1045, and 1050 in Area B, and various robbed walls (Kempinski 1989c: table 1; Gershuni 1989; Scheftelowitz 1990). With the construction of the earthen ramparts in a later phase of the MB IIa, Kabri underwent a major physical and administrative reorganization that culminates in an urban area of 32 ha. The result was an adaption of a Syrian-Mesopotamian geometric plan—oval in this case—with four gates, each to a different compass point, which enclosed a spring and a palace arranged on an axis between two gates (Kempinski 1992a). Domestic and industrial levels appear to have been located initially on the inside of the rampart (Area C), while the absence of such levels in Area B suggests that the central area of the city was initially empty and was only filled in later (Kempinski 1989c). On the other hand, these areas may have been destroyed by later landscaping or cultivation (Kempinski 1989c). Limited probes
under the monumental palace in Area D and more extensive remains excavated in Area F, 20 m to the
southeast, suggest the existence of a public or palatial precinct during the MB IIa period (Kempinski &
Niemeier 1993; Garfinkle & Peilstöcker 1994: *12-*3).\textsuperscript{268} Tombs in Areas B & C2, which were built
in this phase, continued to be used during the MB IIb period (e.g., T.498 & T.984), which attests to the
continuity in burial custom and, by inference, population (Kempinski 1989c; 1990b).

1.2.4 Pottery finds and evidence for production

Petrographic analysis of the MBA pottery provides a basis upon which some discussion can
be made of production, trade, and influences. To date, a number of pottery classes have been thin-
sectioned and analyzed including a LPW jug and juglets, TEY juglets, “Anatolian” cut-away neck
jugs, a purported imitation Cypriot bowl, and a red-burnished trefoil jug (Goren 1989b; 1990a). In
addition to the petrographic evidence, a series of oval mudbrick installations found in Area C2 may
have served as pottery kilns, although conclusive evidence for their function is still lacking (Miron
1989).

1.2.5 LPW, TEY, MC, and “Anatolian” cut-away neck vessels

Seven examples of LPW jugs and juglets, and two handleless jars were found in T.990,
T.1045, and T.1050 (Gershuni 1989: fig. 14; Scheftelowitz 1990: figs. 17-8). The decorative motifs
include multiple horizontal lines, pendant decorations around the neck, and paint strokes on the handle
and rim.

Three TEY juglets were found in the second phase of T.984 (Kempinski 1990b: fig. 19:5-7).
A single WP IV jug comes from the second, and principal phase of T.984. Eight MC sherds were
found in Area C2 in a mixed context whose latest ceramics date to the MB IIb period (Maguire 1987;
Miron 1987: 56-58). A small hemispheric bowl from T.1050 is thought to be an imitation of a Cypriot
bowl (Scheftelowitz 1990: 30, fig. 18:3); petrographic analysis shows it to be similar in composition to
the LPW jugs (Goren 1990a: table 1).

Twenty examples of “Anatolian” cut-away neck jugs or juglets have been published from
Kabri, primarily from MB IIa tombs that continued into the MB IIb period.\textsuperscript{269} Kempinski (1989d:
31, X) considers this type to be principally a northern Levantine ceramic family that is distributed as
far south as the Akko Plain, but whose distinctive incised three lines at the base of the neck are a local
incarnation of an Anatolian decoration.

\textsuperscript{268}Assuming an orthogonal plan, examination of the combined top plans for Areas D and F
(Kempinski & Niemeier 1992: fig. 8) suggests a total area of nearly 3000 m\textsuperscript{2}, and this is without any
discovery of clearly external walls.

\textsuperscript{269}These include three examples in T.503 (Miron 1988: fig. 17:4, 5 & 7); twelve examples
from Phase 1 of T.498 (Kempinski 1989d: 31-2, fig. 16:5-9); two fragments from phase one and three
complete examples from Phase 2 of T.984 (Kempinski 1990b: 32-3, fig. 19:9-11); and two
fragmentary neck/rims from the surface (Kempinski 1987b: fig. 9:8-9).
1.2.6 Bronze and silver finds

Only two bronze objects can be assigned with certainty to the MB IIa period, a duck-bill axe from T.990 and a toggle pin from T.1050 (Gershuni 1989: 14:2; Scheftelowitz 1990: fig. 18:6). Two other pins were found in an MB IIa-b phase of T.984 (Kempsinski 1990b). In addition, thirteen bronze toggle pins were found in T.498, which spans the end of the MB IIa through the MB IIb periods, but they are not assigned to a precise phase (Miron 1989: 29; Kempsinski 1989d). Nonetheless, they are metallurgically consistent with objects of the MB IIa period (Shalev 1989).

There is no direct evidence to indicate whether these items were produced at Kabri, although an argument might be made based on the lithic assemblage that metal tools were readily available to the population. Whether the installation discovered in Area C2 is in anyway related to metallurgy awaits further analysis and publication. Apart from bronze the only other metal found is a silver bracelet from T.1045 (Scheftelowitz 1990: 29, fig. 17:8).

1.2.7 Beads

Almost all of the beads found at Kabri in MB IIa contexts were made of imported materials, if not imported as finished products (Avidor 1991). These include one of faience (T.984) and one of carnelian (T.1050). Three other beads of faience and two of amethyst from T.498, and a serpentine bead from a working surface near one of the installations in Area C2, may also date to the MB IIa period.

1.2.8 Cylinder Seal

A hematite cylinder seal from T.984 is of a Levantine style that preceded that of the “Aleppo School”, represented by Alalakh Stratum VII, which began towards the end of the eighteenth century (Kempsinski 1993c). Depending on whether it is associated with the incipient or a later phase in this tomb, the seal offers a date in the late nineteenth or early eighteenth century for either the MB IIa/3 or MB IIa/4 phases.

1.3 Nahariya

Although published incompletely, the MB IIa sites in the vicinity of modern Nahariya, the ancient port at the mouth of the Ga’aton river, and the temple-industrial complex to its north, are all

270 Analysis of the duck-bill axe shows it to be leaded tin-bronze (Shalev forthcoming).

271 Six of these toggle pins were analyzed and shown to be made with little uniformity and low quality, which suggest that their origin should be sought in remelted scrap (Shalev 1989: 43-4, table 1). The amount of tin varies from a trace of 0.1% to a slight addition of 6.1%. Of particular interest is the large amount of arsenic, 0.5% - 4.2%, which may suggests a continuity of the local pre-MBA tradition of using arsenical copper ores for metalwork (Shalev forthcoming).

272 The bead was found in L.518, near the mouth of the earliest installation (Miron 1989: 24-7, 49, figs. 7, 8), which is assigned to the MB IIa period (Kempsinski 1989c: 3, II).
important in understanding the external relations of the northern coast of Israel. In the absence of a proper integrated final publication, much of the data for both sites is unevenly reported in preliminary communiques that do not always provide attributions for many of the finds. For its time, Ben-Dor's (1950) publication of the temple-industrial complex provides a reasonable stratigraphic framework with associated finds. While the subsequent excavations by Dothan (1993a and biblio.) clarified the development of the temple complex, the publication lacks a clear attribution of the finds.

1.3.1 Environment and economy

Both the settlement and the temple-industrial complex are located in the coastal dune zone on the same kurkar ridge. Although the investigation of the Holocene paleogeography of the overall region is still incomplete (cf. Sivan 1996), a river anchorage is likely for the lower Ga’aton river, upon which the main settlement was based. However, this river might at one time have entered the sea at an alternate anchorage not far from the northern temple complex (Raban 1986: 219; Yogev 1993: 1088).

1.3.2 The settlement

The accumulation of sand and extensive modern development has obscured Tel Nahariya, both in the past and present. In the past, the lack of any visible tell amidst the considerable sand dunes accounts for the lack of an Arabic name or any note of its existence following modern settlement in 1938 (Ben-Dor 1950; Yogev 1993: 1088). With the aid of aerial photographs, chance finds, and salvage excavations within the modern city, the estimated extent of settlement and an outline of its history can be made. The MBA settlement was concentrated on the upper northern area of the mound, ca. 3 ha, on the coastal kurkar ridge adjacent to the southern bank of the the Ga’aton rivermouth (Yogev 1993: 1088-9, fig.). Three phases of MB IIa habitation were uncovered, of which the earliest is characterized by red-slipped pottery, which declined in the later phases in favor of painted monochrome and bichrome wares. The chance discovery of a duck-bill axe, possibly from a tomb, belongs to this period (Miron 1992: 53-9). An MBA cemetery may have existed to the southeast of the settlement on one of the kurkar hills (Maier 1986: 336, fig. 1).

1.3.3 The temple and workshop complex

This complex, covering an area of ca. 764 m², is located on a kurkar hill 800 m north of the settlement near a now submerged spring, and was investigated by two separate teams that identified it as a temple and workshop (Ben-Dor 1950; Dothan 1993c). The rectangular building and its additions were in use primarily during the Middle Bronze Age, but some ceramic finds (i.e., four-spouted lamps and band-combed storage jars) indicate an association with the IBA culture (Ben-Dor 1950: 29, 39). The lowest of the seven floor phases (7-5) and pre-floor deposits should be attributed to the MB IIa period along with scattered finds in the dump on the northern slope outside the structure. The area to the south of this structure includes a square building, perhaps a temple, and a circular platform, which was identified as an open air bamah or cultic precinct (Dothan 1993c and biblio.). The five phases
arranged in three strata are synchronized in Table 8 following Dothan (1993c: 1092 and table). The first and part of the second stratum should be assigned to the MB IIa period (Dothan 1981). The large numbers of miniature vessels included incense burners, deposits of metals, and figurines (complete and scrap) that were arranged around and within the structures, and have been interpreted as being the offering or ex votos of a ritual precinct where metal and perhaps ceramic production were carried out.

1.3.4 Pottery finds and evidence for production

No direct evidence for pottery production has been discovered in the area of the northern complex, and only two examples of pottery have been analyzed. Based on the large quantities of similar specialized wares (e.g., seven-cupped bowls), and the presence of a clay kiln stopper, Dothan has suggested that there was a ceramic workshop at this locale (1991; Singer-Avitz & Levy 1992: n. 6).

13.5 LPW, MC, and TEY vessels

Yogev (1993) reports that painted wares, both monochrome and bichrome, dominate the repertoire of the final two MB IIa phases at the settlement. This may correspond with the northern complex where LPW handleless jars and juglets range from the earliest to latest MB IIa and transitional MB IIa-b phases. Only two have a stratigraphic attribution: a bichrome band-painted handleless jar, containing silver and bronze scrap, was found buried in the bedrock and belongs to Phase 5, and a LPW juglet was found in Phase 3-4 (Dothan 1981: 74-76, figs. 1-2). An additional LPW juglet, without any precise attribution, apparently belongs with Dothan's Phase B (1956a: 19, fig. 8). Besides stray painted sherds, a miniature LPW juglet and a handleless bichrome jar were found by Ben-Dor (1950: 39, figs. 16:325, 47, pl. VIII), but no precise attribution within the complex is given.

Two cut-away necks of juglets made of a green buff ware are identified as Cypriot by Ben-Dor (1950: 31, fig. 25), but they lack any stratigraphic attribution. Since Ben-Dor's publication these artifacts have not been re-examined. Alternatively, they may be of northern, perhaps Anatolian, origin or inspiration (Miron 1988: 24). Nine fragmentary examples of TEY juglets were reported from locus B and level 7 (Ben-Dor 1950: 31-2, fig. 26a, c, pl. IX:30).

1.3.6 Egyptian and Egyptianizing Objects

The neck and rim of one juglet is decorated with an appliqué monkey, whose hand covers its eyes (Dothan 1956a: 22, pl. 3F). Typologically, this vessel has an MB IIa-type gutter rim, while the application is of Egyptian inspiration (Gophna & Beck 1981: 64). A design scarab set in a silver ring from Dothan's excavation (1956a: pl. 3:D) is not specifically assigned to Phase A of the complex (contra Weinstein 1975: 2-3, nn. 25-6), but may still be an MB IIa find.

1.3.7 Metal production

The absence of any metallurgical analyses of the metal finds precludes any detailed discussion of metal production at the Nahariya workshop. While no metallurgical installations were found, from
the sheer quantity of both finished and cut metal objects (i.e., scrap), the considerable ash at the site, and the presence of casting molds, it is reasonable to conclude that metal production was a principal feature of this site.

13.8 Bronze finds

At least sixteen figurines and two tools were found at the temple-workshop complex. Although many more unpublished objects can presumably be attributed stratigraphically or by analogy to the MB IIa, this tally represents those objects that have secure attributions provided by the excavator or by the subsequent study by Negbi (1976). In addition, a duckbill axe was found in the settlement (Miron 1992: 53-59). Analysis shows it to be a tin-bronze alloy with less than one percent each of lead and arsenic (Miron 1992: 98, table 1).

13.9 Silver and gold

Five silver figurines and a bead from the temple - workshop complex are published. As with the bronze finds, these represent a small portion of the presumed quantity of finished and scrap silver. The presence of gold jewelry is mentioned by Dothan (1956a: 20), but without any details.

1.3.10 Semi-precious stones

Both Ben-Dor and Dothan mention large quantities of beads made of a variety of semi-precious stones, as well as other materials from the earliest phases at the temple-workshop complex. Thirty-seven beads made of agate, crystal and carnelian were reported from the deposits below floor VII (Ben-Dor 1950: 40). These same raw materials along with amethyst and pink chalcedony are also mentioned, either as beads or figurines, but no details are provided (Dothan 1956a: 20-2, pls. III-IV).

1.4 Akko

At the northern end of the Bay of Akko/Haifa, the ancient hill beneath Tel Akko was chosen for settlement because of its relative proximity to a lush agricultural zone, but, more importantly, because of its position near one of the best anchorages in the bay. The long habitation of this site and its political and economic importance throughout history attest to the wisdom of this choice (Dothan 1976: 1-3; 1993a). These factors led to Akko becoming one of the primary ports for the entire
southern Levant, serving a hinterland that extended far beyond its immediate environs and into the Galilee hills and Jezreel valley. Today, however, Tel Akko reveals little of its ancient topography and, in fact, sits some 700 m from the sea. Archaeological excavations and geomorphological studies, both on the tell and in the area towards the west, where the Hellenistic and later cities thrived, provide a picture of a very different geographical setting.

1.4.1 Environment and harbors

The site was established on an isolated kurkar hill, which is disconnected from the southernmost extension of the Evron ridge and 500 m north of the faultline that marks the northern edge of the Haifa Bay graben (Inbar & Sivan 1984: fig. 1). Geomorphological investigations suggest the following reconstruction of the paleogeography (Inbar & Sivan 1984; Raban 1991b):

1) The Holocene sea level rise inundated the area to the west of the Evron ridge, flooding the lower course of the Na’aman river, which flowed just south of the tell. Raban (1991b: 31*-2*) suggests that the sea actually filled the topographical depression on the south side of the tell, as indicated by the presence of marine abrasion platforms, which persisted into the Late Bronze Age. The underlying bedrock of Crusader Akko, which is now connected to the shore, was then an exposed island surrounded by water.

2) The rise in sea level increased sediment transport and deposition in the area of the tell. The sand deposited in the low energy environment to the lee of the kurkar island created a sandy spit or tombolo and began the formation of the present peninsula, which split the inundated area into two separated bays, south and northwest of the tell (Inbar & Sivan 1984: fig. 8).

3) Increased sand transport continued to silt up this area, but this effect may have been ameliorated by dredging and excavation. Such clearing efforts may be indicated by the large volume of sand in the final rampart phase of the site (Raban 1991a: 138; Raban 1991b: 35*). Radiocarbon determinations of organic material from the lagoon and archaeological evidence indicate that the area between the tell and the Crusader city was a marine environment that only became dry land during the Persian period (Inbar & Sivan 1984: 89).

Very little is known of the agricultural economy of the site; in light of its paleogeography, it is clear that much of the immediate area to the south and northwest was unsuitable for cultivation. Akko's agricultural hinterland lay to the southeast and northeast, respectively, in the fertile plain and east of the kurkar ridge.275

275A single example of olive wood, representing 7.7% of a MBA sample, is insufficient evidence to suggest extensive oleaculture (Lipschitz 1987: 143), although such a pursuit may have been a feature of the nearby hills.
1.4.2 Settlement and fortifications

Excavations have revealed a complex sequence of six MBA phases of development (Raban 1991b; Table 9). These fortifications have been studied principally in areas to the north (Area B), the northwest (Area F), and to some extent in the south along the topographical depression (Area P).

In Area B, the earliest phase of the rampart was constructed of fine clay and carbonized loam and is crowned by a course of kurkar, which served as a structural foundation. Infant burials from this phase date it to the MB IIa period (Raban 1991b: 20*; Dothan 1990: 150). The second phase was composed of layers of loam, clay, crushed kurkar, and sand that was poured between mud and lime-plastered cross walls. A brick wall with shallow bastions and a staircase was constructed on the base of the inner slope, perhaps as a line of defense.277 This wall continued in use during Phase 3 when the inhabitants laid layers of loam with embedded kurkar slabs. In Phase 4, the last MB IIa rampart was composed solely of loam-sealed sand, and was constructed against a large 15 x 15 m brick structure, perhaps a citadel.

Excavations in Area P, at the southwestern point of the topographical depression that breaks the regular plan of the site, revealed only a single clay-covered sand rampart of Phase 4 sitting on bedrock. At this point in the line of the city, the rampart turns to the northwest following the line of the depression. A stone built potterna, 1.3 m high and 0.6 m wide at its base, was constructed inside the sand layer on the southern side of the rampart and was in use through the end of the Middle Bronze Age (Raban 1991b: 29*, fig. 12). In contrast to the excavator's suggestion, its size precludes it being a true passageway and it may instead be part of a sewer system.

The mudbrick gate in Area F, which is constructed on the clay rampart of Phase 1, was in use during Phase 2, but was dismantled and covered by the rampart of Phase 3. One additional rampart of Phase 4 is found in this area. Pottery from the last floor of the gate belongs to the middle of the MB IIa sequence. The gate has been termed the "sea gate" of the city as it is presumed to have led to the northwestern bay (Raban 1991b). Given the aforementioned paleogeography this does not seem implausible. Examination of the city plan, however, reveals that the idealized plan of the site is an ovoid polygon. The remains of a possible MB IIa gate in Area P run east-west (Raban 1991b: 29*-31*, fig. 13), but its precise construction and identification requires further study.

Although very little of the actual settlement levels have been exposed, the evidence published thus far suggests two principal stages in the city's evolution (Raban 1991b: 31*-2*). The initial fortified settlement was on the northwestern half of the original hill. Towards the end of the MB IIa period, the city expanded towards the south and east, forming the kidney shaped mound visible today.

276 Plastered walls suggest that they were designed to stand open and only later filled in by the rampart.

277 This type of arrangement is very similar to that found at Kabri (Kempinski 1991b: 24-5, fig. 10).
1.4.3 MC, TEY, and “Anatolian” cut-away neck vessels

A considerable quantity of MC pottery was found, but the precise number and stratigraphic context are unknown. In her study of MC chronology, Saltz (1977: 57) reports over two hundred examples, but to date only seventeen have been published of the following types: WPPL, WPCL, Composite ware, WP Framed Caduceus and other indeterminate examples (Dothan 1976: 9, fig. 8-10; Johnson 1982: 50). This material originated in the rampart fill, but its precise attribution the MB IIa period is unsubstantiated. In Area F, a few MC WP sherds and a single TEY sherd of an 'early type' were found (Raban 1991b: 25*), but no drawings are available.278 A single “Anatolian” cut-away jug was found in an unpublished late MBA intramural tomb (Artzy 1986: 12, 41), but may be an heirloom.279

1.4.4 Egyptian or Egyptianizing finds

An infant burial jar was found on the inner slope of one of the MB IIa ramparts in Area B. It is incised with two Egyptian signs that mean, respectively, “child/infant” and “jar” (Dothan 1990).280 The head of the infant was laid against a pierced stone, perhaps a fishing net weight. A single scarab of Senusert II was found on the surface of the site (Giveon 1967: 34). Other unpublished MK scarabs, alabaster, and Egyptianizing finds are reported from MB IIa-b intramural tombs (Artzy 1986: 14-6, 43).

1.5 Tel Bira

East of Tel Akko, up Nahal Hilazon, on the edge of the hills in the northeastern corner of the lush fields of the southern Akko Plain, Tel Bira (Bir el-Arabi) commands a position on the inner road of the Coastal Plain. An additional road may have led latitudinally into the highlands to the east (Dorsey 1991: 161). Only limited salvage excavations have been carried out at this 20 ha site, which is enclosed by a MBA rampart (Prausnitz 1993). Of particular interest is the presence of IBA remains on the bedrock and associated tombs, which may have been re-used in the MB IIa period (Prausnitz 1993). In addition, the floor of a courtyard house contained an IBA teapot along with ceramics of the MB IIa, providing evidence of a degree of contemporaneity between the two periods (Kempski 1991a: n. 8). A WPPL jug is illustrated, but its precise context is unknown (Prausnitz 1993).

278Neutron Activation Analysis of fourteen examples show that they can be divided into two chemical groups (Dothan 1976: 9). A similar division was found in analysis of material from Kalopsidha in Cyprus, a site which provides the best chemical fit for the Akko material.

279A photograph of this vessel adorns the cover of Michmanim, vol. 5 (1991). Kempski (1992c: 171, fig. 6) considers it and a similar example from Tell el- Ajjul to be imports from Byblos.

280Petrographic analysis by Y. Goren demonstrates the jar to be consistent with manufacture in the immediate area of the site as well as parts of the Upper and Lower Galilee (Dothan 1990: 148, n. 3).
1.6 Khirbet Kurdaneh (Afek)

Situated upriver from Akko at the source of the Na’aman river, Khirbet Kurdaneh is on a limestone hill that rises some 30 m above the alluvial plain. Although still not systematically surveyed, preliminary examination indicates a 2 ha site, which was fortified with a rampart and inhabited as during the MB IIa period (Maisler 1939). This habitation may have been founded on an earlier EBA settlement. A number of chance finds include a duckbill axe (Maisler 1939; Miron 1992: 54; Yogev 1985: 105), a MC WP juglet (Åström 1966: 81, n. 20), and a TEY juglet (Kaplan 1980: 84a; Maisler 1939).\footnote{X-ray fluorescence, a semi-quantitative analysis, indicates the axe is made of leaded tin-bronze (Shenberg 1985).}

2. Carmel Coast

The Carmel Coastal Plain is bounded in the north by the eroded cape of Mt. Carmel, in the south by Nahal Taninim, and in the east by Mt. Carmel; the plain gradually broadens from north to south. The plain is divided by three \textit{kurkar} ridges into a series of troughs, the eastern valley being the broadest. The western zone is characterized by these ridges and by sand dunes, while the troughs contain primarily alluvial soils, often overlain by sandier soils. South of Athlit, the coastal ridge is partly eroded and submerged, forming large sandy stretches of beach, broken up by rocky shores and peninsulas. North of Athlit, the two westernmost ridges are submerged and the eastern ridge is at the backshore of a long unprotected sandy beach. In this region, the \textit{kurkar} ridges and dunes caused marshy environments (e.g., the Kebara swamp), which were alleviated by both natural and artificial outlets (Nir 1959; Botrimovitz 1971; 1988). In terms of potential resources, the Carmel hills served a function similar to those of the Galilee. Water was available from the coastal aquifer, some annual rivers, and precipitation (450 mm near the shore and 600 mm in the nearby hills). Lateral movement inland towards the mountain passes (and Jezreel Valley) was somewhat restricted by the eastern ridge; the main longitudinal movement followed these ridges or, presumably, the foot of the Carmel.

Apart from some isolated BA sites, the Carmel Coast was sparsely inhabited prior to the MBA (Gophna & Portugali 1988). During the IBA, the mountain margins were preferred, although some ceramic finds are reported on the plain at Tel Megadim and Tel Mevorakh (Gophna & Portugali 1988: 25; Wolff 1998: 31).\footnote{Note that no IBA remains were found during the excavations at Tel Mevorakh (Stern 1984). At Tel Megadim, finds include LPW, TEY, and MC pottery, scarabs, bronzes, and beads (Wolff 1998: 32), but their precise attribution is not indicated.} With the exception of a tomb at Tirat Carmel (Marcus 1995c), MB IIa evidence was limited to the region south of Tel Megadim and was located principally in the western coastal zone (Table 6.2). The meager MBA settlement along the western margins of the eastern trough may suggest its sparse utilization.
2.1 Tel Nami

Tel Nami is one of a cluster of MB IIa and LBA sites located midway between the ancient ports of ‘Athlit and Dor. Following surface inspection by an ASI survey team ([Olami] 1969), and a limited investigation in 1975 ([Raban, Dothan & Flemming] 1977), excavations and surveys in the Tel Nami region have been carried out since 1985 (Artzy 1993b and biblio.). The general abandonment of the sites in this region following the LBA have made MB IIa settlement levels very accessible, allowing horizontal exposures of well-preserved remains. This accessibility, and the evidence found thus far, have contributed greatly to our understanding of maritime activity during this period.

2.1.1 Environment and Economy

Tel Nami, or Jezirat en-Nami “the island of the soft [sand]”, is located on a peninsular relic of the coastal kurkar ridge. The "island" is connected to the shore by a sandy spit, or tombolo, which is subject to marine inundation. Geomorphological investigations of the tombolo have demonstrated that it is composed of unconsolidated sand to a depth of -2 m MSL (Marcus 1991). This lithology suggests that the bedrock of Tel Nami was an island in the past, which was eventually connected to the shore by the accretion of sediments. The ancient shore in this instance is partly occupied by Nami East, a site some 100 m east of the tell. Unlike Tel Nami, this site was founded on sterile sand, indicating that Holocene sand deposition in this area had begun before the MB IIa period, and that the sand was stable and dry by the time of initial settlement. Whether Tel Nami remained an island during the MB IIa is still unknown, but it seems plausible that an anchorage existed between it and Nami East or, alternatively, south or north of the developing tombolo.

The immediate landward area of this region is today used for fishponds. Prior to their construction, the area suffered from poor drainage caused by the inability of Nahal Ha-Me’arot to break through the sand dunes. A large, oval, and perhaps seasonal body of water east of Nami East appears as a swammy lake on nineteenth and twentieth century CE, maps and aerial photographs until ca. 1949 (Marcus 1991). This lake persisted despite attempts to drain the river into the sea near its present outlet north of Tel Nami. This outlet is absent in early maps, although the name of the nearby peninsula, Jezirat el-Wadi (“the island of the river”) suggests the presence of an outlet there by the last quarter of the nineteenth century CE. In aerial photographs, the area around the lake is cultivated, suggesting that, if properly managed, agriculture was not impeded by the stagnant water. If the landscape was similar in antiquity, this or other depressions east of the sand dunes may have served as water reservoirs—the traditional birke—for livestock or irrigation. Raban (1985: 19-20, figs. 8, 13) suggests that this area was a lagoon connected to the sea.

The eastern bank of this swammy lake reaches the northernmost edge of the middle kurkar ridge upon which a poorly preserved MB IIa site is located. This site appears to have been the largest.

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283The existence of an ancient anchorage is suggested by the discovery of five stone anchors, possibly of LBA type, at a depth of 1.5 m immediately south of the tell (Galili & Sharvit 1997: 143-4, fig. 202:10).
of the three; sherd scatters of the plowed area covers an area of 2 ha. This settlement is in the middle
of a lush agricultural zone that is bounded by the large eastern kurkar ridge. No sites were found on
this ridge, nor in the alluvial trough to the east. An artificial outlet through this ridge indicates that
drainage of this area was impeded in antiquity. Whether this was a BA feature is not clear, although
the current absence of any sites on the eastern ridge may indicate inhospitable conditions. The western
base of the ridge is the natural longitudinal route of the Carmel Coast. The lack of any settlements
along the entire eastern trough of the Carmel Coastal Plain, between the eastern kurkar ridge and the
foot of the mountain, preclude the precise delineation of this route. Nevertheless, the nearby Carmel
mountain offered the inhabitants wood (Lev-Yadun, et al. 1996), possibly raw materials for lime
(Artzy 1987), and a potential area for pastoral and horticultural activities.

2.1.2 Summary of MB IIa remains

The most extensive investigation of the MB IIa remains at Tel Nami has been in Area D, on
the southeastern edge of the site.284 Nearly 100 m² (ca 2.5% of the site) has been exposed, revealing
two principal strata of this period. The initial stratum appears to be largely domestic in character, with
two rows of rectangular rooms and courtyards, some with multiple floor phases and ovens. The two
rows of dwellings are divided by a paved alleyway. In the second stratum, this alleyway and
settlement plan is only partly utilized and the built-up area is reduced. One room, became a storage
space for what may be a larger structure to the north and northwest, in still unexplored areas. This
storage room was burned by a fierce fire and its contents, including over thirty ceramic vessels of
various types, were sealed by the debris. Following this phase, the site seems to have been largely
abandoned until the Late Bronze Age.285

Excavations in Area G, on the northern side of the tell, produced some MB IIa remains
including a stone drain (Marcus 1991: 98-9). Area O was also founded during the MB IIa period, as
indicated by a well (Marcus 1991), a building and installation, which may be a granary, and one

Although the current survey has not identified any architecture at Sites 104-106, Olami's
survey investigated a partially exposed building built of well-fashioned kurkar foundations and
mudbrick superstructure (Olami, p.c.). The remains of the building measured 13.5 x 6 m, suggesting a
public or patrician structure and were associated solely with MB IIa ceramics.

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284 These investigations were supervised by the author (Marcus 1991).

285 Although this conclusion may be modified by future excavation, it should be noted that
this assessment is based on examination of two areas on the site, including material from LBA fills.
There is some evidence that the site may have served as a burial ground perhaps during the late MB
2.1.3 Pottery finds

The limited presentation of the pottery remains (Marcus 1991; Artzy 1995: fig. 2.4) preclude a detailed discussion of the phasing of Area D. However, pending more detailed analysis, the two principal strata can be provisionally assigned to the MB IIa/2 and MB IIa/3 periods. The assemblage from the stone-built tomb in Nami East suggest that it should be assigned to MB IIa/2 or even earlier.

2.1.3.1 LPW, MC, and other Wares

Two painted vessels, from the stone-built tomb, include a small handleless jar with bichrome bands and strokes over the rim, and a jug with bichrome bands and net-pattern decorations (Artzy 1995: 20, fig. 2.4). Eight fragmentary examples of MC pottery have been found, three in association with MB IIa habitation levels and the remainder in later fills, which, in the absence of an MB IIb settlement, are dated to the MB IIa period (Artzy & Marcus 1992). These include a single WP Composite Ware bowl, one WPPL jug, three from WPCL jugs, a WP amphora, and two indeterminate WP sherds. In Area D, an Anatolianizing element is a krater with cross-decorated disc handles (Marcus 1991: 140-3, figs. 38-39; Kislev, Artzy & Marcus 1993: fig. 5).

2.1.4 Egyptianizing object

A terra-cotta loom weight impressed with a scarab seal was found in a disturbed context, but which is assigned circumstantially to the MB IIa period (Marcus & Artzy 1995). The scarab impression provides a terminus post quem of the reign of Senusert II or Amenemhet III (see infra Chapter Five).

2.1.5 Bronze finds

Three bronze objects were found in MB IIa levels in Area D: a dagger, a fragmentary figurine, and a pin (Artzy 1995: 19; Marcus 1991: 103). The figurine has parallels in Nahariya and Byblos (Artzy 1995: 19).

2.1.6 Organic imports

Charred remains of lathyrus clymenum, a cultivated legume from the Aegean region, were found in three jars from the aforementioned store room and scattered in this and an adjacent room (Kislev, Artzy & Marcus 1993). Analysis of wood remains from the MB IIa well in Area O revealed three fragments of cedrus libani, whose nearest source is the Lebanon (Lev-Yadun, et al. 1996).

286The former has a good parallel from a well-stratified tomb at Megiddo (Loud 1948: pl. 8:8). The latter, which the excavator relates to the Amuq-Cilician Painted Wares (Artzy 1995: 20), has good parallels at Amrith and Dhabarat el-Humraiya (Tubb 1983: fig. 1:4).
2.2 Tel Dor

Located just west of the mountain pass of Wadi Milik, which connects the Jezreel Valley with the coast, Tel Dor is the largest site (ca. 25 ha) on the Carmel Coast. Its great size and long maritime history are most certainly a product of the anchorages around the site, aspects of which have been revealed both on land and underwater (Stern 1992; 1993; 1995a; Wachsmann & Raveh 1984; Raban 1993d; 1995a; Raveh & Kingsley 1993; Kingsley & Raveh 1996).

2.2.1 The anchorages of Dor

Dor possesses three potential protected bodies of water: the North Bay, the central “Love Bay”, and the Tantura lagoon to the south, a marine topography situation that sets it apart from many other Levantine ports (Stern 1995c: 11). The first two are based on protected rocky embayments with sandy beaches to their lee sides. The third is a long, shallow channel of water protected by a chain of kurkar islands that still serves local craft. Geomorphological studies suggest that the paleogeography of the area has changed considerably during the last five thousand years.

Prior to the Middle Bronze Age, as sea level rose, the area to the south and east of the coastal kurkar ridge was a marine-inundated or brackish lagoon (Sneh & Klein 1984; Raban 1995a: 286-9, 350). This lagoon may have even reached the North Bay, creating a ca 2 km long and 200 m wide kurkar island, whose wider and higher northern section was settled during the MB IIa period (Raban 1995a: 286-7). At the very least, the site was a peninsula, whose lee anchorage was accessed from the south. In its original state, without the relatively recent tombolo dividing it and the kurkar ridge immediately to its east allowing a 300 m maximum width, the 2-3 m deep lagoon south of the tell covered an area of ca. 27 ha (Raban 1995a: 289).

The eastern basin would have greatly increased the area of the anchorage, but was only 1.0-1.5 m deep. It is not clear when the sand deposition silted up the entry to the eastern basin and rendered it unusable. With its better circulation, the Tantura lagoon was used, on and off, throughout antiquity. The North Bay encloses an area of ca. 6 ha and is protected by an island on the west, near an entrance channel some 1.80 m deep. At present, it is a shallow, sand-covered topographical hollow, which has a substratum of hydromorphic clay up to a height of -1.5 m MSL (Raban 1995a: 288). “Love Bay” is the smallest cove, with an area of only 1.5 ha. It is protected by small islets, and has two entrances to the south, both 4.5m deep, and one in the north, which is 1.2 m deep (Raban 1995a: 288-9).

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287 Stern's estimate (1995c: 9-10) is a maximum based on eroded portions of the mound and the eastern lower city.

288 Some Chalcolithic and EB I sherds from later fills (Stern 1995b: 271) may suggest an earlier habitation.

289 For a pre-modern depiction of the lagoon without the tombolo, see Wachsmann & Raveh (1984: fig. 16).
As MB IIa remains were found solely along the eroded western side of the tell, near Love Bay and the slipways, Raban (1995a: 301-2, 350) suggests that this bay was incorporated within the city's fortification line as the principal anchorage, but no marine finds have been found to confirm this suggestion. Regarding the Tantura lagoon, at a time when sea level was lower by 1-2 m, Raban (1995a: 350) suggests that not all of its extent was utilized. Although hundreds of stone anchors have been found in the lagoon, clearly MBA finds, including pottery and stone anchors, were found near the southern part of the lagoon. Thus, reasons other than an inadequate anchorage led the MB IIa inhabitants away from settling near the lagoon (Raban 1995a: 285). The North Bay appears to have been used during later periods (Raban 1995a: 289-96), although earlier use should not be precluded.

2.2.2 Summary of MB IIa Remains

As a result of its long occupation, even a decade of intensive excavation has revealed little of the BA settlement, let alone the MB IIa period, its incipient phase. Apart from the odd sherd out of context (Stern 1995b: 271), the only known MB IIa remains have been exposed by marine erosion on the western sea side of the site. In the “Love Bay” area, MB IIa levels were founded on bedrock as low as 1.60 m above MSL (Raban & Galili 1985: 334-5, fig. 17; Raban 1995a: 287, 302, 306), which may suggest a slightly lower sea level at the time. A 2 m wide wall of unhewn stones may also date to this period (Raban 1995a: 302-3, fig. 9.7). Subsequent sand and shell deposits suggest some marine intrusions, along with later MB IIb levels (Raban 1995a: 302, fig. 9.6). The ceramics are reported to belong to MB IIa/3 period (Raban 1995a: 303, n. 38). South of Love Bay, near the Classical period slipways, an MB IIa level produced similarly dated pottery, including MC WP wares (Raban 1995a: 309). The limits of the MBA settlement are not known, and await further investigation, although the orthogonal shape of the site may have been partially influenced by a rampart fortification.

2.3 Tel Mevorakh

This small site is located near the southern bank of Nahal Tanninim, which is the natural geographical border between the Carmel and Sharon Coastal Plains. Excavations at the site only briefly examined the MBA remains, which produced some important small finds.

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290 An MB IIa sea level of -1.00 msl is suggested by evidence from Tel Nami (Marcus 1991: 195-7) and from a partially submerged MBA cemetery at Athlit (Galili, Weinstein-Evron & Ronen 1988).

291 MB IIa sherds, including a MCCL fragment, have been found in the lagoon in recent excavations on the lee side of the Tafat and Dor islands (Wachsmann 1995: 6; Sibella 1995: 13, fig. 1; Wachsmann & Raveh 1984: 239).

292 Perhaps the low-lying, inshore kurkar ridge parallel to the lagoon did not afford sufficient topographical advantages (e.g., security, protection from waves, or height above a marshy land).
2.3.1 Environment and economy

Despite Tel Mevorakh’s small size ca. 0.1 ha, its strategic position at the start of the inner route of the Coastal Plain between Mt. Carmel and the Kebara swamps made this an important road stop for longitudinal movement and, logically, one of the principal fording points on Nahal Tanninim. Although a detailed paleogeographic study is lacking for this region, during all periods, presumably, the river and impeded drainage were certainly factors affecting the economy and the development of the site. Raban (1985: 17) suggests that in the Bronze Age the area of the tell was subjected to marine inundation, and the entire region of the lower Nahal Tanninim basin was a navigable lagoon.293 If this suggestion should prove correct, then the importance of the site would increase considerably as it would have served as an inland lagoonal anchorage. Excavation at the northern base of the site, near the earliest levels of habitation, revealed a black swampy layer indicating either the proximity of an ancient course of Nahal Tanninim, or considerable inundation by a fairly substantial, but quiet body of water (Stern 1984: 52).294 In any event, lithic finds, the majority of which are sickle blades, indicate that some arable land was available and that agriculture played a role in the economy of the site (Goring-Morris 1984: 82).

2.3.2 Summary of MB IIa remains

The earliest remains, Stratum XV, were located only in the center of the site (Stern 1984: 51). Here, on the virgin summit of the ancient kurkar and hamra hill, the inhabitants constructed a mudbrick building (B-349) built on stone foundations, whose superstructure survived in some sections up to a height of 3 m. The exposed portion of B-349 measured 6.5 x 2.5 m, but the one meter wide walls suggests a large building that could have supported a second story (Stern 1984: fig. 28). The excavator identifies it as a fort, but by analogy with construction at other sites (e.g, Tel el-Ifshar and Nami region Sites 100-104), it likely to have been a dwelling or patrician building. A burial jar near B-349, together with a basalt pestle (Stern 1984: pl. 45:8), may belong to this stratum.

Stratum XIV includes the MB IIa levels found above Stratum XV in the central area and, by ceramic comparison, other limited exposures and probes around the site (Stern 1984: 51-2). During this phase the site reached its maximum size, beyond the line of a later MB IIb rampart (Stern 1984: 46-50). Mudbrick structures were added to B-349, and apart from a single one meter wide wall, the scant remains are mostly of modest, perhaps domestic, structures with 40-50 cm wide walls, paved floors, and clay ovens (Stern 1984: 51-4).

293This contention is based on his identification of a marine abrasion platform at the foot of the tell, a formation that has yet to be dated.

294Stern (1984: 52) suggests that this “hard, sterile and almost black layer which had the appearance of a swamp bed” is the result of seasonal inundation, but this question demands a more substantial geomorphological investigation.
2.3.3 Pottery finds

The limited exposures provided small pottery assemblages. However, a sufficient quantity and range of types were collected to assign both strata to the middle of the MB IIa, probably MB IIa/3, period (Kempinski 1984: 57-58).

2.3.3.1 Painted and TEY Wares

Kempinski (1984: 57-58) correctly notes the general absence of the pottery forms that are characteristic of the earliest strata at Aphek, including the painted wares. The only vessel decorated with paint is the burial jar associated with the Stratum XV building, B-349 (Kempinski 1984: fig. 17:8). It is decorated with a single black line in the middle of its shoulder. One TEY fragment was found in Stratum XIV, and another example from a later context may also derive from this MB IIa phase (Kempinski 1984: 56-57, pl. 42:9, 10).

2.3.4 Egyptian or Egyptianizing finds

A Predynastic to Early Dynastic Egyptian greywacke vessel was found in one of the limited probes on the eastern side of the site among finds assigned to Stratum XIV (Brandl 1984). As no EBA levels are found at the site it was certainly an “antique” when it was deposited in this MB IIa context (Brandl 1984: 62). Although more common in earlier periods (Reese, Mienis & Woodward 1986), this site is the only one to have produced evidence for the import of aspatharia molluscs from the Nile during the MB IIa period. One of three shell halves was found in the same locus as the Egyptian stone vessel (Mienis 1984). The other two come from Strata XIV and XIII in the area south of building B-349. Stern (1992: 21) reports that two of the halves were from a complete shell, perhaps indicating that they were transported alive (Reese, Mienis & Woodward 1986: 82-3). These finds clearly attest to the inhabitants’ desire for foreign exotica.

3. Sharon Coastal Plain

The Sharon Coastal Plain is bounded in the north by Mt. Carmel and Nahal Taninim, in the east by the Samarian Hills, and in the south by the Yarkon River. Physiographically, this plain is dominated by the central hills of hamra (sandy loam) and sand that separate the western coastal zone and the eastern alluvial trough. North of Nahal Hadera, the western coastal zone is fairly similar to the Carmel Coast, with alternating rock and sand beaches. Apart from the western coastal kurkar ridge, other ridges are slightly less defined. South of Nahal Hadera, the exposed shoreline is increasingly dominated by a steep escarpment, broken by occasional river mouths. This relatively high plateau (up to 25 m above msl), is characterized by kurkar, red sandy loam (called hamra), and clays, generally overlain by sand dunes. The eastern margin of the coastal zone is bounded by a prominent kurkar ridge, thus forming a narrow trough between it and the coastal plateau. The hamra hills were not

295 It is impossible to determine if this “antique” is a contemporary or ancient import.
cultivated in antiquity; only the alluvial river basins were utilized (cf. Chernoff 1988), the largest of which is Nahal Yarkon. The hamra hills and the coastal plateau were impediments for drainage; some of the low lying areas, such as the coastal trough and the eastern valley, were probably annual or perennial swamps, or even lakes (Kaplan & Ritter-Kaplan 1993b: 1452-3). The central hills may have had an oak park forest (Har-el 1977), which would have offered accessible wood. The rivers, springs, coastal aquifer, and precipitation (500-600 mm) provided water. Movement longitudinally was along the plateau and trough of the coastal zone and the Samarian foothills of the eastern valley. Latitudinal movement was restricted to the rivers that transect the central hamra hills.

Settlement in the coastal zone of this region was extremely sparsely during the millennium preceding the MB IIa period, following which it increased considerably (Table 6.3). Apart from some small sites, the eastern valley, where amenable, was preferred. Remains of the IBA are known from cemeteries, although occasional sherds in later MBA contexts may indicate some sedentary sites.

3.1 Tel Burga

Tel Burga is located upstream from Tel Mevorakh in the northeastern corner of the Sharon Plain. This 25 ha site is situated in the heart of a rich alluvial trough that is bordered in the north and east by the Carmel mountain, in the south by red hamra hills, and in the west by a kurkar ridge. Surface surveys and limited sondages have revealed two possible mudbrick towers, a gate in the east, and segments of an earthen rampart that surround the site. A fosse or moat completed this fortification, although the northern slope, the base of which is now covered with river pebbles, may have been protected by Nahal Tanninim, which is now some 100-200 m north of the site.296 Apart from some IBA sherds, all other ceramics found within the enclosure belong are types that range from MB IIa/1 to MB IIa/3 periods, following which the site was abandoned (Kochavi, Beck & Gophna 1979: 142-51). No other pertinent finds are reported, with the exception of a body sherd from a storage jar decorated with three horizontal painted lines of red and white (Kochavi, Beck & Gophna 1979: fig. 12:8).

3.2 Tel Esur - Barqai

At the southern slopes of the entrance to Wadi `Ara, on the Barqai hill, an IBA-MB IIb four-chambered shaft tomb was found that may be associated with the nearby settlement at Tel Esur (Gophna & Sussman 1969: 1; Dothan 1993d). The ceramic and metal finds associated with the MB IIa phase include painted juglets, with bichrome red and black, and monochrome red horizontal lines, and two socketed spearheads (Gophna & Sussman 1969: fig. 4:1-2, 13-14, pl. II:2-3, 4-5). The painted and other juglets, bowls, and handleless jar suggest an attribution to MB IIa/2-3 period.

296During a recent visit to the site, a non-local ballast stone was found, which might indicate that the river was navigable up to a point fairly close to the site.
3.3 Tel Zeror

Tel Zeror is the largest of the MB IIa sites in the western Sharon Plain and is located at the confluence of Nahal `Iron, Nahal Haviva, and Nahal Hadera (Kochavi 1993). This position probably served as a fording point over Nahal Hadera and, if the river was navigable, an inland port. Excavations have revealed four phases of MB IIa habitation founded on virgin soil, but no evidence of any MB IIb remains was documented (Kochavi, Beck & Gophna 1979: 151-155; Kochavi 1993). These levels are associated with two superimposed stages of fortification characterized by brick walls up to 4.5 m wide and built on a rampart, and defended by a 10 m wide fosse or moat (Kochavi 1993: 1525). A two-chambered tower on the western side further indicated the defensive nature of this construction (Kochavi, Beck & Gophna 1979: fig. 16; Kochavi 1993: 1525, fig.). The pottery repertoire reveals phases coeval with MB IIa/1-3 phases (Kochavi, Beck & Gophna 1979: 155-60). The fortifications are assigned to MB IIa/2-3 phases (Kochavi 1993). Among the ceramic finds is a body sherd of a storage jar decorated with concentric circles, perhaps a handle-less jar (Kochavi, Beck & Gophna 1979: 160, fig. 18:22).

3.4 Khirbet Ibreiktas

This BA cemetery is located on the middle kurkar ridge, south of a Hellenistic to Byzantine settlement (Porath, Dar & Appelbaum 1985: 113-22). Salvage excavation revealed seventeen hewn shaft tombs concentrated in an area of ca. 1500 m² (Edelstein 1971). The remains were primarily of IBA date, but a number of MB IIa finds led the excavator to conclude that either the tombs were re-used during the subsequent period, or that the timespan between the two phases of burial was quite short (Edelstein 1971: 17).

All of the tombs are reached by a shallow shaft (0.70-1.00 m depth) that appears to be part of a planned and uniform cemetery. This uniformity is reflected in their dimensions, shape, and orientation. The preserved shafts are described as round, rounded, and square. The number of interments did not exceed two skulls or bone concentrations. Although not all of the finds are presented (Edelstein 1971: 18, ill., inventory table), those published include a variety of IBA pottery, stone disks, a red semi-precious stone, perhaps carnelian, and bronze weapons. Artifacts belonging to the MB IIa cultural period were found in Tombs 5, 8, 9, and 19, but according to the inventory, not in any of those tombs that contained IBA remains. Tomb 5 contained an MB IIa basket-combed storage jar with an incised sign at the base of the shoulder, a bowl with a thickened rim, and a socketed spearhead. Tombs 8 and 19 each contained a socketed spearhead. Tomb 9 contained a socketed spearhead and two bronze pins (cf. Philip 1989: 92-5, 366, cat. 318, 319).

All of these contexts were disturbed, either in ancient or modern times. Nevertheless, given the similarity, clustering, and orientation of the tombs, it seems reasonable that the excavator is correct in interpreting the MB IIa phase as a reuse of an existing IBA cemetery. If so, the complete lack of

297Recent salvage excavations have uncovered additional fragmentary MB IIa ceramics (Kletter & Rapuano 1996; 1998: 44).
even fragmentary IBA pottery in the MB IIa contexts is surprising, unless these chambers were completely cleared out with not even a single sherd being left behind from the original deposit. Two alternative explanations may be offered: the cemetery was discovered by the inhabitants of an unknown MB IIa settlement, who practiced similar burial customs, or the IBA population continued to use this cemetery and augmented or replaced its customary burial offerings with newer MB IIa material.

3.5 Tel el-Ifshar (Hefer)

Excavations have been carried out at Tel el-Ifshar since 1979, as part of the Emek Hefer Archaeological Research Project (Paley & Porath 1993; 1997). Although only preliminary reports have come forth, scholars have already noted the importance of the data from this site, not the least because of the discovery of Egyptian pottery (Weinstein 1992). The fine stratification of eight distinct MB IIa phases with varied, abundant, and restorable pottery found on living levels separated by clear destruction layers, ensures that when properly published this will be a key site for the period. Until then, the available evidence must be used with due caution as future analysis and publication may supercede *prima facie* observations.  

3.5.1 Environment and Economy

The site is located some four km upriver from the sea, upon a summit of the eastern *kurkar* ridge, on the northern side of the Nahal Alexander watergap (Paley & Porath 1993: 609). This 600 m watergap is complemented by a smaller 300 m gap in the intermediate ridge and a larger 1600 m breach in the coastal ridge, all attesting to the impact of this river in the Pleistocene period, when its flow prevented the accumulation of sand from which the *kurkar* formed (Porath 1985: 19-20). In antiquity, the coastal breach may have been a broad bay, suitable for sheltering ships and providing access to the river, which may have been navigable as far as Tel el-Ifshar (Paley & Porath 1993: 609). With the inevitable accumulation of a sand bar at the mouth of the bay, a fact which may reflect changes in the hydrological regime during the Holocene period, Raban (1985: 19, fig. 5) suggests that an artificial outlet was cut, similar to the one at Akhziv. But for the sand bar and modern exploitation of its waters, this perennial river might still be navigable for small craft. From the Late Bronze Age onward, Tel Mikhmoret, on the northern end of the coastal breach, served as the port for this stretch of coastline (Porath 1985: 126-7; Porath, Paley & Stieglitz 1993).

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298 The author had the opportunity to serve as field assistant to Y. Porat and S. Paley during the 1990 excavation season. Since then long discussions and collaborative efforts have ensued on a variety of topics. The excavators generously permitted the author to examine the finds and an unpublished manuscript of a preliminary report (Porath & Paley in preparation), and to take ceramic samples for a provenience study and organic samples for C-14 dating. Despite basic familiarity with the site and finds, the present review relies on the published reports, with unpublished data quoted only with the excavator’s permission.

299 Excavations at Tel Mikhmoret did not reveal any MBA remains (Porath, Paley & Stieglitz 1993), although Raban (1985: 17) hints otherwise. In light of the post-BA formation of sand dunes, which tends to obscure ancient remains (e.g., Nami East), it would be worthwhile to resume the search
In addition to riverine communication, the site also controlled an important fording point on the main longitudinal route along the eastern kurkar ridge. This vantage also provided access to the Samarian foothills and abundant alluvial lands of the intermediate and eastern troughs of the Coastal Plain (Porath 1985). Water was available from the river and a number of nearby springs (Paley & Porath 1993: 609). A topographical depression to the northwest of the tell, which in the past was supplied by a spring (Porath 1985: 163, n. 1), may have served as the local reservoir or birke. Wood would have been available from the park forest of Tabor oak and stone pine covering the red hamra hills of the Sharon plain (Waisel & Agami 1990: 115, 117-20).

Regular sampling during excavation and detailed archaeobotanical analysis provides an instructive picture of intensive agricultural exploitation (Chernoff 1988). This research shows that the potential agricultural zones, which presumably were augmented by water and soil management, permitted the MB IIa inhabitants to produce a variety of pulses, such as lentil, broad bean, bitter vetch, and chickpea; cereals, such as emmer wheat and barley; and fruits, such as grape and fig (Chernoff 1988: 192-8). In contrast, the absence of particular field crops such as field pea and various lathyrus species, and orchard crops such as olive, date, almond, and pomegranate (Chernoff 1988: 206-7), is equally instructive, but the choice of cultigens is largely enigmatic in the absence of further research. This evidence further suggests that alluvial soils were preferred and continuously sown, although the inventory of field weeds suggest that some sandy clay soils may also have been utilized (Chernoff 1988: 337-40, 345-347). Although the evidence is limited, Chernoff (1988: 367-9) notes an increase in barley cultivation from the middle of the MB IIa period onward, perhaps suggesting an increase in the salinity or alkalinity of the alluvial soils.

3.5.2 Summary of MB IIa remains

Following the incipient EB Ib settlement, the site appears to have been abandoned until the MB IIa period, although a few IBA sherds attest to some presence, perhaps associated with other settlement or burial activity in the region (Paley & Porath 1993: 610; Dar 1985). The greatest horizontal exposure of MB IIa remains, 750 m$^2$, has been achieved in in Area C, on the eastern side of the site, where eight phases have been discerned; four phases have been identified in more limited exposures in Area A on the western side of the site (Porath 1991: 13; Paley & Porath 1993: 610-12; 1997: 369; Table 10).

Phase A in Area C marks the beginning of MB IIa settlement and is characterized by wall and floor fragments established either on virgin soil or over scant EB Ib remains (Paley & Porath 1993: 611). This level was either destroyed or leveled for the construction of a large building complex in Phase B (Porath 1991: 13). This complex comprises two wings with rooms and courtyards, separated by a larger main courtyard. The entrance to the eastern wing is paved with a 2 m long monolithic kurkar threshold (Paley & Porath 1993: 611; 1997: 370, fig. 13.1). Paley & Porat (1993: 611) compare this stone with the stelae from Byblos and Gezer and suggest that it may have originated in a for pre-LBA remains at Mikhmoret, or further inland near the easternmost extent of the presumed paleo-bay.
sacred context from Phase A. However, the possibility should not be excluded that it originated in an IBA "bamah" similar to that at nearby Tel Ashir, just west of Tel Poleg (Gophna 1992: 154; 1993c: 1195). The large size of the complex, with up to one meter wide walls, might indicate a second story. Moreover, the use of charred cedar beams in the superstructure (Porath & Paley 1993: 34) suggests an important public or monumental function, perhaps a palace, a fort, part of a ritual center or, at the very least, the residence of a wealthy patrician. The complex was destroyed in a fierce conflagration.

In Phase C, the complex was rebuilt with some alterations in plan. One room of the western wing has a two to three centimeter thick plaster floor, similar to those from the palaces of Aphek and Kabri (Paley & Porath 1993: 611; 1997: 370). A sunken depression in the center of the room was probably the base of a column. Along the northern wall of the room is a plastered, stepped installation with five depressions. The excavators suggest that these depressions could have served as seats, as offering tables, or as a plinth (Paley & Porath 1993: 611). The fierce destruction that marks the end of this phase also signifies the end of the public or monumental character of this side of the site. Phase D is a localized phenomenon, in which some hearths were constructed and storage and refuse pits were dug into the debris.

In Phase E, the area was transformed into a domestic quarter of rooms and courtyards, along with a mudbrick granary. This phase ended in a fierce conflagration. Phases F-G represent a gradual development of domestic character, with no major change in plan, both of which also end in fire. In Phase G a shaft tomb was dug underneath a storage room floor. Phase H is a poorly preserved MB IIa level.

In contrast to the importance of Area C during Phases B-C, the relatively synchronous Phases 15-16 in Area A are characterized by meager domestic remains (Paley & Porath 1993: 611). This situation reversed during Phases 13-14 in Area A, when a sequence of two large, perhaps public buildings were constructed, apparently abutting what may have been a city wall (Paley & Porath 1993: 611). The transfer of elite or public structures from one locale to another is paralleled at Aphek.

3.5.3 Pottery finds

Although a reliable correlation with other sites must await more detailed publication of the stratigraphy and finds, the little that has been reported provides some useful data. Following the stratigraphic and functional distinction between Phases A-C and Phases E-H in Area C, the excavators distinguish two main stages in ceramic development (Porath 1991; Paley & Porath 1993: 612; 1997: 373). Among the features of the early phases are surface decoration of wheel and pattern combing, and burnished unslipped jars. Some storage jars have applied relief or incised rope decorations. Two types of storage jars appear: rounded (often handleless and painted) and conoid. Jars, jugs, and juglets of the LPW type are painted (often on a white wash) with bands, circles, spirals, and net patterns (cf. Porath & Paley, in preparation). In the early phases, hemispheric bowls were combed only; the red burnished hemispheric and carinated bowls, so characteristic of the MB IIa period, began in Phase C onward. Cooking pots appear both in straight-walled handmade type and the tall, ovoid, and wheel-
made type. The former does not change greatly with time, but the rims of the latter evolved from a simple everted gutter to a folded tubular form. Of singular importance is that, unlike at Aphek, burnished red slip surface treatment began to appear at Ifshar, albeit sporadically and unevenly applied, alongside LPW in Phase B, but only became the dominant surface decoration in Phase D (Porath 1991: 15; Paley & Porath 1993: 612; 1997: 373; Porath & Paley in preparation). In the later phases (D-H), red slip is generally common and painted decoration decreases, although further study should seek to elucidate and characterize the nuances of this development.

In comparing the Ifshar sequence with other sites of the southern Levant, the excavators assign Phases A-B to the MB IIA/1 phase. Phase C, when LPW and burnished red-slipped wares patently coincide, and the ambiguous Phase D, are likely to belong in the MB IIA/2 phase. Given the dominance of burnished red-slipped wares and the decreasing appearance of painted wares in Phases E-G, it seems reasonable to associate them with the MB IIA/3 phase and Phase H to the MB IIA/4 phase, but any greater refinement would be premature.

3.5.3.1 Phase B and Levantine Painted Wares

A small selection of ceramic vessels from Phase B in the Area C building have been published (Porath 1991: fig. 3; Porath & Paley 1993: fig. 41:a-b; Paley & Porath 1997: 373, figs. 13.5-13.6). Among these are squat onion-shaped jars, which represent a heretofore unknown type in the local repertoire (Paley & Porath 1993: 612). One possible parallel to this type is a squat jar from Byblos, which is one of the LPW types from the early MB IIA contexts (Saghieh 1983: 95, pl. XLI:3639; Dunand 1937: pl. CLX:3639a-b; 1939: 248). Another unusual ceramic type is a large, deep krater, found stuck in a floor depression (Porath 1991: 15), which is roughly paralleled by an example from Tel Dan Stratum XII (Ilan 1996b: 204, 220, fig. 4.103:3). Two LPW handleless jars with internally concave rims are decorated in brown-red and black painted horizontal bands, with a net pattern (Porath 1991: 15, fig. 3:1-2). Another unique addition to the local repertoire is a jug with imitation metal nails beneath its single handle, which is painted in net pattern-filled arcs and a pendant decoration around the base of the neck (Porath 1991: 15, fig. 3:6). A near identical example is known from Ugarit, where it is assigned to UM I (Porath 1991: 15; Schaeffer 1949: fig. 99:27), both of which share decorative elements with the jug from Tel Nami. Apart from the aforementioned decorative elements in LPW examples from this phase, there are brush strokes on rims, net pattern-filled triangles and pendant decorations, and concentric circles on jars, jugs, and juglets (Paley & Porath 1997: fig. 13.5:1-3, 5; Porath & Paley in preparation).

3.5.4 Egyptian pottery and Egyptianizing elements

Fragmentary sherds from Phases B-C and a complete Egyptian jug are the most plentiful and best documented examples of Twelfth Dynasty pottery in MB IIA contexts of the southern Levant (Paley & Porath 1993: 612; 1997: 373, fig. 13.5:4). The complete vessel was found in a brick collapse that was initially assigned to Phase C (Paley & Porath 1993), although re-analysis of the stratigraphic
relationship between this context and the large building suggests that it may belong instead to Phase E (Weinstein 1996: 57; Paley & Porath 1997: 373, fig. 13.3; Y. Porath, p.c.). The vessel is described by the excavators as Qena Ware of the Twelfth Dynasty, well-known from el-Kab and Thebes, and dated by Dorothea Arnold to the first half of the nineteenth century, during the reigns of Senusert II or III (Paley & Porath 1993: 612; 1997: 373). Arnold, who has relied solely on photographs for her assessment, further notes that while the vessel is of Upper Egyptian origin, its form is best paralleled in the north at Riqqeh (1991a: 53-4; Bietak 1989a: 96; Weinstein 1992: 34-5). The remaining sherds can only be dated somewhere between the early 11th and 13th Dynasties (Weinstein 1992: n. 27; Paley & Porath 1997: 373). A number of incised Egyptian signs from Tel el-Ifshar are cited by Dothan (1990). Lastly, a strong similarity exists between the plan of the Phase E granary and those known from Egyptian clay models (Chernoff & Paley forthcoming).

3.5.5 Metal finds
The excavators report a small number of metal finds (Paley & Porath 1993: 612). In addition, a crucible with the remains of copper was found in Phase A (Porath & Paley 1991: 136).

3.5.6 Summary
The available data from the excavations of Tel el-Ifshar correlate well with its geographic position in the the Nahal Alexander basin of the Sharon Plain. With an agriculture based primarily on the alluvial soils of nearby river banks and the eastern trough of the Coastal Plain, the site could have served as the seat of authority of a local elite. The remains in Area C, both the large building and the later grain storage facilities, support this characterization. The north-south road and a navigable river through the uncultivated and partly forested hamra hills meant that this local elite was not isolated from developments in more distant regions, including the coastal zone. Its foreign relations clearly demonstrate such interaction. In particular, the cedar used in the construction of the large building indicate that the inhabitants could embellish their elite or public structures with the finest building materials available. Although not as large in size compared to its fortified contemporaries in the region, it no less important nor impoverished, inasmuch as the available sample of excavated sites can support such a comparison. While the periodic destruction hints at belligerency directed at the site, the identity of the perpetrators is unknown; these “events” may indicate that the site, its position, or its agricultural wealth were coveted.

3.6 Tel Poleg
Tel Poleg is a 1.2 ha site situated on a kurkar ridge that is 1.2 km upriver from the sea (Kochavi, Beck & Gophna 1979: 133; Gophna 1993c). The southern and western sides of the site are bounded by Nahal Poleg and the northern side is protected by a 10 m wide artificial breach, which drains the Poleg marsh basin to the east (Kochavi, Beck & Gophna 1979: 133, fig. 5; Gophna 1993c: 1194, fig.). These natural and artificial obstacles created a site that was, until modern intervention,
surrounded by water. Salvage excavations at this site, which was nearly obliterated by the modern quarrying of its kurkar, have revealed a fortification system comprised of a five meter wide mudbrick wall in the west, a 15 by 8.5 m tower protected by a glacis in the south, and a gate in the west. A 2.7 m wide wall in the east, with smaller walls abutting it, is interpreted as being part of a defensive system. This wall may be narrower because the steeper slope of the ridge and the eastern marsh afforded additional defense, but an oven and an infant burial jar may indicate that it is merely part of a large building (Gophna 1973: 111, fig. 2). With the exception of some IBA, LBA, and later sherds, all of the ceramic remains belong to MB IIa/3 phase (Kochavi, Beck & Gophna 1979: 137-141). A rock-cut shaft tomb, whose chamber was destroyed by quarrying, contained an ichthyomorphic vessel executed in TEY style (Gophna 1969b). The blocked shaft, which was properly excavated, included a number of vessels that may be assigned to the period of habitation (Gophna 1969b: 45; Kochavi, Beck & Gophna 1979: 141). Regarding the scant pre-MB IIa finds at the site, note that an IBA site, Tel `Ashir, is situated immediately west of Tel Poleg on the summit of the next kurkar ridge, overlooking Nahal Poleg. Only a small, perhaps cultic, open-air installation with a group of limestone stelae or massebot is reported (Gophna 1992: 154; 1993c: 1195).

The dating of the artificial outlet on the northern side of the site is problematic. Raban (1985: 17) prefers to see this breach as a navigable channel that allowed boats to sail upriver into the marshy lake to the east. Gophna (1973: 119) attributes the origin of this breach to the MB IIa period when, conceptually, it seems to have been an integral part of the fortification system. The presence of Persian period remains in Area B on the southern side of this ten meter wide escarpment clearly establishes that its current extent post-dates that period. Roll & Ayalon (1989: 119, 180-1) associate the present extent of the ancient breach with the sixth century CE Byzantine land reclamation in the Sharon Plain. Although it is plausible that a narrower fosse or channel existed at this point in the MB IIa period, only further excavation south of the breach will resolve this question.

3.7 `Ein Zurekiyeh

This site was established on a kurkar ridge, some 3.5 km southeast of Tel Poleg, near a spring that flows into the ancient marshes of this basin (Gophna & Ayalon 1982: 69; Gophna 1993c: 1194-5). Two fortification phases were discerned, both comprised of 3.2 m wide mudbrick walls and associated habitation levels (Gophna & Ayalon 1982: 69-72). The excavators assign the finds to the MB IIa/2 phase, and suggest that this settlement is slightly earlier than Tel Poleg (Gophna & Ayalon 1982: 74-76).
77). The site's position at a narrow point in the marshes on the western side of the hamra hills suggest that it guarded an important fording point for north-south movement (Gophna & Ayalon 1982: 77).

3.8 Small Yarkon river basin sites

In addition to the larger tells, some soundings and surveys have identified some small sites in the lush Yarkon river basin (Kochavi & Beit-Arieh 1994). Many individual IBA and MB IIa tombs are known from the hills above the north bank of the river, but have yet to be published fully (Kaplan & Ritter-Kaplan 1993b: 1451-4). At the Tel Aviv exhibition grounds, MB IIa tombs were found in the proximity of an IBA settlement on the north bank of the Yarkon river.

A unique habitation site is Sede Dov, located north of the Yarkon river mouth. It is described by the excavator as an elliptical hollow that was dug out of the kurkar bedrock, measuring 20 x 9 m (Kaplan & Ritter-Kaplan 1993b: 1454, photo). In their opinion it was a squatter's encampment of the early MB IIa period. Among the finds were the remains of goats, sheep, turtles, wild animals, and the complete skull of a donkey.

3.9 Tel Qasile

Only limited MBA remains were discovered during the extensive investigations of this important site on the northern bank of the Yarkon river, ca. 2 km upriver from the sea. In addition to a few MB II tombs, MB IIa sherds were found on bedrock in all areas of excavation (Mazar 1980: 9). Salvage excavations exposed an MB IIa kiln located in a narrow gully east of the main site (Ayalon 1986-1987: 12-5). Among the MB IIa ceramics associated with this installation were fragments of a MCCL style jug and a TEY ware juglet (Ayalon 1986-1987: fig. 16:8-9; Zevulun 1986-1987b). A small settlement of this period apparently existed on some unexcavated portion of this 1.6 ha site, and functioned as a small riverine anchorage and fording point that complemented Tel Gerisa. Ayalon (1986-1987: 9) notes the presence of foreign ballast stones in a fill of a Byzantine road on the western side of the site, which is clearly indirect evidence that an anchorage existed here even at some later date.

3.10 Tel Gerisa

Three teams of investigators have worked at this site. Sukenik carried out the initial excavation of the fortifications, which were partially re-excavated and published by Geva (1982). At present, a long term project is underway that will presumably incorporate the results of the earlier

302 It appears, prima facie, that the area south of the Yarkon river began to be utilized for habitation and burial only in the MB IIb period. As the pottery from these sites is unpublished, this observation is based on secondary sources and syntheses (Gophna & Beck 1981; Broshi & Gophna 1986; Gophna & Portugali 1988) and a gazetteer of sites in the greater Tel Aviv-Jaffa area (Or (Ordentlich), et al. [1986]).

303 An unusually high sample of Cypress pollen (forty-eight percent) is reported at this site, perhaps suggesting intentional cultivation (Horowitz 1988: 277).
project (Herzog 1993). Many questions were left unaddressed by Geva's report and much of the reconstruction of the sequence remains in doubt (Chapman 1984).

### 3.10.1 Environment and economy

The site was established on the third *kurkar* ridge of the Coastal Plain ca. 4 km upriver from the sea, near the confluence of the Ayalon and Yarkon rivers (Herzog 1993: 480). The ridge outcrops into the river like a cataract, creating a waterfall whose flow in recent centuries was utilized for power, hence its modern appellation: “Seven Mills” (Geva 1982: pl. 1:1-3; Herzog 1993: 480). The river was clearly navigable up to this point until the British Mandate. In antiquity, this site served both as a fording point for north-south movement and as a riverine port, although it is not clear what types of craft were navigating the river.\(^{304}\) If further stretches upriver were navigable, goods could be transshipped or portaged past the *kurkar* cataract on to other craft. Archaeobotanical remains of wheat, peas, dates, olive wood (sixty percent) and stones (Lipschitz 1987: 144; 1989: table 5), may suggest of mixed agricultural activity or consumption.

### 3.10.2 Summary of MB IIa remains

Following an EB II-III settlement, and a phase represented by IBA sherds, Tel Gerisa is resettled during the MB IIa period (Herzog 1993: 482). At some time during the middle of the period, the site was encircled by a 1.7 m brick wall, the first of three fortifications phases protected by a glacis (Herzog 1993: 480-2). This glacis was created with alternating layers of *hamra*, *kurkar*, and sand, the latter perhaps to facilitate the drainage of rainwater penetrating the upper layers of the clay and mudbrick facing (Herzog 1993: 481). The second MB IIa phase is quite complex with two types of 2.2 m wide wall configurations, single and double, incorporated in a single area; two habitation levels were associated with each MB IIa wall phase (Herzog 1993: 482). Among the other features reported with the habitation levels are silos and some cultic vessels. Sukenik discovered an installation which he termed the 'workshop oven' (Geva 1982: 10-2, pls. 6 & 11), which may have been a pottery kiln (Herzog 1993: 480). In addition, there is an enigmatic reference to the presence of MBA “slag” in a preliminary communiqué ([Sukenik] 1944).

### 3.10.3 The water system

Among the most technologically sophisticated discoveries at Tel Gerisa is the MB IIa water system (Tsuk 1992). The inhabitants quarried a rectangular shaft (6.2 x 5.1 m) through the underlying *kurkar* bedrock down to the water table, leaving behind a hewn stairway complete with a raised protective wall. A square stone-built well was constructed within the shaft at a later, perhaps Iron Age, date, putting the original system out of use. So far excavation has reached 8.4 m below the top of the well, still some 11 m above the estimated depth of the water table. Despite the fact that Sukenik's earlier excavations disturbed many of the levels surrounding the installation, a stratigraphic

\(^{304}\)Examples of rounded non-local ballast stones can still be seen on top of the tell, which is suggestive of seagoing craft (personal observation).
relationship could be established with the MB IIa levels, supporting the suggestion that the shaft was a component considered in the planning and fortification of the city.

3.10.4 Pottery finds

As the pottery from the recent excavations is unpublished, only those sherds published by Geva are available for study. Her stratigraphic sequence and typology may be significantly amended by future work, but for now it is sufficient to note that the majority of the published ceramics from both of her strata date to the MB IIa/2-3 phase.305

3.10.4.1 MC and TEY pottery

Five examples of MC sherds, including examples of WPPL and WP “Wavy Band Line” were found in the deepest MB IIa levels (Geva 1982: 36-37, fig. 32). Four WP sherds, including the handle of what appears to be a WP V “Eyelet Style” jug, were found in Stratum III (Geva 1982: fig. 31:7).306 One body sherd of TEY ware was discovered in the bricks of the city wall (Geva 1982: fig. 33:23). Another suggested example is a button base from the glacis fill (Geva 1982: 55, fig. 38:20). As the locus of the former is not mentioned anywhere in the volume, it is impossible to ascertain its precise fortification phase.

3.10.5 Summary

The establishment and prosperity of Tel Gerisa apparently derived from its location on a navigable stretch of river near a fording point along one of the north-south land routes. The small sites in the vicinity, both north of the Yarkon and perhaps to the south of the tell, which are represented by settlements and tombs, may have been part of the immediate agricultural hinterland of Tel Gerisa. Future studies should seek to clarify its role in local and international exchange. The MC wares and the site's contemporaneity with Aphek make the riverine port of Tel Gerisa a good candidate, perhaps together with the unexplored MBA site at Tel Qasile, to be the commercial maritime partner of Aphek.

3.11 Tel Aphek

As a result of the swift preliminary publication of its substantial MB IIa remains, Tel Aphek (Râs el-‘Ain) has been a key site for the study of this period for over 20 years. Its importance relies on a well-excavated ceramic sequence derived from stratified settlement levels. Although these ceramics do not originate from destruction levels, and comprise a limited number of complete vessels, the sequence has become the foundation for all studies of southern Levantine ceramics during this period.

305 Apart from the aforementioned kiln, no other evidence for pottery production has been found, although some storage jars were thin sectioned and found to be made of a non-calcareous clay, perhaps Yarkon river alluvium or hamra soils (Shoval & Gaft 1993).

306 If the latter identification is correct, and it is not derived from a dubious assemblage, this might be one of the earliest imports of this type.
Until more substantial publication of the finds from other sites, the analyses of Beck (1975; 1985b) provide the most reliable typological sequence for this area. The relative chronology of the present study relies heavily on the Aphek sequence, despite various limitations which are alluded to in the text. A detailed presentation of the ceramic finds from Aphek follows in order to provide a clear understanding of the criteria for the relative chronological framework employed.

3.11.1 Environment and Economy

Aphek is located in the southeastern corner of the Sharon Plain, in the heart of a lush alluvial zone bordered in the east by the Samaria hills, and the north and south-west by hamra hills. The site's position on a presumed ancient hillock beside the abundant springs of the Yarkon river attracted human settlement at least as early as the Chalcolithic period (Beck & Kochavi 1993). Its importance was also augmented by being on the corridor that runs along the inner part of the Coastal Plain. From this position Aphek could have controlled a fording point, within an occasionally swampy region.

The proximity to the hills (ca. 2.5 km) enabled utilization of the nearby slopes for stone, wood, horticulture, pastoral activity, and interaction with highland communities. The nearby limestone could have been quarried for building stone, as was the case in the construction of MBA Palace III (Beck & Kochavi 1993: 67). The presence of olive wood and stones in MBA contexts is indication of oleaculture (Lipschitz 1987: 144; 1989: table 5). Other wood suggests the exploitation of nearby forests (Kochavi 1975: 23). The presence of wheat may only reflect one type of field crop of the inhabitant's agricultural base (Liphschitz 1989: table 5). Comparison of the MB IIa faunal remains with those of nearby EBA Tel Dalit indicates a relative increase in cattle, perhaps suggesting the increased use of draft animals, i.e., agricultural intensification (Hellwing & Gophna 1984: 57). The dominance of caprovines is consistent in both periods, but in the MB IIa period there is a slight increase in the slaughter age, suggesting that animals were being kept longer in order to exploit their secondary products (Hellwing & Gophna 1984: 51).

3.11.2 Summary of MB IIa remains

The MBA remains of ancient Aphek were first excavated during the 1930s (Areas O1 and O2; Ory 1936; 1938; Illife 1936), and then explored more extensively in the 1970s and 1980 (Areas A, B, X, & G; Beck & Kochavi 1993; Table 11). MB IIa levels were uncovered in seven excavation areas, suggesting that much of the 10-12 ha mound was occupied during that period. In most instances the remains were built directly upon levels of the EB II period, which was the previous substantial settlement, although scattered EB III sherds were found (Beck & Kochavi 1993: 65-6, tables). No excavations by Eitan (1969) produced some ceramics and a cyst grave, but no significant architectural remains.

Excavations by Eitan (1969) produced some ceramics and a cyst grave, but no significant architectural remains.

In light of the massive MB IIa construction activity, particularly in the acropolis area, it is possible that EB III or IBA settlements, albeit limited, may have been destroyed, or lay in unexcavated
IBA remains were found on the site, although a cemetery was excavated at Kibbutz Horshim, 10 km to the northeast (Gilboa & Yannai 1992).

Ory’s excavations in Areas O₁ and O₂ unearthed, respectively, a MB IIa city wall and cemetery. The TAU excavations concentrated on exposing MB IIa levels of the acropolis on the northwestern corner of the tell (Areas A, B, and X), where the “shaving off” of the ancient summit for the construction of the Ottoman fort made BA remains more easily accessible (Beck & Kochavi 1993: 66). Area G, on the southwestern slope, served as the MBA potters’ quarter (Beck & Kochavi 1993: 66-7, table). The remains from all areas have been condensed into a four phase chronological scheme based on stratigraphy and ceramic typological development (Beck 1975; 1985b):

Phase A (=MB IIa/1)

The earliest remains were found in the acropolis area, which may have been the nucleus of the initial unfortified settlement (Beck 1985b: 188-90). The settlement is characterized by dwellings (Areas B & X), wooden installations, and a burial (T.494, Area A), all of which the excavators stress existed for a short duration (Kochavi 1975: 23; Beck & Kochavi 1993: 65-6, tables).

Ceramics: no red-slipped ware; incised and relief designs; painted geometric net-pattern designs; and flat and disc-base bowls.

Phase B (=MB IIa/2)

The acropolis underwent its first major urban organization. In Area X, a 3 m fill composed of EBA and MB IIa/1 material was laid within retaining walls to prepare a foundation for Palace I (Beck & Kochavi 1993: 67). The limited exposure of this presumed public building revealed a courtyard enclosed by uniformly 1.2 m wide walls, containing ovens and a storage facility. A second phase was marked by the general raising of the floors and walls, accompanied by intramural burials. Kempinski’s suggestion (1992c: 170) that this is a patrician dwelling cannot be resolved at present, but it is noteworthy. In Area B, north of the building, a 3.5-4.0 m city wall was built, protected from the steep slope and a gully by substantial stone foundations with well-made drainage openings and external buttresses. The excavators suggest that the precipitous gradient and the swampy soil at its base was the reason for the four repairs distinguished in this phase. The orientation, construction, and pottery associated with the wall in Area O₁ suggest that this is a continuation of the wall in Area B (Beck & Kochavi 1993: 67-8, table). Private dwellings were constructed in Area A, complete with ovens, silos, and intramural burials (Beck & Kochavi 1993: 67; Kochavi 1975: 23-4). Analysis of the pottery from these burials suggests that they are coeval with some of the built tombs in Area O₂ and may have been used by the inhabitants of Palace I, which was separated from the cemetery by the aforementioned gully (Beck & Kochavi 1993: 67).

areas. Perhaps, as in the Shephelah (Seger 1989), where there is a paucity of the fossile directeur Khirbet Kerak ware, different criteria are needed for identifying the EB III presence at Aphek.
ceramics: appearance of red-slipped and burnished ware along with painted designs; appearance of the carinated bowl.

**Phase C (MB IIa/3)**

Palace I was abandoned during this phase, and the seat of Aphek’s central authority shifts 100 m to Palace II, which was constructed on the western slope of the tell in Area A (Beck & Kochavi 1993: 67). Despite the destructive effects of erosion, three phases of this structure were exposed in an area over 750 m². The plan included rooms and courtyards, which contained ovens, column bases, and intramural burials placed beneath fine plaster floors. The fortification system in Area B was replaced with a new city wall.

ceramics: zenith of red-slipped and burnished wares; appearance of deep bowls with knobs, biconical carinated jugs, and piriform juglets with button base; ring bases; rarity of incised decoration and hemispheric bowls; absence of flaring neck storage jars, holemouth kraters, medium-size storage jars with internally concave rims, medium-size storage jars with handles, and painted sherds.

**Phase D (MB IIa/4)**

Palace II was abandoned at the beginning of this phase and on its remains private dwellings were built that include intramural jar burials (Beck & Kochavi 1993: 67). It is possible that the construction of Palace III in Area X, the most monumental of the Aphek palaces, begins in this phase. This structure, which reached its zenith in the MB IIb period, was built with massive stones on foundations that were 2 m wide and 2.5 m deep. Only the northern wing was exposed, which covered an area of 2000 m². This wing consisted of a series of rooms surrounding a central hall, 150 m² in area, whose roof was supported by columns one meter in diameter. The 25 cm thick plaster floor of this palace is particularly impressive. A potters' workshop was established upon EBA remains, far from the acropolis on the southwestern slopes of Area G. Initially it consisted of a single kiln, but the workshop was expanded in the MB IIb period (Beck & Kochavi 1993: 66-8, tables).

ceramics: appearance of unslipped bowl with high, rounded carination and stepped rim juglets; many types that are harbinger of later forms.

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309 Assuming a basic symmetry of plan, Kochavi (1989a: 48-9) estimates the palace to have covered an area of as much as 4000 m², which is comparable the estimated area of the Kabri palace.

310 It is not clear whether these columns were constructed entirely of unhewn stones, or whether they were foundations for mudbrick or wooden columns. In either case, the span of the roof would have demanded long timber, which is generally unavailable locally (Liphschitz & Biger 1995: 121-2).

311 While purely conjecture, given the effort displayed in the construction of this palace, and particularly this floor, some unexcavated portion of the palace might have been decorated with painted plaster, perhaps including Aegean motifs similar to those at Kabri.
3.11.3 Levantine Painted Ware

In Phase A, LPW types include storage jars, juglets, and, possibly, handleless jars. The storage jars are decorated in both monochrome and bichrome bands; lozenges and triangles filled with net-pattern decoration; and a schematic tree motif (Beck 1985b: 183, fig. 3:7-10). A possible handleless storage jar fragment has bichrome bands and concentric circles (Beck 1975: 54, fig. 1:9), and juglet fragments occur with monochrome concentric circles (Beck 1975: fig. 1:7-8).

In Phase B, storage jars are decorated with monochrome bands, and framed wavy and intersecting lines (Beck 1975: 53, fig. 3:7-10). One juglet fragment is decorated with monochrome concentric circles (Beck 1975: fig. 15:3). A number of LPW examples were found in Ory's T.2, T.4, and T.5, which are attributed to this phase. In T.2, a globular jug is decorated with red bands, triangles filled with net pattern, and a pendant design around its neck (Ory 1938: 116, #77, pl. XXV; Amiran 1969a: pl. 35:8, photo 113). Two juglets are decorated with horizontal red bands, and are painted both on the handle and rim (Ory 1938: 117, #80-81, pl. XXX:5, 6). A large jug is similar in decoration to the preceding juglets (Ory 1938: #82, pl. XXIX:4). In Ory's T.4, two jugs of identical shape decorated in bichrome paint in horizontal lines and net-pattern filled triangles were found (Ory 1938: 118, #89-90, pl. XXV; Amiran 1969a: pls. 33:9, 35:7, photos 112, 114). In Ory's T.5, one jug was found with horizontal red lines (Ory 1938: 119, #105, pl. XXXI:4), while the other is decorated in bichrome horizontal lines, with red pendant decoration around the neck (Ory 1938: #106, pl. XXX:3).

A number of other vessels are attributed to either Phase A or B: one trefoil bichrome painted jug (Kochavi, Beck & Gophna 1979: fig. 4:8; Kochavi 1989a: fig. 24); a handleless jar with bichrome bands and herringbone decoration (Kochavi, Beck & Gophna 1979: fig. 4:9; Kochavi 1989a: fig. 24); and a globular juglet with gutter rim, decorated in two shades of red with concentric circles, pendant decoration, and horizontal lines on the neck and triple handle (Beck 1975: 76-82, fig. 14:8, pl. 12:8).312

3.11.4 Tell el-Yahudiyah Ware

No examples were reported from the most recent excavations. Fragments of a juglet were found in Ory's excavation (1938: 108, #10, pl. XXXIV:11-12), but they may belong to the MB IIb period.

3.11.5 Cut-away neck and other “Anatolian” elements

A possible cut-away neck juglet from Phase C is reported (Beck 1975: fig. 10:3). In the same locus, a deep bowl with cross decorated knobs was found, which Beck (1975: 64-5, fig. 10:4) compares to designs from Ugarit and Karahöyük in the Konya plain in Anatolia.

312 Two unstratified handleless jars were found in Ory's excavation, one with pink bands (Ory 1938: 113, #44, pl. XXXIII:18) and another with horizontal black bands (Illife 1936: 123, #29, pl. LXV).
3.11.6 Egyptian and Egyptianizing elements

A ceramic alabastron, which imitates Twelfth Dynasty Egyptian stone vessels, was found in Phase D (Beck 1975: 74, fig. 10:7). Visual inspection by Beck suggests it is made of a TEY-like fabric.

More than a dozen scarabs from Aphek are attributed to the Middle Bronze Age, but only two can be stratigraphically attributed to the MB IIa or MB IIa-b periods, Phases C and D (Giveon 1988: 40-56). 313 Many of the scarabs from later levels may be heirlooms, and it seems that scarabs occur only from the MB IIa/3 phase.

3.11.7 Local pottery production

The existence of a potter's workshop in Area G is direct evidence for local pottery production. Until the publication of this installation and analysis of its associated ceramics, and those from the site, little can be said regarding the typological range of production. The storage jars used as comparanda in the analysis of a seal impression indicate that non-calcareous clays were among the raw materials used, perhaps from the Yarkon river alluvium or hamra soils (Shoval & Gaft 1993).

3.11.8 Seal impression

A fragmentary seal impression was found in a rubbish pit in Area A, which contained mixed material as late as the Iron Age (Beck 1993). Stylistically the impression is related to the “South Levantine Green Jasper workshop”, although some artistic elements and the quality of workmanship point to a North Syrian connection. The back of the impression has imprints of grain stalks, perhaps from a wicker box or basket. Despite its dubious context, the sealing is a reflection of the role of Aphek as a focus of central authority and economic administration. 314

3.11.9 Metal finds

With the exception of one surface find, all of the MB IIa metal finds are weapons that come from tomb contexts. While the finds from Ory's excavation are primarily from Phase B, only a general attribution can be given to the material from the most recent excavations. These include two socketed spearheads, one flat spearhead, two daggers, and two duckbill axes. 315

313 These scarabs were found in Area A, Stratum 14 (Palace II) and Stratum 13 (ruins of Palace II) (Giveon 1988: 44-7, #37, #38).

314 Petrographic and infra-red analysis suggest an origin consistent with the greater Yarkon river basin (Shoval & Gaft 1993).

315 Socketed spearheads from Tombs 2 and 4 (Ory 1938: 120, pl. XXXII B:5, 7); daggers from Tombs 4 and 5 (Ory 1938: pl. XXXII B:2, 6); one flat spearhead found with MB IIa vessels (Ory 1938: pl. XXXII B:3); and two duckbill axes from Tombs A & C (Miron 1992: 54, pl. 16:247-8). Some other daggers and spearheads are assigned a MB IIa provenience (Kochavi 1989a: fig. 40). Although all are assumed to be bronze, only the duckbill axes have been analysed, both of which are
3.11.10 Summary

For the reasons described above, Aphek continues to be one of the key sites for the study of the MB IIa material culture, whose utility perhaps decreases with distance (Beck 1985b). While absence of evidence is not always evidence of absence, it is instructive to note the lack or rarity of many local types, such as LPW dipper jugs and juglets, MC pottery, etc (Beck 1985b: 195). In addition to its modern scholarly importance, its importance in antiquity is evident in the material remains. Clearly, this fortified site possessed great economic and political wealth. However, while broad characterizations of the site and the geographic extent of its influence may be premature (Kochavi 1989a: 55, fig. 38), they may serve as working hypotheses for future research.

4. Southern Coastal Plain and Shephelah

The Southern Coastal Plain is bordered in the north by Nahal Yarkon and in the south by the Sinai desert. In contrast to the region’s other coastal plains, this region is bordered in the east by a gradually rising plateau, called the Shephelah, which marks the transition to the Judean Hills. The region is bisected by numerous ephemeral streams, although some of the lower reaches of these courses are perennial (e.g., Nahal Sorek). The western region is characterized primarily by sand dunes and kurkar ridges, but some hamra hills are present. Together they divide the coastal zone from the inland eastern zone, which is composed of alluvial soils that are increasingly replaced by loess to the south. The straight shoreline is composed of alternating coastal cliffs and more moderately sloped sand dune beaches, both of which are occasionally broken by sand-filled river mouths.

Thus, on the one hand, this is the broadest coastal plain of the southern Levant, affording a more expansive lowland agricultural zone. On the other hand, the greater distance from the highland, meant lessened access for shoreline communities to the horticultural zones, woodlands, and limestone sources. The function of the Shephelah was, therefore, both as a broad highland-lowland interface and a mixed agricultural-horticultural zone. Water was available near the shore from the high aquifer, with springs and precipitation increasing towards the hills in the east. As in the other coastal regions, impeded drainage was a major factor affecting land use and movement. Longitudinal communication was carried out along the inner part of the plain, near the foot or, on top of the Shephelah, and perhaps along the shoreline itself, all of which connected to the northern Sinai coastal route. Lateral movement probably followed the river courses that enabled easier passage through the dunes, hills, and ridges.

The extremely sparse IBA presence is represented primarily by occasional tombs and sherds in later settlement levels (Gophna & Portugali 1988: 16-7, fig. 6). Urban settlement in the MB IIa period is divided between shoreline and inner Coastal Plain, occasionally surrounded by small rural

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316 Some scholars divide this plain into three sub-units, the Judean, Philistine, and Negev coasts (e.g., Orni & Efrat 1971: 36).
sites (Gophna & Beck 1981; 1988; Gophna & Beit-Arieh 1997: 63-4, 52*,-3*; Table 6.4). While urban settlement extends along the coast as far south as Tell el-'Ajul, its inland counterpart appears to end somewhat further north, perhaps with the exception of Tell Beit Mirsim, on the Highland-Shephelah interface.

4.1 Jaffa

Although the only evidence of MB IIa occupation at Jaffa are a few tombs (Kaplan & Ritter-Kaplan 1993b: 659), the extreme depth of the remains and later ancient and modern accumulation may well explain this bias. Jaffa's later prominence as an important port suggests that it could have also served MBA navigators.

Although most scholars view the modern fishing harbor, built upon a natural kurkar reef, as the site of the ancient anchorage, Raban (1985: 27) identifies an alternate location. Towards the end of the last century, a local minister observed the seasonal formation of a swamp just east of Jaffa and surmised the position of an ancient body of water connected to the sea (Hanauer 1903; 1903). He further noted that attempts made to dig a well were thwarted by a large wall, and that sand was found at a depth of 11 m, far deeper than is usually the case in the area (Hanauer 1903: 260). Local residents reported that stone anchors had been found in this depression, although excavation revealed no remains of a harbor (Barton 1903; Shepstone 1937: 265). This seasonal swamp is clearly marked on Jacotin's map of 1799 (Elster 1964). Raban suggests that this feature may have been akin to a Phoenician "cothon", i.e., an excavated basin connected to the sea by a channel, but this does not preclude the utilization of what was originally a natural basin. He further suggests that the original course of the Ayalon river may have entered the sea here, and was intentionally diverted to its current course.317 Until a thorough geomorphological investigation is carried out, this harbor will remain an enigma.

4.2 Bat Yam

Part of a large building was exposed during a salvage excavation on the summit of the second kurkar ridge in a poorly drained area southeast of Jaffa, some 2 km from the sea (Gophna & Beck 1981: 53, pl. 8). With the exception of two jug rims, which could be MB IIb types, all of the ceramic finds belong to the MB IIa/3-4 period (Gophna & Beck 1981: 62; 1988: 76-8). Among other finds are a ceramic stand, a seven-cupped bowl, part of an ornithomorphic vessel, and the shoulder of a MCWP jug.

4.3 East of Yavne Yam

Among the finds from this small settlement, which is attributed to MB IIa/2-3 (Gophna & Beck 1981: 63-5), are a juglet with a monkey appliqué and a LPW pendant motif jug (Gophna & Beck 1981: fig. 10:25, pl. 14:8, 35).

317Raban (1985: 27) suggests that a layer of river pebbles found in corings off the coast of Jaffa are an indication of any ancient river outlet.
4.4 Bank of Nahal Sorek

This 0.7 ha settlement is located on the northern bank of Nahal Sorek, east of Yavne Yam, and has MB IIa/4 ceramics (Gophna & Beck 1988: 79). A possible stone anchor was also found. These finds and the presence of fish bones suggest that small fishing craft may have used this river for navigation.

Ten meters to the east, two MB IIa pottery kilns, which apparently belong to this site, were exposed and damaged by a winter torrent; only one surviving kiln was excavated (Singer-Avitz & Levy 1992). The ceramics from this kiln belong to the MB IIa/2-3 phases (Singer-Avitz & Levy 1992: 10), which are somewhat earlier than those collected at the settlement.

4.5 Dhaharat el-Humraiya

Dever (1976: 18, n. 104) was the first to draw attention to the importance of the MC imports among the MB IIa remains in this cemetery, which is near Nahal Sorek. Ory's excavation (1948) concentrated on an area of ca. 420 m², from an estimated total of 750 m², revealing sixty-three tombs spanning the MB IIa through the LBA periods. All of the MBA tombs are shallow pit graves with a single interment (Ory 1948: 75-7, n. 1, fig. 2). Although the actual finds require re-examination in light of current typological criteria, what may be gleaned from the illustrations suggests that tombs 12, 21, 55, and 62 should probably be assigned to MB IIa; tombs 1, 13, 15, 18, 34, 38, and 50 belong at least to MB IIa-b, if not earlier; and Tombs 42 and 49 should be provisionally assigned to MB IIa-b.319

On the basis of the bichrome painted jugs in T.62, this site may date as early as the MB IIa/2 phase, although the majority of the red-slipped wares in the cemetery seem to be form a later phase. Of particular interest is the combination of LPW and MC jugs in T.62, although the excavator notes that the tomb was slightly disturbed (Ory 1948: 88). Note that this cemetery has produced the largest number of MCWP wares of any site in the southern Levant (Johnson 1982; Maguire 1990: 17).

4.5.1 Levantine Painted Wares

Two painted jugs were found in an MB IIa tomb (T.62). They are decorated in red slip, and painted with diagonally-crossed black lines and red paint on their necks and handles (Ory 1948: 88,

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318 Prof. R. Gophna kindly showed the author a slide of this object, which is located today in the Kibbutz Palmahim museum. The anchor is fairly round and small (ca. 50 cm in height), and could have served a small boat.

319 In a recent study, Dever (1994: 67) has slightly modified his views on the relative dating of these tombs, but has not offered any detailed reasons. Dever (1976: 18, n. 104; Ward & Dever 1994: 67) notes that T.2 should be placed within an MB IIa-b range, but the presence of juglets of the candlestick rim type (Ory 1948: figs. 7, 8) may argue against his assignment. Tomb 1, ascribed by Dever to the MB IIb period has possible late MB IIa forms.
One storage jar with red painted bands on its shoulder was found in an MB IIa-b tomb (T.18) (Ory 1948: 88, fig. 34).

4.5.2 Middle Cypriot Wares

MB IIA tombs (12, 55, and 62) contained five examples of WPPL jugs (Ory 1948: 81, 86, 88, figs. 13, 37, pl. XXXII: 2, 6, 19). MB IIa-b tombs (1, 13, 18, and 34) contained seven WPPL jugs and one WPCL jug (Ory 1948: 79, 81-2, 84, 86, figs. 14-15, pl. XXXII: 2-3, 8, 14, 19, 21, 24).

4.5.3 Egyptian or Egyptianizing finds

An MB IIa-b tomb (18) contained a faience bottle with Levantine features, such as a pedestal base and pinched sides (Ory 1948: 82, fig. 20; Weinstein 1975: 5, n. 45). The shape is reminiscent of the fruit-like TEY vessels (Amiran 1975). Two possible MB IIa-b tombs (42 and 49) contained a clay imitation of an Egyptian calcite jar and a steatite design scarab set in an electrum band (Weinstein 1975: 5; Ory 1948: 86, pl. 33:11).

4.5.4 Metal finds

MB IIA tombs (12 and 21) contained a bronze toggle pin and a dagger (Ory 1948: 81, 83, pl. XXXIII: 22). An MB IIa-b tomb (15) produced another bronze toggle pin (Ory 1948: 82, pl. XXXIII: 23). A possible MB IIa-b tomb (49) produced a bronze knife and silver earring (Ory 1948: 86).

4.6 El-Jisr

MB IIA finds were present in tombs excavated by both Mayer (1926) and Ory (1946). Mayer (1926: 2) excavated a three-chambered tomb entered via a staircase. Although only a representative sample of pottery was published, the ring bases might suggest a MB IIA/3 attribution (Mayer 1926: pl. 1, bot. right). Of particular interest is a drop-shaped MK Egyptian calcite jar and a metal plate or mirror (Mayer 1926: 2, pl. 2 bot. right; Weinstein 1975: 4). These tombs may attest to the existence of a settlement that was associated with a fording point at Nahal Sorek (Ory 1946).

4.7 Yavne-Yam

Yavne-Yam is located ca. one km south of the present outlet of Nahal Sorek along a section of the coastline characterized by eroded kurkar cliffs and sand dunes. Although only limited surveys and salvage excavations have probed the predominantly sand covered area, a number of relevant discoveries have been made. Kaplan's excavations (1993b) established that the site was enclosed by an

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320 These vessels have typological parallels at Tel Nami and Amrith, although the designs vary.

321 See also examples cited by Kaplan (1980: fig. 22) from Tell el-Yahudiyah and Tell el-Dab’a.
MB II rampart composed of alternating layers of *hamra, kurkar*, and sand, the first phase of which may have originated in the MB IIa period. Domestic remains of this period were found on virgin soil in one probe near a city gate in the southeast of the site (Kaplan 1993b: 1505-6). In Kaplan's opinion (1975: 4-6), the city had a square plan of ca. 64 ha, whose western two-thirds were eroded by the sea. In light of the evidence from Ashkelon, Finkelstein (1992b: 205) suggests that seafront was unfortified. Underwater surveys of the nearby shore have found no traces of any terrestrial remains (Galili & Sharvit 1991: 113; Galili, Dahari & Sharvit 1993: 61-3). However, Raban (1993a: 964) reports that there are submerged remains of a terrestrial character. Thus, the area of the city is more like the 25 ha estimate suggested by Sadeh (1991: 18).

The nearshore area, 6 ha of which is protected by submerged reefs, served as an anchorage from at least the Late Bronze Age onward (Galili & Sharvit 1991: 113; Galili, Dahari & Sharvit 1993: 61-3). Stone anchors, some of which are LBA types, were found primarily in the vicinity of a crude stone rampart measuring 100 by 50 m, which appears to have augmented the natural protection of the reef at some unknown time (Galili, Dahari & Sharvit 1993: 62, fig. 2, 3a-b). Some of the amorphous anchors collected here may belong to earlier periods. While there is nothing to preclude this anchorage having been used in the Middle Bronze Age, the lack of positive evidence might indicate that alternate sites for Yavne-Yam's harbor should be sought elsewhere, perhaps at the ancient river mouth on the northern side of the city.

### 4.8 Gezer

Following its initial exploration by Macalister, the American excavations revealed enough evidence to suggest that during the MB IIa period Gezer was an unfortified site established on EBA remains (Dever 1993a: 500). No real EB III finds are apparent and only scant IBA pottery precede the predominantly domestic remains of the middle to late MB IIa period (Dever 1993a: 498).

#### 4.8.1 Levantine Painted Wares

A tomb from Macalister's excavation produced two painted vessels: a jug with two bands of net-pattern filled lozenges, all in black, and a biconical juglet with horizontal bichrome lines and pendant decoration (Macalister 1912: 298-300, fig. 158:6-7). A juglet found by the latter expedition is decorated with red paint strokes on its double handle, two horizontal lines at the middle of the body, with perpendicular lines extending to the base (Dever, et al. 1986: pl. 1:6).

#### 4.8.2 Egyptian finds

An MK statue of an Egyptian princess was found in secondary use in an LBA wall (Weinstein 1974). It could have arrived earlier, but this is not supported by any independent evidence.

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322 Although the line drawings of the accompanying pottery are difficult to assess, the handleless jar, hemispheric bowl, the jug and juglet forms, and the use of burnishing suggest an MB IIa/2 attribution.
4.9 Tel Miqne - Ekron

Deep, but limited, soundings and sherds from later contexts suggest that this 20 ha site had its origin in the MB IIa period (Dothan & Gitin 1993: 1054). Given the geometric shape of the mound, which is typical of MBA cities, its plan and size may already have been established in the MB IIa period, but this will require further investigation. Among the ceramic finds attributed to this phase are painted storage jars and TEY ware (Killebrew 1986: 8).

4.10 Ashkelon

The estimated size (ca. 60 ha), presumes great importance for this port site, which was blessed with fertile soil, abundant available groundwater, and an anchorage that is still obscured by later geomorphological processes (Stager 1993: 103). Excavations on the north tell have exposed the stone facing one of the most impressive glacis fortification ever excavated in the Levant, which were crowned by a mudbrick wall (p.c. cited by Finkelstein 1992b: 205). Four phases of this rampart construction have been distinguished. The earliest phase is attributed to the MB IIa, and was covered with sloping mudbricks and mudplaster (Stager 1993: 106), a construction similar to that of Tel Gerisa. An arched mudbrick gate from the MB IIb period was also found in this area and may cover an earlier gate. MBA installations and sherds were also found in excavations of the southern tell, some 750 m from the northern tell. Even if the maximum extent of the rampart, which is 2 km long, should prove to be a later construction, the distance from the northern edge of the site to the southernmost exposure of MB IIa remains (Grid 50) suggests an impressive urban center. Like other sites considered in this work, Ashkelon most likely developed in stages, with its present estimated size being the MB IIb culmination. Like Yavne-Yam, this site does not appear to have been fortified on its seaside (Finkelstein 1992b: 205). The only published small find from the MB IIa period is a hematite cylinder seal of Old Assyrian style (Stager 1993: 106; Collon 1987: 43, #138). No context is given for this find. A duckbill axe reported by Maxwell-Hyslop (1949: 121) is attributed to the site. From seven MB IIa ceramics samples submitted for INAA analyses, a TEY vessel probably originated at Tell el-Dab’a and two Canaanite jars were of unknown provenience (McGovern & Harbottle 1997: 151).

4.11 Tell Beit Mirsim

Over sixty years later, Albright's excavations at Tell Beit Mirsim still remain a cornerstone of the archaeological record for the southern Levant. Although not rich in small finds, Albright's meticulous recording and comprehensive analysis of the large ceramic assemblage has ensured that this otherwise ordinary southern Shephelah site has an enduring role as a key site for much of the Bronze and Iron Ages. It was here, following his analysis of the stratigraphy and pottery of Strata G and F, that Albright (1938: 24-5) hesitantly coined the term “Middle Bronze Age IIa”, which, some would argue, unjustifiably remains in the literature to this very day.
Albright (1938: 17-9) argued that Stratum G was a walled city established on the remains of an IBA settlement, although re-analysis of his original plans shows that the city wall belongs to a later MBA stratum (Yadin 1973 *contra* Eitan 1972). The MB IIa settlement is generally characterized by modest domestic structures, although a single, perhaps two-story, patrician house appears to have existed along the southeastern perimeter (Albright 1938: 20-2, pls. 49, 56). Unfortunately, the pottery of Strata G and F could not be divided typologically (Albright 1932: 14-8, pls. 6-7, 41:1-6; 1933: 67-75, pls. 4-5, 21-22). Even today, in light of better understanding of MB IIa ceramics, the nature of the publication and range of repertoire does not allow any finer distinctions. The abundance of red-slipped and burnished wares suggests a position well into the MB IIa/2-3. Some traits, such as knob-handled kraters, high-footed and ring bases, and wide flaring carinated bowls (Albright 1933: pls. 4:7, 9, 11-12, 5:5), suggest an MB IIa/3-4, or later, attribution. The appearance of the net-pattern decoration on a storage jar, considered an MB IIa/1-2 hallmark, is found on an elongated rim with an external ridge, a form found throughout the Aphek sequence, but common in the MB IIa/2 phase and later (Beck 1985b: 194).

### 4.11.1 LPW and MC Pottery

Examples of storage jars are decorated with red net pattern on a white wash, and with wavy and horizontal lines of red and blue, or perhaps black, paint (Albright 1933: 70, pls. 4:13, 16, 22:1-1b). Numerous body sherds show similar decoration (Albright 1933: pl. 22:2-4, 6, 8-10). One large body fragment from a MC WPCL jug was found in Stratum G-F (Albright 1933: 74-5, pl. 22:7).

### 4.11.2 Metal Finds

Among the copper, or perhaps bronze, finds from Strata G-F are pins, needles, and a chisel (Albright 1938: 23-24, pl. 42:4, 8, 9). A whetstone and a limestone mold for producing axes, a knife, and an adze were found (Albright 1938: 24, pl. 43:a, c), but these types are common, long-lived forms.

### 4.11.3 Semi-precious stones

Albright (1938: 24) reports one carnelian bead, which he notes along with the paucity of non-ceramic small finds in these strata.

### 4.12 Tell el-ʿAjjuł

Tell el-ʿAjjuł is the southernmost permanent coastal settlement with MB IIa remains. The area possesses plentiful groundwater from the shallow coastal aquifer, which could be exploited by wells, and potential arable land that is now obscured by the extensive sand dunes. The ability to

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323 In recent years salvage excavations of looted tombs in the area have produced IBA and MB IIa remains (Greenberg 1993).

324 A pottery stand, decorated with red and black bands, is considered an MB IIa type (Albright 1932: 30-31, pl. 44:14; 1938: 24).
maintain a year-round sedentary population at the junction of the north Sinai and latitudinal routes, and an anchorage at the mouth of Nahal Besor (Tufnell 1962: 1; Oren 1997b: 255), all contributed to making this site an important maritime and terrestrial "gateway".

4.12.1 Summary of MB IIA remains

Investigations of the tell and its immediate environs by Petrie (1931; 1932; 1933; 1934) have revealed MB IIA remains, some of which have been subsequently re-analyzed (Stewart 1974; Tufnell 1993; Kempinski 1993a and biblio.). Although Petrie found an IBA cemetery on the outskirts of the site, no contemporary remains were found within the confines of the tell (Tufnell 1993: 49). The earliest remains are MB IIA buildings and tombs from the “Courtyard Cemetery” (Tufnell 1962; 1980; Kempinski 1993a: 53). The tombs of this cemetery are arranged in six groups, based both on their stratigraphic relationship with Palace I and comparative typological considerations (Tufnell 1962: 4-8). The range of repertoire limits any refinement, but the pottery of Groups 1-2 are clearly of MB IIA/2-3 types (Tufnell 1962: figs. 3, 9-10). Group 3 appears to have transitional material, i.e., MB IIA/4 or MB IIA-b (Tufnell 1962: fig. 11). Tufnell (1980) ascribes the upper phase of Cave 303 to a stage between Groups 3 & 4, and the lower phase to Group 2. Considering the presence of unslipped bowls with ring bases and the brown-slipped TEY juglet with broad button base (Tufnell 1980: fig. 3:7-8, 11), the earlier phase should be assigned to no earlier than the MB IIA/3-4 periods. The finds of the later phase seem to be MB IIB material (Tufnell 1980: fig. 3:1-4).325 A particularly elaborate MB IIA/3 burial is T.1417, which is bilobate in plan with a well-carved pillar in the center, and an equid burial one meter east of its entrance (Tufnell 1962: 4, figs. 1-2; Wapnish 1997: 350).

Some typologically MB IIA artifacts, including examples of LPW, TEY, and “Anatolian” cut-away vessels have been identified from Petrie's published plates (Dever 1976: n. 19; Gerstenblith 1983: 32; Tubb 1983: 53). All are apparently from the poorly preserved MB IIA settlement, found just west of Palace I (Kempinski 1993a: 53; Stewart 1974: 10). The erasure of this settlement should perhaps be associated with the monumental building activities in the MB IIA-b or MB IIB phases, during which it seems plausible to associate the creation of the rampart enclosure.

4.12.2 LPW, TEY, and “Anatolian” cut-away vessels

The few LPW vessels include: a handleless jar with horizontal lines (Petrie 1933: pl. XXXIII:32A11); a dipper juglet, with strokes on its rim, a pendant motif around its neck, and triangles framed with horizontal lines on its body (Petrie 1931: pl. XLVII: AY); and a globular juglet, with strokes on its rim and handle, a pendant motif, and a spiral framed with horizontal lines on its body (Petrie 1934: pl. LIV: J60N7). The earlier phase of T.303 contained the lower two-thirds of a brown-slipped, piriform TEY juglet with a flat button base (Tufnell 1980: 47, fig. 3:11). It is decorated in the

325 Note her parallels in this regard. The line drawing of the unslipped carinated bowl (fig. 3:1) is misleading; the description on p. 47 indicates a (semi) ring base and not a disc base as illustrated.
middle of the body with alternating rectangular frames, and with triangles along the bottom. A fragmentary “Anatolian” cut-away spouted jug was also found, which has been discussed extensively (Tufnell 1969: 9-10, 15).

4.12.3 Bronze finds

Finds that may be ascribed contextually to this period include three toggle pins, one torque, one ribbed dagger, and a socketed spearhead. Numerous other finds may be assigned typologically to the MB IIA (Dever 1976: n. 19).

5. Jezreel Valley

The Jezreel Valley is an enclosed lowland bordered by the Carmel, Samarian, and Lower Galilee Highlands. The adjoining Akko Plain and Beth Shean valleys are easily accessed, respectively, via an intermontane pass to the west and the Harod Valley to the east. The northern and eastern hill margins are typified by basalt exposures, which were exploited for a variety of uses. This almost triangular valley is blessed with a lush variety of alluvial and other soils around its margins, but is afflicted with hydromorphic soils in its center (Ravikovitch, Koyumdjisky & Dan 1960). The latter is a result of an overabundance water, from precipitation (500-650 mm), mountain springs, and the valley's low gradient, which with only a single river to drain it, Kishon, made it prone to swamps. Thus, in the best circumstances the Jezreel was the potential “bread basket” of the southern Levant; in less optimum conditions, or the absence of human intervention, it was a scourge for agriculture. Because of the topography and poor drainage, movement in the valley was along a “ring road,” that followed the settlements that occupied the hilly margins, which connected with routes up into and through the highlands, to adjacent valleys, and to the Akko and Carmel coastal plains.

Given the physical geography and limited degree of archaeological visibility of this lowland region (Gal 1991b), it is not surprising that nearly all the known sites with evidence of IBA material culture, including habitations, cemeteries, and sherd scatters, are along the margins of the valley (Raban 1982; Esse 1991: fig. 31). Many of these sites continued, either as rural sites or urban centers, in the MB IIA period, when this “ring-road” settlement pattern matured, and intermediate and major tells are located at all the main entries into the valley (Table 6.5).

5.1 Tel Me’amer

Although earlier excavations indicated that the initial settlement at Tel Me’amer dated from the Iron Age, three MBA tombs were salvaged from the southern side of the site (Drucks 1982). All appear to be shallow shaft tombs with niches hewn out of the limestone. The pottery repertoire ranges

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326 From Group 1: two toggle pins in T.1409 (Tufnell 1962: 16, fig. 5:1). From Group 2: a torque in T.1422, a toggle pin in T.1419, a ribbed dagger in T.1417, and a socketed spearhead in T.1417 (Tufnell 1962: 16-7, 27, figs. 10:11, & 17-18). An old unspecified analysis revealed the ribbed dagger to have the following composition: Cu 97.45 Sn 1.0 Pb 0.7 As 0.5 (Tufnell 1962: 17).
from the mid-MB IIa to early MB IIb periods. Among the pertinent finds are a jug painted in bichrome, with alternating red and white triangles, red and white bands, and a pendant decoration; parts of three TEY juglets; and a scarab (Drucks 1982: fig. 3:2-4, 5, 14).

5.2 Tel Qashish

Excavations revealed limited remains of a late MB IIa - transitional MB IIa/b fortified settlement built directly on the remains of the EB III city (Ben-Tor 1993b). Pottery evidence, however, suggests an even earlier MB IIa settlement (Ben-Tor 1993b: 1201-2). One TEY sherd is reported from this phase (Ben-Tor, Portugali & Avissar 1981: fig. 13:8).

5.3 Tel Yoqneam

Three phases of MB IIa settlement were discovered at Yoqneam (Ben-Tor 1993a). The first settlement, Stratum XXIIIB, was established on bedrock and fortified by a wall and glacis. Three bell-shaped tombs, hewn out of the limestone and accessed via a shaft, precede this initial fortification (Stratum XXIIIC). A second fortification system, consisting of a 3 m wide wall and tower, was built over the first (Stratum XXIIIA). The IBA is represented by sherds only. A MB IIa bowl found in a LBA fill was impressed before firing with a scarab bearing the cartouche of Amenemhet III.

5.4 Tell Qiri-Hazorea

Excavations in this settlement, now covered for the most part by buildings of Kibbutz Hazorea, revealed only limited MBA remains (Ben-Tor 1987). Two noteworthy sherds from dubious contexts are possible fragments of a MC WPPL jug and a large burnished TEY jug (Ben-Tor 1987: 272, fig. 65:1-2).

Southeast of Tell Qiri is an EBA to MB IIa settlement that has yet to be excavated (Anati, et al. 1973: 25). Meyerhof (1989) has published some of the tombs from a nearby IBA cemetery. Among the eighteen rock-hewn tombs, chamber B of T.2 contained a red-slipped and burnished MB IIa juglet found on the remains of a fallen support wall (Meyerhof 1989: 6-8, fig. 5:24). It is the only post-IBA artifact in the cemetery.

5.5 Megiddo

No study of the archaeology of the Levant can be complete without consideration of the site of Megiddo, where historical references coupled with extensive and fruitful excavations provide an enormous body of information on many aspects of the material culture of the region and its relations with neighboring areas. The definition of Megiddo as a “key site” is both an understatement and a misnomer, as no other tell site has been as broadly excavated, or has produced such rich assemblages. At the same time, the nature of the recording method and the lack of detailed publication of much of the remains has frustrated many attempts to fully utilize its potential. The non-stratigraphic character of Schumacher's sondages (1908) prevent any real integration of his results with later work by the Oriental
Institute of University of Chicago, much as the latter's "architecturally" oriented découpage prevents a true debris/layer phasing. Since the cessation of publication of the latter excavation (Loud 1948), subsequent field investigations and synthetic studies have sought to put in order much of what is essentially no more than an excavation catalogue (Kempinski 1989a: 6-9). For the purposes at hand, the works of Kenyon (1969), Dunayevsky & Kempinski (1973), Gerstenblith (1983: 23-8), Kempinski (1989a), and Esse (1991: 67-89) are indispensable for understanding the relative sequence and development of MBA Megiddo.

In reviewing the evidence from Megiddo, the goal is not an attempt to resolve the many stratigraphical and chronological conundrums still plaguing our understanding of the site. Until the study and publication of the data from the Chicago excavation's field diaries, plans, and photographs, little internal confirmation is available for many of the reconstructions offered. Nearly all of these reconstructions are problematic, as they rely on the axonometric plans of the Chicago expedition that distort any attempt to superimpose the plans in order to reassemble even local phasing (Dunayevsky & Kempinski 1973: n. 4). Walls are presented in an idealized form without accompanying sections to clarify their association with other stratigraphic components. Thus, we must rely on the excavators' attribution of strata by absolute height or architectural criteria, which is convincing in the general, but clearly suspicious or in error in the particular. Even a cursory glance at some of the plans reveal spot heights that suggest multiple architectural and living phases (Loud 1948: 84-7, fig. 396, sq N 11). For the general development of the site, the following summary and discussion will be conservative, relying on Dunayevsky & Kempinski's architectural reconstruction and dating of the strata (1973; Kempinski 1989a). This work provides the only stratigraphical reconstruction based on modern field study, trial sondage, and some attempt to rectify the axonometric distortions. Based on their work, Stratum XIVa-b provides an architectural terminus post quem for the MB IIa levels.

The association of small finds is a much more difficult problem. It would be convenient to follow the general trend of Gerstenblith's typological sequence for the pottery (1983), which is based on a fairly convincing, but localized stratigraphic sequence. Unfortunately, apart from her reconstruction and phasing of the structures in squares N-12/13, her "stratigraphic" attribution of many tombs (Gerstenblith 1983: 27, table 5) does not stand up to critical examination. Outside of the aforementioned "phased" squares, Gerstenblith, following Kenyon (1969: 25), relied on the vertical superposition of walls over tombs as a criterion for chronological attribution. Unfortunately, this approach is fraught with difficulties, as the axonometric plans do not always permit proper superposition of the plans. Moreover, the superposition of single walls over tombs may not always be reliable. From comparanda and the limited descriptions of the tombs, it appears that they were likely to have been variously constructed as pit, built, or shaft tombs. The depth of these tombs beneath the contemporary living level cannot be determined, because earthen floor levels and pits were not identified by the excavators (Loud 1948: 1). Therefore, the association of each tomb as a terminus post

327 The works of Gerstenblith and Esse show clearly how much useful data is still to be gleaned from the Oriental Institute archives on Megiddo.
queem may vary considerably, although each is obviously coeval or later than the level in which it is placed. The existence of shaft tombs, however, prevents the use of tombs even directly below walls as a criteria for dating, as they may descend meters, following the faces of compact brick walls, under which a suitable chamber may be hollowed out.

A possible example of such a shaft tomb is T.5155, which appears in Stratum XIV, whose architecture is late EBA, but contains clearly MB IIb material. On the plan for Stratum XIV this tomb is located below a wall fragment at the juncture of squares M/N-11/12. The plans for strata XIIIb and XIIIa (both MB IIA) have two walls that form a corner at this point. In Stratum XII this point is the edge of a cut plaster floor of Palace 5001a, but in later MB IIb strata no features overlay it. It must be concluded that this tomb originated in a much later phase than Stratum XIV despite its position under that wall. Other tombs may have been similarly constructed. Thus we simply cannot rely, as Kenyon (1969: 25) suggested, on the “latest objects more exactly providing a terminus post for any intact overlying building”, but must in most instances depend on exogenous data, i.e., typological sequences from other sites. This external dependence is characteristic of all of the analyses of the Megiddo finds and has resulted in many biases. Kenyon, for example, relied heavily on her experience and evidence from Jericho (1969: 36 ff.), which, while crucial for the MB IIb sequence, can shed little light on the MB IIa period, which is much more substantial and long-lived at Megiddo than at Jericho. Moreover, the ceramic typology established by the Chicago expedition is presented in representative forms, some of which span four strata without any changes. None of the nuances in morphological variation, if they existed, were recorded. Until further data is made available, the reliability and autonomy of the suggested sequence at Megiddo must be severely questioned.

Nevertheless, some use can be made of material from independent loci and Gerstenblith's local sequence. Occasional stratigraphic relationships can be suggestive, when relying on loci sealed by floors recorded on the plan. In general, however, the MB IIa material discussed here will be treated as a whole and will include all post-Stratum XIV and pre-Stratum XI finds except where such material is clearly of MB IIb or later date by comparison with other sites.

5.5.1 Environment and Economy

Megiddo developed on an Eocene limestone outcrop on the eastern fringes of Mt. Carmel near the intersection of two routes: one that leads along the eastern side of the mountain chain from the foothills of Samaria to the Akko Plain, and another that connects the Galilee and Transjordan with the

328 Among the indicators for the date of this tomb are an unburnished dipper juglet and especially an unburnished wide-flaring, footed carinated bowl (Loud 1948: pls. 12:13, 15:10).

329 The author strongly suspects that this type of burial was extremely common and that the frequent occurrence of only a jug or juglet with a bowl, which is usually of a carinated type, in many tombs of Strata XIII-X are actually grave markers, perhaps cenotaphs, or offerings in the shaft itself (e.g., tombs 2119, w=T.2138, w=2142, 2152, 3034, and 3133). An example of such a practice was excavated by the author in late MB IIa levels at Tel el-Ifshar. The author thanks Dr. Y. Porat for permitting him to refer to this unpublished information.
Carmel Coast via Nahal `Iron.  The site's location on a highland-lowland interface no doubt contributed to its prosperity. The forested hills provided a variety of resources (e.g., wood, stone, etc.) as well as horticultural and pastoral potential. The immediate foothills, which are better drained than the lower flat plain, provided a broad agricultural base. With a strong central authority even the swampy hydromorphic soils could be drained and utilized. Later textual references attest to the wealth of grain and livestock at the site (Kempski 1989a: 132); presumably, a similar situation existed previously. Water was obtained from two sources: the `Ein el-Kubbi spring to the northeast, near the edge of the lower city, and a southwestern spring accessed through a cave near the main mound (Kempski 1989a: 3, fig. 3). During the Middle Bronze Age, `Ein el-Kubbi may have been exploited with the aid of a short underground channel or well, while the southwestern spring was reached via a passageway through the ramparts (Kempski 1989a: 129-30, figs. 38, 41).

5.5.2 The IBA to MB IIa transition

Following an EBA occupation in which both the upper and lower city may have been occupied (Kempski 1989a: 23-38, 46; Esse 1991: 67-89; Portugali & Gophna 1993: 169-70, fig. 4), Megiddo suffered the same decline in urban life that is characteristic of other IBA sites. Although further excavation may reveal otherwise, the site appears to have been very sparsely inhabited with evidence for occupation limited to the immediate temple area (Kempski 1989a: 39). In Stratum XIVa, squatters appear to have utilized the abandoned EB ruins, including the temples, with the important exception of Temple 4040. This structure appears to have served as a small shrine, complete with a stela (Dunayevsky & Kempski 1973: 174-5; Kempski 1989a: 176-7). Besides the ceramic finds, the date of this modification is anchored by a typologically transitional IBA-MB IIa “eye-fenestrated” axe found in the northern wall (Kempski 1989a: 41, fig. 18:15; Miron 1992: 53, 58). Immediately to the south of this shrine, on top of the EBA circular altar, an open air, enclosed stone pavement was used for offerings. Among these offerings were IBA cups and a jar, together with a MB IIa votive cup and a “Minoan” double-axe, probably of Anatolian origin (Kempski 1989a: 41, fig. 18:9-14; Miron 1992: 85).

Despite the meager evidence for IBA habitation on the site, this period marks the greatest period of use in the eastern cemetery (Kempski 1989a: 189-90). Of the forty-nine shaft tombs discovered, thirty contained IBA finds and two were reused in the MB IIa period (Guy & Engberg 1938). Clearly, the intensive use of this area demonstrates its importance for a fairly significant population that may not have lived on the site.

5.5.3 Summary of MB IIa remains

MB IIa remains were found in all areas excavated on the main tell and a limited salvage excavation in the lower city. The earliest phase, Stratum XIIIb, was unfortified. It is characterized by double-flanked courtyard buildings that developed around the former IBA shrine, which continued in use as an apse surrounded by a temenos wall (Dunayevsky & Kempski 1973: 175-7, fig. 11;
Kempinski 1989a: 122, fig. 19). In Stratum XIIIa, this area developed into a series of vaguely defined urban insulae separated by winding alleyways; no public or monumental structures were found apart from the modest open, cultic “high place” area (Kempinski 1989a: 45). The existence of tombs containing pottery coeval with Stratum XIIIa, within the earthen rampart of the lower city, indicates that it was fortified by this time. The acropolis was surrounded by a two meter wide offset-inset wall, with an inner parapet or pavement (Kempinski 1989a: 45-6, 109 contra Kenyon 1969). A gate existed in Area AA, on the northern side of the acropolis, with an adjacent, perhaps public, building inside the wall to the west of the gate.\(^{330}\)

Stratum XII marked a major change in the city plan, which was formalized into well-organized insulae and streets. The layout of Area BB was thoroughly changed by the construction of Palace 5001a and rectangular courtyard buildings around the open air “high place” (Kempinski 1989a: 46). Some of these buildings abut the city wall, which in some areas was doubled in width and enhanced by occasional towers and a bent axis gate in Area AA (Kempinski 1989a: 46, 109-10).

The MB IIa period was marked by the abandonment of the eastern cemetery in preference for intramural interment. Only three burials are known from the eastern cemetery, while approximately two hundred were found in the midst of the settlement, presumably under floors and courtyards.\(^{331}\)

The bulk of the published finds originate in these burials. A number of these intramural burials and other contexts have a secure relative stratigraphic position.\(^{332}\) At the very least, by analogy with other assemblages, these few contexts anchor the strata as established by Dunayevsky & Kempinski within the MB IIa sequence, and suggest that red-slipped and burnished wares were a feature of the ceramic repertoire from at least before Stratum XIIIIB, appearing alongside the painted wares.

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\(^{330}\)Kempinski (1989a: 109) draws a parallel between Building 4104 (Loud 1948: fig. 378) and the later towers of Stratum XII, but this building is poorly placed to defend the gate. This structure may have been one of the public or administrative buildings missing in Area BB, perhaps another example of the shifting location of elites (viz. Aphek and Ifshar).

\(^{331}\)As Kempinski (1989a: 189) points out, only a small portion of the eastern cemetery was excavated before the area became the dump for the Chicago expedition. More MB IIa tombs may exist under this and the later MB IIb ramparts to the south and west.

\(^{332}\)T.5149 (XIV), which is sealed by a wall and plaster floor 5034 of Stratum XIIIIA, contains a LPW handleless jar; T.3162 (XIV), which is below city wall pavement 2149 in square O-15 of Stratum XIIIA, contains a variety of red-slipped jugs, juglets, and bowls, and a LPW vessel; T.5181 (XIV), which may be under a pavement of Stratum XIIIIB, contains red-slipped jugs and a juglet along with a LPW handle-less jar; T.5183 (XIV), which is under a pavement of Stratum XII, contains a buff ware jug and bowl with red slip on their rims; S=5123, which contains a bronze figurine, may be associated with L.5123 (XIIIB), which is below a Stratum XII pavement; L.5076 (XIII), which is below a Stratum XII pavement, contains a red-slipped bowl on a disk base; N=5076 contains a scarab; and T.3147 (XII), which is below a Stratum XI pavement, contains red-slipped jugs, a juglet, and a bowl. Note that in the following notes, G followed by a number refers to Gerstenblith's phases.
5.5.4 Levantine Painted Wares

A large number of painted vessels occur in a variety of forms and with a wide range of decorations. Some are from secure contexts, but the majority are assigned typologically. These include dipper juglets, globular jugs, juglets, amphoriskoi, tankards, handleless jars, and storage jars. The decorative motifs include bichrome lines, concentric circles, pendant decorations or bands around the neck, and paint on the handles or rim.\(^{333}\) An unusually intricate example is a large jar with a relief decoration and two sets of yellow triangles and net pattern framed by red and blue-black lines, all on a white wash (Loud 1948: pls. 28:1, 123:13-14). Two kraters, both with a rope applique, are painted with red-filled triangles framed by red and black bands, and red and white checkerboard decoration, respectively (Loud 1948: pls. 13:11, 112:11-12). An assemblage of other unusual painted ceramics was found in Square M-13 “High Place” (XIIIA or XII; Kempinski 1989a: 46). These include an incense stand, a vessel with an applique face, and sherds. The decorations range from simple bichrome bands to bichrome alternating triangles, net-patterns, and herringbone designs, and even to human figures (Loud 1948: pls. 22:9-10, 12, 117:13, 121:1, 3).

5.5.5 Tell el-Yahudiyah Wares

Examples of this class include a possible ovoid juglet on a disc base, with white filled herringbone decoration in horizontal bands; two slightly piriform juglets, with ring bases, double handles, and white-filled triangle and diagonal decorations; and a cylindrical, perhaps bag-shaped juglet with white-filled horizontal bands and triangles. Unusual forms are a red burnished acorn-like juglet with incised dots, and two small “S”-shaped carinated bowls, with brown to red slip and burnish and white-filled incised decoration above the carination.\(^{334}\)

5.5.6 Middle Cypriot Wares

The MB IIa attribution of the MC wares does not stand up to rigorous stratigraphic analysis, and is justifiably questioned by Maguire (1992). Many of the examples assigned to MB IIa strata are

\(^{333}\) The examples are numerous: T.5167 (XV); T.3147 (XIV), clearly sealed by Stratum XI; T.4046 (XIV); T.5130 (XIV); T.5074 (XIV); T.3150 (XIV); T.5183 (XIV, this was found under Stratum XII pavement; =T.5130 (XIV); T.3141 (XIII); T.2151 (XIII); T.5268 (XIIIb); E=5093 (XIIIb) (Loud 1948: pls. 7:19, 11:18-19, 21-22, 16:4-5, 20:6-7, 35:6, 114:4-5, 7, 117:4, 119:18-19); twelve examples, T.911A1; T.912B; T.912D (Guy & Engberg 1938: pl. 29:2-4, 35:17). T.3168 (XIV); T.5180 (XIV) (Loud 1948: pls. 11:13, 20, 114:6); T.911A1, T.911D (Guy & Engberg 1938: pls. 29:5, 31:18, 19, 21); =T.4010 (XIII); T.3162 (XIV; G-3/4, but under pavement 2149 of XIIIA city wall in sq. O-15); T.2146 (XIII; G-4); T.2138 (XII); T.5104 (XIII; G-4) (Loud 1948: pls. 11:9, 17:10, 19:33, 21:2, 27:2, 113:19, 118:4, 120:2, 199:16). T.5149 (XV; sealed by plaster floor of stratum XIIIA, L.5034); T.5181 (XIV; may be under a pavement of XIIIB); T.5176 (XV); T.5181 (XIV; may be under a pavement of XIIIB; =T.5130 (XIV); E=T.5147 (XIV); S=5218 (XIIIa) (Loud 1948: pls. 8:8-9, 12:20-22, 13:5, 111:6, 7, 115:5, 119:2); T.911A1; T.912B (Guy & Engberg 1938: pls. 29:11, 35:5); =5095 (XIIIa); =T.5104 (XIIIa); S=5270 (XIIIia) (Loud 1948: pls. 18:2, 4, 118:10, 119:3).

\(^{334}\) T.5202 (XV); T.5177 (XIV); N=T.5171, (XIV); 4090 (XIII); T.3123, T.4099 (XII, likely MBIIa/b) (Loud 1948: pls. 9:10, 11:1, 14:35, 19:27, 24:31, 111:15, 116:9, 119:14); T.911A1 (Guy & Engberg 1938: pl. 28:40).
lone finds without any criteria for attribution before the transitional MB IIa-b period. However, the types—Composite Ware bowl, WPPL, and WPCL jugs—are consistent with MC imports from other MB IIa sites.335

5.5.7 "Anatolian” cut-away neck vessels

This class of red-burnished jugs and juglets is well represented in piriform, globular, and carinated shapes. Variations exist in the number of handle strands (single to quintuple) and in base type. The incision around the base of the neck among carinated forms is similar to examples from Kabri (Kempinski 1990b: 10-1).336

5.5.8 Evidence for local pottery production

A basalt tournette found with an MB IIa cooking pot (S=5161; XV) is the only possible evidence for ceramic production at the site (Loud 1948: pl. 269:3).

5.5.9 Egyptian or Egyptianizing objects

Four scarabs were found with MB IIa pottery, three with MB IIa-b pottery, and one with possible MB IIa-b wares.337 All were made of steatite, with the exception of one faience scaraboid. In addition, a segmented calcite jar and sherd with a potter's mark identified as leaf (perhaps an Egyptian sign) were found.338

5.5.10 Bronze finds

A large number of bronze objects were found, including weapons, jewelry, and figurines. The weapons include five shaft or socket axes, fifteen socketed spearheads, eight daggers, one tanged spearhead, and one fenestrated axe.339 The jewelry included six toggle pins and a fragment of a

335Bowl: =5061, lone find (XIII; Loud 1948: pls. 19:15); WPPL jug: T.5048 (XII; Loud 1948: pl. 26:16, 123:7); WPCL jugs: T.5068, lone find and T.3086, MB IIa/b (XII; Loud 1948: pls. 26:15, 123:5).

336W=5183 (XIV, may be under Stratum XII pavement like L.5183); T.5118 (XIV); T.5090 (XIII); E=5072 (XIII); T.5114 (XIII); T.5252 (XIII); T.5106 (XII); T.5111 (XII) (Loud 1948: pls. 11:2, 5, 16:2, 17:14-15, 24:9, 25:12, 113:15, 117:1, 119: 8, 122:11, 23).

337MB IIa: T.3143 (XIV); two from T.5090 (XIII); T.5106 (XII) (Loud 1948: pls. 149:1, 5-6, 48, 154:1, 5-6, 48). MB IIa-b: T.3109 (XIII); T.5137 (XII); T.4099 (XII) (Loud 1948: pls. 149:3, 41, 47, 154:3, 155:41, 47); and possible MB IIa-b: 4103 XIII (Loud 1948: pls. 149:2, 154:2). See also Ward and Dever (1994: 65, 96).


possible bracelet or handle.\textsuperscript{340} The figurines are discussed by Negbi (1976).\textsuperscript{341} Although no metalworking installations were found, a mold for producing socketed axes was found on the surface, but it is clearly for producing MBA forms (Lamon & Shipton 1939: pl. 105:5; Miron 1992: 71).

\textbf{5.5.10.1 Silver}

Silver was found in small quantities, including four earrings and a figurine.\textsuperscript{342} A rare hoard containing 135 gm of silver fragments was found in a possible MB IIa jug (T.5034, XIII; Loud 1948: pl. 228).

\textbf{5.5.11 Semi-precious stones}

Semi-precious stones are represented by carnelian and amethyst beads.\textsuperscript{343} In addition, a serpentine axehead was found in Stratum XIII (N=T.5094; Loud 1948: pl. 268:8).

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Analyses of 121:1 & 2 show the following percentage composition, respectively: Sn 9.17 Pb 2.21; Sn 10.78 Pb 0.93; a test for arsenic was not performed (Guy & Engberg 1938: 161). Socketed spearheads: T.5181 (XIV, MBII); W=T.3157 (XIV); 2 from N=5184 (XV); Sq. O-13 edge of pavement XII; N=3106 (XII); (Loud 1948: pls. 173:2-5, 7, 9; Philip 1989: 383-384, #336-337, 1398, 1408, 1410); 3 from T.911A1; T.911C; 3 from T.911D; T.912B; T.912D (Guy & Engberg 1938: pls. 118:6-8, 120:13, 122:5-7, 125:12, 133:7; Philip 1989: 374, 381-383, #234, 338-339, 344-349, 382). Analyses of 122:7 and 133:5 show the following percentage composition, respectively: Sn 7.69 Pb 0.39 and Sn 10.67 Pb 0.40; a test for arsenic was not performed (Guy & Engberg 1938: 161). Daggers: =5061 (XIII); W=5087 (XIII); 5093 (XIII, possibly MB IIa) (Loud 1948: pls. 178:2-3, 6; Philip 1989: 117-118, 131-134, 438, 466, 473, #602, 1048, 1320); T.911A1; T.911D; T.912D; (Guy & Engberg 1938: pls. 118:5, 122:8-9, 133:5-6; Philip 1989: 117-118, 132-135, 437-438, 470, 480, 500, #603-604, 1156-1157, 1194). Analyses of 122:8-9 and 133:5-6 show the following percentage composition, respectively: Sn 1.38 Pb 0.84; Sn 8.69 Pb 3.14; Sn 1.91 Pb 3.43; and Sn 9.35 Pb 0.40; a test for arsenic was not performed (Guy & Engberg 1938: 161). Tanged spearhead: 5061 (XIII, within enclosure wall of Temple 4040) (Loud 1948: 178:5). Philip (1989: 81-82, 338, #37) considers this object to be of Anatolian origin or inspiration. Fenestrated axe: (XIV, found in the fill of Temple 4040) (Loud 1948: pl. 182:3). This axe is considered to be a transitional type between the EB “eye axe” and the MB IIa duckbill axe (Kempinski 1989: 42-44; Miron 1992: 53, 58, #231; Philip 1989: 53-55, 298, #501).

\textsuperscript{340}Toggle pins: W=T.3157 (XIV); N=4009 (XIII); T.5106 (XII, MB IIa); T.4099 (XII, MB IIa-b) (Loud 1948: pls. 219:10-11, 220:19, 23); T.911A1 (Guy & Engberg 1938: pl. 118:4). Bracelet: 5061 (XIII, within the enclosure wall of Temple 4040) (Loud 1948: pl. 284:2); however, this object looks more like the double handle of a juglet.

\textsuperscript{341}Sq. M13 (XIV); room of T.5121 (XIV); 2 in Sq. M13 (XIIIa or XII); Sq. N13 (XIII or later); Sq. S10 (XIII or later); S=5123 (XIIIa); =4006 (XII) (Loud 1948: pl. 233:1-7, 11; Negbi 1976: 64-66, #1535-1536, 1539-1541).

\textsuperscript{342}Earrings: T.5090 (XIIIa, w/cut-away neck jug); figurine: M-13 (Loud 1948: pls. 225:1, 233:8; Negbi 1976: #1537).

\textsuperscript{343}Carnelian beads were found in S=5181, XIV, possibly under a XIIIB pavement; with an amethyst bead in T.5090, XIII; in W=4089, XIII, with an MBIIa carinated bowl (Loud 1948: pl. 207:10, 13-14).
5.6 Tel Shimron

This site was founded on a limestone ridge bordered by basalt outcrops on the northern valley margin and is surrounded by four springs (Raban 1982: 83). This location afforded the site proximity to some of the lushest horticultural areas of the Lower Galilee and was on an important route from the Jezreel to the Beth Netophah valleys, at Tel Hannathon. Earthen and crushed basalt ramparts surround this mound, which is characterized by several terraces, the summit of which is ca. 185 msl (Raban 1982: 83; Portugali 1982). Trial soundings suggest an MB IIa date for part of the fortification, although the ceramics span the Middle Bronze Age. Raban (1982: 72, fig. 7) located two MBA gates in the north and south while in the west the ramparts enclose a spring, which now serves as a well.

5.7 `Afula

Perhaps best known for its large number of TEY juglets, `Afula is located in the eastern Jezreel Valley, near the western foot of Mt. Moreh, an important junction for movement from the western Jezreel southeast to the Beth Shean Valley, and northeast, via Mt. Tabor, to the Lower Galilee. The region is characterized by rich terra rosa and basaltic soils, and high groundwater, which provided the agricultural base for the local population. The nearby hills were probably horticultural and pastoral zones, and basalt escarpments could have provided raw materials for a local ground stone industry. What little is known about the site comes from limited salvage excavations, which suggest an area of at least 2.4-3.0 ha (Dothan 1955; 1993b; Sukenik 1948; Zori 1977: 52; Zevulun 1990: 174; Gal & Covello-Paran 1996).

5.7.1 Summary of MB IIa remains

The limited excavations demonstrate that the site was occupied in the IBA and MB II periods (Dothan 1993b; Gal & Covello-Paran 1996: 25-6, table 1). The IBA settlement apparently covered a large area and included a potter's workshop with three kilns (Gal & Covello-Paran 1996: 38-44; Dothan 1993b). Remains of the MB IIa settlement also covered a large area of the mound (Gal & Covello-Paran 1996: plan 1). The preserved architecture is basically domestic in character, and includes silos, tabuns, plastered installations, and burials (Gal & Covello-Paran 1996: 44-7; Sukenik 1948; Zori 1977: 52, pl. 14:4). In addition to settlement levels, a refuse pit containing fired and unfired pottery attests to ceramic production in the MB IIa period (Zevulun 1990). Analysis of the ceramic assemblage suggests that it begins in the MB IIa/2 period and continued through the Middle Bronze Age (Gal & Covello-Paran 1996: 56, 64). Gal & Covello-Paran (1996: 64) consider `Afula to be part of the agricultural hinterland of larger Jezreel Valley sites.

344 Although the IBA to MBA transition is not very clear stratigraphically, some of the IBA ceramic forms, such as cooking pots, are harbingers of MB IIa types (Gal & Covello-Paran 1996: 38-40).

345 The charred wheat and pulses, which were found along with weeds (Melamed 1996), are merely a hint at the potential of site's environs.
5.7.2 The potter's refuse pit

With Zevulun's publication (1990) of the potter's refuse pit from 'Afula, an important archaeological context has finally been properly presented and understood. The pit, which contained numerous TEY juglets, was found accidentally and excavated by Ben-Dor in 1950 (Zevulun 1990: 174, 185-7). Since a selection of these juglets was initially presented (Amiran 1969a: 118-20, pl. 36), this assemblage has been referred to by numerous scholars, who have considered its typology, chronology, origin, and the significance of this widely distributed ware (Zevulun 1990: 174, nn. 4-10). Often these references mistakenly attribute the finds to a kiln or its immediate vicinity, or have suggested that the fired juglets were found outside the pit (Zevulun 1990: 174, n. 12). In order to understand the significance of the 'Afula TEY juglets, the circumstances of their discovery must first be established.

All of the TEY wares from this excavation, both fired and unfired, were found in the same pit together with other MBA pottery in a similar state. The 1.26 m deep pit was dug out of virgin soil on the eastern side of the tell, and apparently served initially as a cooking oven (Zevulun 1990: 185-7, fig. 30). Subsequently, it served as a potter's mixing pit and finally as a refuse pit for flawed pottery. No other installations for pottery production were found, although they may yet be preserved in the vicinity of this pit. Unfortunately, at the time, means were not found to conserve many of the unfired sherds and only a representative sample of pottery is preserved, including a few storage jar rims and bases characteristic of the MB IIa period (Zevulun 1990: 174, nn. 15-16). The dating of the TEY juglets must rely largely on their typology.

The upper 30 cm of the pit contained over thirty-six defective juglets. Ten are from complete or cracked vessels, which, together with broken sherds form a minimum of twenty-six juglets, comprise the largest contemporaneous assemblage of TEY wares ever found and the only one associated with its production locale (Zevulun 1990: 174). In Zevulun's opinion (1990: 174-5, nn. 18-19), the circumstance of the finds and the homogeneity of the assemblage suggest a short time span during which these vessels were made, perhaps in two or three kiln batches. This homogeneity is reflected in the basic light brown appearance, the paste, and many morphological and decorative traits, such as the small disc base and upper and lower registers of incised horizontal lines (Zevulun 1990: 174-5). The vessels vary in size, rim type, and decoration. Specific decoration appears to be related to vessel size. Only the large juglets, generally ovoid, are decorated with framed horizontal designs of punctured herringbone, triangle, and "buttefly" patterns, many of which appear in painted MB IIa examples. The medium and small juglets, which are, respectively, ovoid and ovoid-piriform, are decorated with vertical strips of a puncture decoration. Five different rim types are present, all well known in the MB IIa ceramic repertoire of jugs, juglets, and even bowls and jars (Zevulun 1990: 175-6, n. 23). The occurrence of the ridged collarette rim, together with the folded and pseudo-stepped rim forms, may invalidate some widely held chronological distinctions (Zevulun 1990: 185, n. 45, figs. 13, 21, 23).

In addition, other examples of this class were found on the tell. A fragment and a complete piriform TEY jug, which have MB IIa characteristics, were found in two tombs, both of which contain
MB IIa and MB IIa-b pottery (Sukenik 1948: pl. XIV:10, 18). Another fragment with concentric circles was found in the more recent excavations (Gal & Covello-Paran 1996: fig. 23:13).

The importance of this assemblage is its typological and decorative affinity to the late-MB IIa ceramic tradition. In particular, the appearance of a variety of rim types demonstrates a degree of typological contemporaneity that may require reassessment of some established ceramic synchronisms.

5.7.3 Levantine Painted Wares

Painted decorations appear on fragmentary jugs, a krater, and a storage jar (Gal & Covello-Paran 1996: figs. 21:11, 22:7, 23:9-11, 24). Motifs include bichrome lines and bands, pendant decorations on the bodies and strokes on a jug handle.

5.7.4 Other imported finds

One Egyptian alabaster vase was found in a late-MB IIa/MB IIb jar burial (Gal & Covello-Paran 1996: 54, fig. 25:4). A rare find is a 25 gm lead fragment (Gal & Covello-Paran 1996: 54). Two ostrich eggs, one decorated with horizontal lines and the other undecorated, were found in a tomb (Sukenik 1948: 13, pl. XV:18; Zevulun 1990: fig. 28). These may reflect exchange with arid regions to the south, where ostriches were indigenous at the time (Horowitz & Tchernov 1989: 292, n. 7).

6. The Galilee Highlands

The upper and lower portions of the Galilee highlands are divided by the steep rivers, cliffs, and ravines that characterize the approximate route of the Akko-Safed road (Gal 1992: 1). The Upper Galilee, which continues into modern Lebanon, is further bounded by the northern Akko Plain in the west and the Huleh Valley and northern Sea of Galilee in the east. The mountainous and fragmented nature of the topography were clearly limitations on agriculture, except in intermontane valleys on the eastern side (Esse 1991: 4; Frankel & Getzov 1997: 9*-10*). Horticulture may have been practiced, particularly along the slopes of the lowland borders, where marginal “highland” sites are known. Rainfall ranges from 500 mm on the lower eastern slopes to 1100 mm on the highest peaks. Movement is relatively treacherous and results in many isolated hills. The Lower Galilee stretches from the border of the Akko plain east to the heights above the Sea of Galilee and southwards where it borders the Jezreel and Beth Shean valleys. The Lower Galilee is a topographically segmented and complex region possessing a fair number of level and agriculturally rich intermontane zones, the largest of which is the Beit Netofa valley, whose slopes are amenable to intensive horticulture (Gal 1992: 1-11). Apart from the agricultural potential of this lush valley, it is part of the Darb el-

346 Many of the juglets are red-slipped and burnished (Sukenik 1948: pls. XIV:13, 14, XV:1, 2), but the drawing appears to show candlestick rims, suggesting a transitional MB IIa-b or later attribution.

347 Analysis has shown the following percentage composition: Cu 0.07 An 0.04 Fe 0.03 Pb 99.5 Ag 0.05 Sb 0.06 (Gal & Covello-Paran 1996: n. 9).
Hawarneh, an important ancient route that led from the Akko plain through the Lower Galilee to the Jordan Valley, thus avoiding the seasonal swamps of the Jezreel Valley (Gal 1992: 8-9; Esse 1991: 17-18, fig. 1).

In the Upper Galilee, the few known IBA settlements and tombs generally tend towards the highland-lowland interfaces, i.e., the western Galilee margin, the slopes of the Huleh valley, and a cluster along the slopes of Nahal Amud, which drains into the Sea of Galilee. The odd small settlement, tomb, caves dwelling, or tumuli infrequently dot the remaining landscape (Esse 1991: fig. 31; Getzov 1995: 16*-17*, fig. 12; Frankel 1986; Damati & Stepanski 1996: fig. 21). A number of MB Ila or MB IIb settlement and tomb sites are attested in this region (Table 6.6), but the nature of the ceramics often makes precise dating difficult. The main MB Ila settlements in the region were probably Sasa and Tel Rosh (Golani & Yogev 1996: 41, 48; Stepansky, Segal & Carmi 1996: 63-4), and in light of its tombs, perhaps Safed. Occasionally, these sites or tombs have IBA antecedents (Amiran 1953; Damati & Stepanski 1996: 23*, fig. 21; [Bahat] 1970). Two fortified MBA sites, Tel Avdon and the Metzad (fort) `Ein Tamir, are located on the western margin of the Upper Galilee hills, the former near Nahal Keziv's outlet from the hills, the latter 8 km further inland above a spring (Prausnitz 1973; Frankel & Getzov 1997: 100*-1*; Getzov 1992). Surveys have produced non-specific MBA pottery, but earlier remains are suggested at Tel Avdon (Kempinski 1986: n. 11). The situation in both periods is perhaps best seen as analogous to that of the Samarian and Judean Highlands, where centers began to emerge in the late MB Ila period (Gal 1992: 61). These sites may reflect polymorphic pastoral-nomadic groups inhabiting these regions and interacting with lowland groups.

IBA and MB IIa settlement in the Lower Galilee is quite limited. The former is only sparsely represented in the Central Hills, in clusters along Nahal Yavniel, and on the margin with the Jezreel Valley (Esse 1991: 152-6, figs. 31-32; Raban 1982: map 2). The ceramics from published surveys suggest that only in the MB IIb period is there a considerable sedentary presence (Gal 1992: 56-8; 1991a; 1998). Gal (1980: 76-7) is correct to warn that regional differences in ceramics may obscure the precise identification of MB IIa sites, a caveat that holds equally for other highland areas. Tel Hannathon is the only site in the central part of the region with identifiable MB IIa pottery. It is also the largest site and is located at the western end of the largest intermontane valley, Beth Netopha (Gal 1992: 3, 23), on the eastern end of the main Galilee artery, the so-called Darb el-Hawarneh (Esse 1991: 17-8). Other demonstrably MB IIa sites are Tel Qishyon, located on the route at the southern foot of Mt. Tabor, and Ein Ha-Yedid, a site on the eastern margin of the Issachar Heights, above the Jordan rift valley. A late MB IIa tomb at Tur'an contained a rare TEY zoomorphic juglet ([Eisenberg] 1975; Zevulun 1986-1987a: 114, fig. 3). Dever (1975a: 31, n. 36) suggests that this find and two duckbill axes found at nearby Ash-Shajara (Schumacher 1889: 76-77, figs. 14-15), belong to a still undiscovered settlement or necropolis.

Catfish bones (MNI=1) found in a MB II tomb at Sasa (Horwitz 1987) are evidence of such interactions, perhaps with a site on one of the lakes or rivers of the Jordan Valley (e.g., Tel Na’ama; cf. Greenberg, et al. 1998: 28-30).
6.1 Safed

Six burial caves excavated in Safed, with abundant and opulent MB IIa finds, suggest the presence of a settlement in the vicinity, perhaps in the tell underneath the nearby Medieval citadel (Damati & Stepanski 1996; [Bahat] 1970). The only published tomb, perhaps of the shaft type, was badly damaged, and in the absence of any meaningful stratigraphy, the finds are considered typologically, and divided by the excavators into three chronological phases: the MB IIa, the end of MB IIa or MB IIa-b, and MB IIb periods (Damati & Stepanski 1996).

6.1.1 Pottery and other pertinent finds

One painted juglet, decorated with brown concentric circles and bands, is assigned to the second phase (Damati & Stepanski 1996: 8*, 21*, fig. 9:1). An alabastron, similar to one from Aphek is assigned to the MB IIa phase (Damati & Stepanski 1996: 8*, 20*, fig. 9:11). Eight ostrich shell discs were found in an MB IIa vessel (Damati & Stepanski 1996: 19*, fig. 20).

6.1.2 Bronze finds

From the total assemblage of bronze finds in this cave (N=53), thirty-two belong to the first two phases (Damati & Stepanski 1996: 23*-7*). The former consisted of two duckbill axes, five elongated socket axes, twelve spearheads, three daggers, and ten toggle pins (Damati & Stepanski 1996: figs. 10-13, 14:1-2, 17:2, 18:1-10).

Among the finds from Bahat's unpublished excavation (1970), Miron (1992: 59) notes a number of bronze weapons, which were found with both red-burnished and painted pottery, and ascribed to the later phases of the MB IIa period. The bronze finds include two duckbill axes, four elongated socket axes, spearheads, daggers, and a sword (Miron 1992: 54, 73, #237-238, 258-261).

6.2 Meron

An unpublished tomb contained a small selection of ceramic and bronze finds, including a handle-less jar, a duckbill axe, a spearhead, an arrowhead, a strip of metal, perhaps a belt, a ring, and some nails. Miron attributes (1992: 54, 59) these to the MB IIa period.

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349 Five burial caves excavated by Bahat have yet to be published, although some finds have been dealt with separately. Salvage excavations near the citadel revealed some MB II sherds (Stefanski 1987).

350 Ceramics of the MB IIa phase have parallels at Dan XII, Gesher, Barqai, and Aphek (Damati & Stepanski 1996: 20*); unlike Dan, and as at Gesher, some of the open bowls are flat-bottomed. Ceramics of the second phase have parallels at Dan XII-X, Kefar Szold, Ginosar, and Megiddo (Damati & Stepanski 1996: 20*-1*).

351 Analyses of the duckbill axes indicates a composition of less than 10% tin and very little lead (Miron 1992: 97).
6.3 Tel Qishyon

The site consists of three terraces totalling an area of 6 to 7 ha. Due to quarrying by 
sebakheen and modern development, it is not possible to determine what portion of the site was settled 
during this period (Cohen-Arnon & Amiran 1981: 205; Arnon & Amiran 1993). Salvage excavations 
revealed an EBA settlement into which some MBA tombs were dug (Cohen-Arnon & Amiran 1981: 
206-7). In Tomb 88, the excavators found a sack-shaped jug or bottle with two sets of painted 
horizontal lines, each with three thin lines framed by two thick bands (Cohen-Arnon & Amiran 1981: 
206, fig. 5: left, pl. 34:2). A complete globular juglet, which probably originated in another tomb, has 
a bichrome decoration of framed horizontal lines and a pendant decoration around its neck (Cohen-
Arnon & Amiran 1981: 206, fig. 5: right, pl. 34:3). A TEY juglet is also reported (Arnon & Amiran 
1993: 874).

7. Mount Carmel Highland

The Carmel mountain rises amidst three coastal plains and an inland valley, and thus was the 
focus of inhabitants of diverse economic strategies and orientations. The faultline running along its 
border with the Akko Plain has created fairly steep escarpments, making for an inhospitable, although 
not impossible, approach and utilization. Further to the southeast, along the Jezreel Valley, the 
topography affords more amenable access to the highland, which is transected by several intermontane 
valleys that connect the surrounding lowlands. Mount Carmel's many small river valleys and its 
alignment in the west, parallel to the coastline, made resources equally accessible to all the coastal 
lowland inhabitants.

In general, the only substantial BA settlement has been documented in the low, flat hills 
surrounding Wadi Milik (Olam 1981: map 2). Fields of megalithic tumuli or rujms, as well as shaft 
tombs, dot the landscape on both sides of this artery. Otherwise, settlement was limited to the wadi 
margins, and the southern heights, which may reflect IBA or earlier pastoral nomadic groups (Olam 

MBA sites are arrayed along the length of this valley and up Nahal Daliya and its subsidiary 
valleys into the broad flat highlands. Only two sites with clearly MB IIa ceramics have been 
identified, one a small settlement in the Ramot Menashe region and the other a cist grave within a 
tumulus; the remainder have been characterized as MB II sites. Kempinski's suggestion (1989b: 48) 
that the principal MB IIa settlement was along the main artery and expanded into the hills in the MB 
IIb period seems reasonable, but apparently the broad flat heights began to be settled already in the 
MB IIa period (Table 6.7). Another important region, which is still unexplored, is Kerem Maharal, a 
lush intermontane valley that may have served as a nexus between the coast and the eastern half of 
Wadi Milik during the Late Bronze Age (Artzy 1994; 1995). Petrographic analysis of ceramics from 
Tel Nami suggests that MB IIa pottery may have been produced within this valley (Marcus 1995a). 
Like the fringes of Wadi Milik, this area may have attracted MB IIa settlement, and served as a
hinterland for the Carmel Coast. Lastly, an MB IIA-b shaft tomb at Tirat Carmel, on the slope above the coast north of Athlit, may hint at a settlement in the vicinity (Marcus 1995c).

Important finds from this region are an alabaster vessel and body sherds with red horizontal lines and cross-line decoration (Sites 107 & 147; Olami 1981: 67-8, 87-8, figs. 1, 3:1, 7). An enigmatic find is a MK statue from 'Ein Ha-Shofet attributed to the time of Senusert III (Giveon 1984).

8. Central Highland (Samaria and Judea)

This region may be divided into four basic subunits: Northern Samaria, Southern Samaria, the Central Range (North of Jerusalem) and the Judaean Hills (Finkelstein & Gophna 1993: 2-4). With the exception of the rocky western flanks, northern Samaria is the most amenable zone for cultivation with large intermontane valleys and abundant water sources. The central range of Southern Samaria has small cultivable intermontane valleys, but the rocky western half is characterized as an ecological frontier zone, suitable for horticulture with the aid of terracing; a similar situation continues to the south. The plateau and desert fringe of the central range are considered amenable, while the agriculturally inhospitable Judaean Hills, and especially the eastern Desert, were only sparsely settled before the first millennium; these latter were much better suited to a pastoral subsistence strategy. Precipitation varies from a high of 700 mm along the central heights, to 500 mm along the northern and western flanks, to 100 mm in the southern and eastern desert. A main longitudinal route existed along the central ridge of this region, which is crossed by a number of well-defined valley routes down to the lowlands and Jordan Rift Valley (Dorsey 1987; 1991: 117-146).

In general, IBA highland settlements were limited to the eastern half of this region and decreased to the south, where cemeteries are more common (Finkelstein 1991; 1992c; 1993b; 1994; Ofer 1993; 1994: 99; Zertal 1993; Palumbo 1991: 54-5). Evidence for MB IIA sedentary sites in this region is extremely sparse (Table 6.8), with only evidence for some rural sites and the use of IBA cemeteries, which is seen as continuation and intensification of the IBA subsistence strategy (Finkelstein 1991: 27-9; 1992c; 1993b; Zertal 1992: 42; 1993; Ofer 1993; 1994: 99). Some of the MB IIA sites (e.g., Shechem and Jerusalem) emerged in the succeeding period as important political centers, when the region was extensively settled.

352 Little is known about Khirbet Shana, the largest tell in this valley, which is marked as an antiquities site on most detailed maps of the region. This may be Site 1422.07, which is reported to have EB pottery (Thompson 1979: 142).

353 This cross-line decorated sherd is identified as an EBA sherd, but looks like a MC WPCL sherd. Large quantities of MC pottery were found at MB IIB Horvat Shefi, near the mouth of Nahal Dalia (Neeman, Boshnino & Porath 1991).

8.1 Tell el-Farah (N)

Approximately 11 km north of Shechem, Tell el Farah (N) is situated at a strategic position near two springs at the source of Wadi Fara, an important conduit for movement from the Jordan Valley into the Samaria Hills (de Vaux 1993). It was abandoned during the EB II through IBA periods and only limited MB IIa remains were found, primarily tombs and cave dwellings of an unfortified village (de Miroeschedji 1993b: 434-7; de Vaux & Steve 1948: 571-2, fig. 11:1, 3; Mallet 1987). Among the finds are a basalt tripod mortar and pestle, and a globular vase on a tripod base, decorated with red and yellow painted lines, dots, and zig-zags (Mallet 1987: figs. 8:9, 10, 34:5).

8.2 Shechem

Tell Balatâh, identified as ancient Shechem, was the most important center of the Samaria Highland. Located at the foot of Mt. Ebal, near two abundant springs and one of the most fertile of the intermontane valleys, the site lies on a major latitudinal route connecting the Jordan Valley, via Wadi Fara, and the Coastal Plain to the west (Campbell 1993: 1345-6). Shechem also sits astride the main north-south route along the spine of the Highlands, which connects Judea and Samaria with the Jezreel valley (Dorsey 1987). Surveys in the nearby valley have located only two IBA sites and no remains of the MB IIa period (Campbell 1991: 92), apart from a mixed tomb some 500 m west of the tell ([al-Fani & Clamer] 1976). Although IBA sherds appeared in fills, excavations at the site did not discern any architecture following the Chalcolithic period (Campbell 1993: 1347). Architectural remains of the MB IIa period were reached in Fields VI & IX, and are assigned to two main strata, XXII-XXI (Bull, et al. 1965: 9, 15-16, 26-28; Toombs 1976). These strata include remains of both a domestic and public nature, the latter reflected by a large rectangular platform in the so-called "temenos" area (Wright 1965: 110-2; Toombs 1976; Campbell 1993: 1347). The ceramic repertoire indicates that this unfortified settlement was established in a later phase of the MB IIa period (Campbell 1993: 1347). A group of bronzes discovered near the site includes some examples that may be assigned to the MB IIa period (Müller 1987).

8.3 'Ain es-Samiyeh and Sinjil

'Ain es-Samiyeh and Sinjil are primarily IBA burial complexes—'Ain es-Samiyeh is the largest cemetery in all of the southern Levant—that were re-used by MB IIa inhabitants of the southern part of the Hill Country ([Bakiya] 1970; Dever 1971; 1972; 1975a; Finkelstein 1993a: 24). All of the MB IIa finds were purchased from dealers in the village of Kufr Malik, who have systematically looted the cemetery for much of this century (Dever 1975a: 23, 29, n. 26). The village is also the source of an elongated socket axe published by Maxwell-Hyslop (1949: 116), which probably originated in this cemetery (Dever 1975a: 29, n. 26). The bronzes are MB IIa types, which is a date consistent with the apparently MB IIa/2-3 pottery purchased with them (Dever 1975a: fig. 3:4-12). The bronze finds from 'Ain es-Samiyeh include a dagger, two socketed spearheads, four
elongated socketed axes, and two duckbill axes (Dever 1975a: fig. 1:1-4, 7, pl. 1; Miron 1992: 54, 74-5, #245-6, 272-3, 304-5). The finds from Sinjil include a dagger and two socketed spearheads (Dever 1975a: fig. 3:1-3).

8.4 Jerusalem

Kenyon's limited evidence (1974: 81-4) for an MBA settlement in Jerusalem has gained support from the excavations in the City of David (Shiloh 1984: 12; 1993: 701), as well as recent media reports of a MBA water system. Although MB IIa remains are present, the site was only fortified in the MB IIb period (Shiloh 1993: 701). Prag (1991) has drawn attention to a forgotten MB IIa tomb, which includes a bronze socketted spearhead (Macalister & Duncan 1926: pl. XVIII:4). An OK Egyptian statue found on Mt. Zion may be an MK, or later, import (Maeir 1989).

8.5 Beth Shemesh

Among the mixed IBA and MB IIa ceramics, which were found beneath the earliest architectural stratum, were bichrome body sherds and a handle of a MC jug (Grant & Wright 1938: pl. XXIV:1-11; 1939: 27; Gerstenblith 1983: 33).

8.6 Gibeon

The excavation of the cemetery near the site of Gibeon revealed twenty-six IBA shaft tombs, ten of which were in use during the Middle Bronze Age (Pritchard 1963: 2-3). Although most of the tombs were disturbed, three deserve some attention. Tomb 58 contained IBA pottery, three MB IIa handleless jars, and two bronze socketted spearheads (Pritchard 1963: 61-62, fig. 64). Tomb 31-31A contained a fragmentary IBA jar, an MB II storage jar, an elongated socket axe, and a dagger (Pritchard 1963: 42-3, fig. 34). Both this jar and a lone example from T.64 (Pritchard 1963: 64-65, figs. 68, 95:16) appear to be MB IIa types.

8.7 Khirbet Kufin

This cemetery contains numerous IBA shaft tombs, one of which, no. 3, is a multi-chambered shaft type, hewn during the IBA and then altered during the MB IIa period (Smith 1962: 12-3). Both the IBA and MB IIa finds were in disarray, suggesting ancient looting, although in Smith's opinion (1962: 15-7) the IBA skeletons had been disturbed by the MBA interments. Smith (1962: 13) indicates that the two deposits belong to two distinct “strata”. Whether this distinction is based solely on spatial and stratigraphic criteria, or on typology, is not clear. Chambers 3-4 and 6-7 contain ceramics of types best attributed to MB IIa/3-4 phases.

355 Analysis of one of the duckbill axes shows the following composition: Cu 82.07 Sn 14.77 Pb 0.77 As 0.49 (Dever 1975a: 31, fig. 2).

356 Although unstratified EB II-III remains are known in Jerusalem (Shiloh 1993: 701), no statues are known to have been imported during this period.
8.7.1 Bronze finds

The bronze finds are mostly weapons, including four daggers and three elongated socket axes (Smith 1962: 17, pls. VI, XIII:5-7, XVII:37-40; Miron 1992: 74-77, types I-II). In addition, a disc and a tray (which may be part of a container) were found (Smith 1962: 23, pl. XVIII:42-43).

8.7.2 Egyptian or Egyptianizing finds

The only finds of likely Egyptian origin or inspiration are three alabaster vessels (Smith 1962: pl. XVII:34-36). Smith (1962: 26, pls. VII:33, XVII:33) suggests that a jug of black limestone, whose rim is covered with lead, is Egyptian. Some bone combs are also thought to be of Egyptian origin (Smith 1962: 24, pl. XVII:45-46; Weinstein 1975: 6, n. 59).

8.7.3 Other imported finds

A black basaltic ash grinder of unknown origin and a carnelian bead are reported (Smith 1962: pl. XVII:32, 41). An ostrich egg is reported, but not illustrated (Smith 1962: 24).

8.8 Khirbet Kirmil

Both the initial survey by Kochavi (1972: 76) and the extensive investigation by Dever (1975) revealed a large IBA shaft tomb cemetery. Most of the 900 tombs were found looted, but the only IBA assemblage found in situ in Tomb A1A also contained ceramics of the MB IIa period (Dever 1975: 30*-2*, fig. 6:4).\(^{357}\)

8.9 Efrat

This hillside site is dotted with IBA shaft tombs and crowned with a contemporaneous stone structure (Gonen 1981). Twenty-seven of these tombs were investigated, of which twenty-two were re-used during the MB II period (Gonen 1981: 27). This re-use included the hewing of new shafts into the extant chambers, but no new tombs were created. The ceramics are assigned to the MB IIa period, but only a group photograph of some ceramic forms is provided (Gonen 1981: back cover). From the photograph, this attribution appears correct, but some of the forms continued into the MB IIb period. Other finds include bronze toggle pins, spearheads, knives, daggers, a scarab seal and other rings, earrings, two badly worn scarabs, ivory and alabaster pommels, ostrich egg shell fragments, bitumen, and beads (Gonen 1981: 28). No site is known in the vicinity, except for Rujm es-Sabit, a primarily MB IIb site some 10 km away.\(^{358}\)

\(^{357}\)Kochavi (1972: 76) mentions an MB II tomb, but provides no other details.

\(^{358}\)Another group of MB IIa tombs in the vicinity were reported (Amit 1991).
9. Upper Jordan (Hula) Valley

Like the Jezreel Valley, the Upper Jordan Valley is almost completely enclosed by highlands, although the differences in altitude are much more extreme. In the north, Mt. Hermon at 2814 m is the highest peak in the region; to the east and west are the Golan and Naftali Heights, at ca. 800 and 1000 m, respectively. These highlands rise above a lush alluvial plain that slopes from 170 m in the north to ca. 71 m in the south near the Hula swamp. The rough highlands to the west, and the plateau to the east, served as forest, horticultural, and pastoral zones; the lithology, of basalt and limestone, provided excellent building stone and workable raw materials for construction and various other crafts.

Until it was drained in the mid-twentieth century CE, Lake Hula, which was rich in fish and wildlife, was an important physical component of the valley. While the lake's southern extent was fixed by a natural dam, the Rosh Pina sill, its northern border and the extent of the Hula swamp were dynamic, varying with the amount of precipitation and, perhaps, human intervention. The lake was supplied by the waters of the Jordan River, which was fed by three rivers, the Dan, the Banias, and the Hasbani; a fourth river, the ‘Iyon, reached the Hula swamps directly. Surface streams from the adjacent heights, other minor springs, and the abundant precipitation (Naftali Heights: 900 mm; Golan Heights: 1000 mm; and Mt. Hermon: 1500 mm), make this region the most water-rich of the southern Levant. Nevertheless, full use of the valley's agricultural potential depended on the landscape and water management ability of a central authority (Greenberg 1990; 1996b: 23-5).

Longitudinal movement naturally followed the Jordan rift, via Nahal ‘Iyon in the north to the Beq’a, and via the the Rosh Pina sill in the south. Steep mountain passes lead to southern Syria and Lebanon. Because of the swampy nature of the landscape, internal communication probably relied on the valley margins, with some rare latitudinal routes enabled by fording points. Theoretically, some of the rivers may have been navigable downstream to the lake, with upstream movement aided by draught animals moving along the banks.

In general, the sparse IBA settlement and cemetery evidence is located along the valley's margin, although some sites are in the center of the alluvial plain (Greenberg 1996b: 151-3, fig. 54). The slightly more numerous MB IIa settlements are also distributed along the margins and at several sites in its center, with major sites at the northern gateways to the valley, and subsidiary centers in the plain and along the eastern Highland-Lowland interface (Greenberg 1996b: 153-4, fig. 55; Table 6.9).

9.1 Tel Dan

At the northern end of the Hula Valley below the slopes of Mt. Hermon, Tel Dan commands a strategic position beside the Dan springs, one of the principal sources of the Jordan river. These lush

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359 For a more detailed discussion, see Greenberg (1996b: 9-22).

360 In addition to the sites discussed in detail, note that Tel Anafa has produced IBA sherds and an LPW globular juglet (Weinberg 1973: pl. 30:a).
springs, which supply 350 million m$^3$ per annum (Tsuk 1990: 2), and the fertile alluvial plain, are two reasons for the long habitation and importance of the site (Biran 1993; 1994; 1996). Another is the site's position on a route in northern Israel between the Lebanese coast and Damascus (cf. Rainey 1981). The recent publication of Dan I (Biran, Ilan & Greenberg 1996), after over twenty-five years of investigation at the site—the longest and continuous in the country—has revealed impressive and illuminating remains, particularly for our understanding of the Middle Bronze Age.

9.1.1 Summary of MB IIa remains

Following a long-lived and apparently fortified EB II-III urban settlement that covered an area of at least 20 ha (Biran 1996: passim; Greenberg 1996a: 85-98), the site appears to have been abandoned. While IBA ceramics were found in two areas on the site, no architectural remains were found (Biran 1994: 44-45, fig. 20; Ilan 1996b: 195). Evidence for MB IIa occupation comes from all of the excavated areas and includes the rampart fortifications and gate, numerous intramural burials, and domestic dwellings (Biran 1996; Ilan 1996b). These remains are arranged in two main strata, XII and XI, comprising seven principal architectural phases that indicate a degree of chronological continuity over a fairly large area (Ilan 1996b: 163-5, table 4.1; Table 12).

The earliest remains (St. XII, Phase 1) have been found in Areas A & B, on the southern part of the tell, and in Area Y, near the northeast corner. These remains are characterized by domestic dwellings, some with ovens, and intramural jar and cyst burials (Ilan 1996b: 163-8, 202-4). In Area Y, these features appear on an apparent EBA sloping or stepped stone structure that served as the inner embankment of the MBA rampart core (Ilan 1996b: 202-3, plan 9). Although the sample of remains may have been skewed by selective excavation, which would explain the lack of MB IIa evidence in the center of the tell (Area M), it may indicate a fairly sparse settlement existing on the fringes of a pre-existing EBA tell (Ilan 1996b: 163-4).

The domestic character of the remains continues in Phase 2 along with jar and cyst burials, one of which contains nine beads of various semi-precious stones. A new funerary feature introduced at this stage is a stone-built chamber tomb (T.1025) that abuts the sloping stone structure in Area Y (Ilan 1996b: 204-8). Among the important finds from this tomb are a pommelled bronze dagger, a

361The investigations in Areas K, Y, and T3, and indicate that a significant portion of the EBA city wall and its components were extant and exposed during the IBA hiatus, and later used by the MBA inhabitants. The IBA ceramics suggest either a modest squatter occupation during or a significant destruction of IBA remains by MBA building activity. In Area K, Biran (1994: 37, 88; 1996: 60; Greenberg 1996a: 94-5) suggests the existence of an EBA monumental structure, perhaps a gate, upon which the later MB IIa gate was founded. In Area Y, the sloping surface may have originated as an EBA construction incorporated into the MBA rampart (Biran 1996: 57; Greenberg 1996a: 96; Ilan 1996b: 164-5). In Area T3, the MB IIa fortification, characterized by a series of offset-inset buttresses (Biran 1990), is increasingly being viewed as the re-use of an existing EBA structure (Biran 1996: 51-3; Greenberg 1996a: 96, n. 1). Note the strong similarity between its construction and the EB III, and perhaps MBA, buttress wall at Byblos called the “rempart phenicien” (Jidejian 1971: 151-2, overleaf, pls. 12, 29; Saghieh 1983: 65-6). In this case, however, the buttresses are on the inside of the wall, as at Yarmuth (de Mroschedji 1995: 34), but this subject requires further investigation.
bronze bracelet and bowl, and a glass bead (Ilan 1996b: 204, 234-6; Ilan, Vandiver & Spaer 1993). Within the sloping stone structure, a cultic cache was discovered containing ceramic, metal, and other finds (Ilan 1992). The precise stratigraphic, chronological, and functional relationship between the cache and nearby tombs is not clear, although all predate the erection of the inner rampart. Phases 3-4 in Areas B and Y were domestic in character, with the possible exception that a city wall, with abutting floors, may have already existed in Area B (Ilan 1991a: 3; p.c.). Jar burials continue along with the introduction of a shaft tomb (T.3126) in Area Y (Ilan 1996b: 171-2, 208-11).

Stratum XI marks the transition from the MB IIa to MB IIb periods. At this time the site was enclosed by massive earthen ramparts as part of a major urban reorganization that greatly reduced the available area within the enclosure, from 20 to 14 ha (Biran 1994: 91). Kempinski (1992a) views the city plan as part of a general Syro-Mesopotamian concept. As the earliest habitation levels on the inner embankment date to the late MB IIb period, it appears that, initially, the inhabitants settled on the center of the resultant crater (Ilan 1996b: 164-5). Excavation of the rampart fortification at a number of points along its perimeter revealed a complex structure whose generally uniform topography hides an internal core construction that varied at different locales, e.g., a vertical stone core in Area A-B, a sloping or stepped stone structure in Area Y, and an offset-inset wall in Area T (Biran 1990; 1994: 58-73; 1996). In Area K, a triple-arched mudbrick gate was constructed (Biran 1994: 75-90; Biran 1996: 58-61), perhaps above an earlier EBA monumental structure. Among the burials assigned to this stratum are a jar burial (T.1062) containing thirty-six frit beads, and perhaps the initial phase of T.8096, which may have contained a bronze dagger, an arrowhead, and a scarab (Ilan 1996b: 194-200, 211-2).

9.1.2 Pottery finds

The detailed typological analysis of the ceramic repertoire of the Dan sequence revealed a number of trends, divergences, and distinguishing features with affinities that underscore the site's location between the inland Syrian and the Levantine cultural spheres (Ilan 1996b: 213-31, 242-4). The analysis and cited ceramic parallels suggest that this assemblage is a distinct, perhaps Jordan Valley version of the basic Levantine repertoire, which resulted from interaction with proximal and distant regions. Some general typological observations bearing on the relative chronology and synchronisms may be made for this key site. For instance, the burnished red-slipped and painted wares appear together from the earliest levels and continue through the MB IIa, the latter with variations throughout the MB IIb period. Ilan (1996b: 162-3) correctly notes that in the absence of any independent chronological anchors, the ceramic synchronisms do not permit a determination of the beginning of the MB IIa at Dan in absolute terms, or even relative to sites on the coast and western Jezreel Valley. Comparison of the earliest ceramic finds from Dan with the tomb group from Gesher in the Lower Jordan Valley suggests that, even considering the relative distance between the sites and pending the publication of ceramics from the settlement levels at Dan, some of the earliest types and perhaps the incipient phase of the MB IIa as represented in the Jordan Valley may in fact be missing at
Among other common Levantine types absent in the repertoire are red-cross platter bowls, goblets, pedestal vases or chalices, basket handle vessels, and cut-away neck vessels (Ilan 1996b: 231).

**9.1.3 Painted and TEY Vessels**

Painted pottery, including types that belong to the LPW class, appears in the earliest MB IIa levels at Dan. In early Stratum XII, examples are limited to fragments of jugs and jars, which are decorated with monochrome red or bichrome red and black bands, occasionally on a burnished surface (Ilan 1996a: 157-8, figs. 1-2). In later phases of Stratum XII, painted jars disappear while kraters and globular, cylindrical, and piriform juglets are added to the repertoire (Ilan 1996a: 158-62, figs. 1, 3-4). In addition to the existing painted motifs, vessels are decorated with framed or butterfly red net-pattern; red and dusky red concentric circles; framed red and red & gray wavy lines on the bodies; and framed red wavy lines on horizontal lines or pendant decoration on the necks and rims.

In transitional MB IIA/b-early MB IIb Stratum XI, there is an increase in the range of motifs and the addition of open shapes such as kraters and bowls (Ilan 1996a: 162-5, figs. 1, 6-8). The latter is characteristic of a pottery group termed Monochrome Painted Cream Ware (MPCW), which appears to have derived its inspiration from inland Syria. The appearance en masse of this new class was accompanied by a decline in LPW examples, both in range of types and sheer numbers (Ilan 1996a: fig. 1). However, LPW motifs from this stratum are assimilated into hybrid MPCW examples (Ilan 1996a: 162-5). Lastly, it is important to note that examples of LPW vessels continue into Stratum X in relatively small numbers (MB IIb; Ilan 1996a: fig. 9:1-3).

A few TEY sherds were found in upper fills of the rampart and are probably coeval with Phases 5-8 of Area B, i.e., MB IIA-b period (Ilan 1991a: 133; 1996b: 231).

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362 For example, the small carinated bowl from the earliest tomb, T.23 (Ilan 1996b: 217, fig. 4.90:2), is best paralleled by examples from T.4 and T.10 at Gesher, which are both considered typologically later in the relative sequence (Garfinkel & Bonfil 1990: figs. 2:1, 4:3; Hess 1990: fig. 1:5). Some of the open bowls with low disc bases from T.1025 (Ilan 1996b: 213, 216, fig. 4.104:1, 5) also show some similarity to examples from the “later” tombs at Gesher (Garfinkel & Bonfil 1990: fig. 5:1, 6). The absence at Dan of the flat-based open bowl and the rarity of the handleless jar, both prominent features in the Gesher tombs (Garfinkel & Bonfil 1990: passim) and early contexts elsewhere (e.g., Hagosherim; Covello-Paran 1996: fig. 4:1), should be noted. At best vague parallels can perhaps be drawn between the two-handed storage jars of T.902b-d and examples from Gesher. Publication of the ceramics from settlement levels at Dan will contribute much towards resolving this issue.

363 See also T.1025 (Ilan 1996a: fig. 4:3; 1996b: fig. 4.105:12) and T.3126 (Ilan 1996a: fig. 4:4, 5; 1996b: fig. 4.106:4, 8).

364 Two juglet examples: T.1062 and T.8096a (Ilan 1996a: fig. 7:8-9; 1996b: figs. 4.100:10, 4.106:5).
9.1.4 Metal industry

No direct evidence for metal production is reported. Despite the assertion that the cache in Area Y is a cultic offering (Ilan 1992: 261), the absence of many of the stated criteria for a “founder's hoard” does not exclude the possibility that the fragmentary bronze and silver objects were prepared for recycling, and only subsequently deposited in their final context.

9.1.4.1 Bronze

The majority of the bronze artifacts originated in the cache from Area Y. This context included forty-six objects including two daggers, two or three socketed spearheads, two flat hafted axes (or adzes), one duckbill axe, twelve toggle pins, three belt buckle fittings or fasteners, two spatulæ, a ring or armlet, and twenty-three miscellaneous fragments (Ilan 1992: figs. 4-8). Other objects originated in tombs (T.1025 and T.8096a), and included two daggers, an arrowhead, a bronze bracelet, and bowl (Ilan 1996b: 234-5, figs. 4.100:16, 4.101:1, 4.106:1). One simple blade was found in a mixed EBA-MBA fill of the rampart (Miron 1992: 12).

9.1.4.2 Silver

Three silver objects were discovered in the cache from Area Y. These included one sheet metal figurine, one strip in six fragments, and one ring or armlet (Ilan 1992: 257-60, figs. 8:7, 11:1, 2)

9.1.5 Semi-precious stones and other materials

Beads made from semi-precious stones, frit, and one of glass were found in mortuary contexts and in the cache from Area Y. The semi-precious stones included carnelian, rock crystal, garnet, and amethyst. The glass bead found in T.1025 is the earliest example of this material in the southern Levant (Ilan, Vandiver & Spaer 1993; Ilan 1996b: 236, fig. 4.106:3).

9.1.6 Egyptian finds

Two fragments of Egyptian statues, which might have originated in MBA contexts, were found in later contexts in Area T. The first is a headless granite statue used as a building stone in a 9th century wall (Biran 1994: 161, fig. 120). It is in the style of a MK private statue, but the name of the owner's father, Seti, is more common in the New Kingdom. Schulman (1990: 240, n. 8) considers it to be of MK origin. The time of its arrival could be any time before its re-use in the Iron Age wall.

The second fragment is part of a MK block statue that was found on the surface (Biran 1994: 161). The statue was inscribed in the Middle Kingdom and then re-inscribed in the Third

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365Forty-eight beads were found in the cache: thirty-six of carnelian; one of rock crystal; and eleven of frit (Ilan 1992: 256-257, figs. 9, 10:3-11). Thirty-six frit beads were found in T.1062, and nine beads were found in T.4244, including two of carnelian, two of garnet, one of crystal, and four of amethyst (Ilan 1996b: 235, figs. 4.90:4).
Intermediate Period (Schulman 1990: 236). Despite Schulman's suggestion that it was reinscribed at Dan, the date of its arrival is pure speculation.

9.2 HaGosherim

Three rock-hewn shaft tombs at Kibbutz HaGosherim near the unexcavated site of Khirbet Kisas contained IBA and early MB IIa ceramics and other finds period (Covello-Paran 1996). The ceramic forms have parallels with examples from Dan XII, the Gesher tombs, and other Jordan Rift Valley sites, but less so with sites southwest of Megiddo (Covello-Paran 1996: passim).\textsuperscript{367} The framed bichrome black & red line decoration on the single LPW storage jar (Covello-Paran 1996: fig. 9:5) is paralleled on similar vessels at Dan XII (Ilan 1996a: figs. 2-3). In light of similarities with examples from inland Syria, Covello-Paran (1996: 82) is correct in postulating a north-south inland corridor of cultural interchange. Other finds included bronze toggle pins, copper wire, and beads made of agate and ostrich eggshell, the last of which might have originated in an IBA context, as numerous examples were found in shaft tombs previously excavated in the vicinity (Covello-Paran 1996: 75-6, 79, figs. 5, 7:3, 5; Yeivin 1962; 1966).

9.3 Kefar Szold (T. Kalil)

The tomb of Kefar Szold is located in a natural cave on an elongated ridge, known as Tel Kalil, that rises above the alluvial plain near a number of springs (Epstein 1974: 13). Together with the tombs from Ginossar, the ceramic finds from this assemblage were the basis for the term “transitional” MB IIa-b period, and are coeval with Stratum XI at Tel Dan. Among these finds are four painted piriform and globular juglets decorated in a variety of LPW motifs, including a body decoration of horizontal framed wavy lines, triangles filled with dots and net pattern, concentric circles, and a pendant decoration around neck and rim in two shades of brown (Epstein 1974: 14, figs. 1:5-8, pl. III:5-7). One damaged socketed spearhead and a scarab were also discovered (Epstein 1974: fig. 4:10, 13).

9.4 Tel Na’ama

Limited salvage excavations at the 3 ha site of Tel Na’ama have revealed considerable evidence for MBA habitation (Greenberg 1990; Greenberg, et al. 1998). Following several phases (5-7) of an IBA habitation, at least three MB IIa phases (2-4) are represented, during which this site was, apparently, fortified by a mudbrick wall (Greenberg, et al. 1998: 11-6, 31). Among the ceramic finds from the first two phases are a bichrome LPW jug with net-pattern filled diamonds and a TEY juglet fragment (Greenberg, et al. 1998: 17, fig. 18:10-12). An LPW juglet with monochrome red concentric

\textsuperscript{366}It was not found in a seventh century Phoenician level as stated by Schulman (1990: 236).

\textsuperscript{367}Note further similarities with the form of the carinated bowls, handled storage jar shapes, and rims at Dan XII (Ilan 1996b: fig. 4.78).
circles belongs to the last phase (Greenberg 1990: fig. 118; Greenberg, et al. 1998: 17, fig. 17:4). Also, two bronze objects, an axe and spearhead, were found in a cache (Greenberg, et al. 1998: 17, fig. 19).

9.5 Tel Hazor

Tel Hazor, with its ca. 12 ha upper and 68 ha lower city (Yadin 1993), is by far the largest BA site in Israel. However, excavations have revealed only scattered MB IIA remains between EBA levels, IBA pottery, and MB IIB remains. Assemblages that are stratigraphically or typologically earlier than Stratum XVII (MB IIB) are assigned to an ambiguous "Pre-XVII" MB IIA-b stratum (Yadin 1972: 121-2). These include finds from cyst and jar burials and various loci in Areas A & L in the Upper City and stratified remains from the Lower City, all of which could be termed MB IIA or MB IIA-b. The only significant assemblage of MB IIA finds is from a rock hewn shaft tomb (T.1181) in Area L (Maeir 1997). This tomb contained 130 ceramic vessels, three bronze weapons, two toggle pins, and five beads, which Maeir (1997: 311-322) concludes are reflection of fifty to eighty years of late MB IIA to MB IIA-b use. Among the ceramic finds was a local imitation of a MC WPCL jug, a painted jug, and various painted juglets, decorated in monochrome red horizontal, wavy, and crossed lines on the body, and one instance of paint strokes on a handle of a basket-shaped form (Maeir 1997: 301, 305, figs. IV.5:12-14, 17, IV.8:2, 6). The beads are made of rock crystal, carnelian, and amethyst (Maeir 1997: 317).

In Yadin's opinion (1972: 202-203), the position of this tomb's shaft under the Stratum XVII city wall is conclusive evidence that the Upper City was not previously fortified, a point contested by

368Note the numerous IBA tombs around the tell (Stepansky 1992).

369Upper City: Areas A, BA, and G (Yadin, et al. 1961: pls. CLVI:18-32, CCXXXV:12-20, 31-34, CCXXXV:1.1, CCXLVI:2-15). Lower City: Areas D, D3, and E (Yadin, et al. 1958: C:1-10, 12, 19, CXII:17, 20, CXIII:1, CXVII-CXXI: passim, CXXXII:1-6). Most of these were first identified either by Dever (1976: n. 32) or Maeir (1997: n. 107). Additional tombs and loci with possible pottery from this phase were found in Areas A and L (Bonfil & Greenberg 1997: 33-34, 54-65, 162-163; Garfinkel & Greenberg 1997: 194-202), although the bulk of the material tends towards the MB IIB period. See, in particular, the opinion of Ben-Tor (1997: 4-7). Apart from the pottery there are also a number of other objects, including bronze finds, which could be assigned to this period. One example is the broken mushroom-head toggle pin from the Cistern 9024 (Yadin, et al. 1958: CXVIII:21).

370Dr. A. Maeir kindly showed the author material from this tomb.

371Four metal objects, a socketed spearhead, two daggers, and a pin were analyzed (Shalev 1997). The percentage composition of the principal elements was as follows: spearhead Cu 98.56 Sn 0.42 Pb 0.11 As 0.59 Ni 0.14; dagger (corrosion) Cu 78.56 Sn 0.76 Pb 0.08 As 1.14; dagger Cu 96.22 Sn 2.09 Pb 0.11 As 0.97 Ni 0.14; and pin Cu 93.84 Sn 4.85 Pb 0.24 As 0.76 Ni 0.14 (Shalev 1997: table IV.C.3). In light of the variation in composition, Shalev (1997: 350) suggests that the local industry may have relied on recycled scrap, and may also indicate either a gradual decrease over time in arsenical coppers and an increase in the use of tin bronze, or a correlation between type and composition over a shorter time. Given the chronological range of the ceramics and number of interments, Maeir (1997: 317) rules out the former explanation. It is possible that more than one workshop, following slightly different traditions, produced these objects.
Maeir (1997: 317-9). Sections cut in the northern side of the fortified eastern extension of the Upper City suggest that these earthen embankments were late MB IIa or MB IIa-b constructions (Dunayevsky & Kempinski 1990). Based on this evidence the following sequence of urban development is suggested: a) the nucleus of an MB IIa settlement, which began on the Upper City, originated on the remains of the EBA and, possibly, IBA tell; b) towards the end of the MB IIa period, the settlement was extended to the east and fortified with an earthen embankment; c) the MB IIb site increased fivefold, creating the Lower City (Dunayevsky & Kempinski 1990: 27-8). In assessing Hazor during the MB IIa period, it is crucial to recall that the exposures of MBA remains were quite limited (Yadin 1967: n. 29). It is possible that the excavated areas may not be representative of MB IIa settlement, or that these remains were erased by MBA, or later, monumental constructions.  

Although Maeir (1997: 323) notes the lack of any Egyptian contact during the early MB II settlement at Hazor, a red-slipped storage jar handle bears an incised “Egyptian” sign similar to those at Akko and Tel el-Ishar (Yadin, et al. 1961: pl. CLVI:27). It was found in an open courtyard adjacent to the MB IIb palace in the same locus as a mold for daggers (Yadin, et al. 1961: pl. CLVI:30).

9.6 Ginossar

The shallow hewn tombs found on a steep soft rock escarpment of Nahal Salmon near Kibbutz Ginossar are grouped in two clusters (Epstein 1974: 20). Tombs 1 and 5 belong to the IBA and MB IIa period, respectively. Tombs 2-4, which are located ca. 100 m away, were used from the MB IIa through the MB IIb periods. Tomb 1 was used during the MB IIa and the MB IIa-b periods. The latter phase contained two painted vessels, a band painted carinated bowl and jug (Epstein 1974: 20-1, figs. 5:4, 7:13). Tomb 4 is transitional MB IIa-b and contained six painted piriform juglets, decorated in monochrome and bichrome concentric circles (some dot or spoke-filled), spirals, horizontal lines, vertical ladders or ibexes on the body, and branch or pendant motifs on the neck (Epstein 1974: fig. 14:1-5, 9). Tomb 4 also contained a MCPL jug (Epstein 1974: fig. 15:9). The metal objects include three socketed spearheads, three daggers, two knives, and a narrow bladed axe (Epstein 1974: figs. 7:14-15, 18:1-7; Philip 1989: 267, 363, 366, #304, 308, 399; Miron 1992: 73, #268).

The stratigraphic position of some of the earliest MB II burials and fills in Areas A and L suggest such a disturbance. For example, T.651 presumes a non-extant living level, and the finds from the fill of the MB-LB temple, such as L.644B, had to derive from somewhere. Similarly, in Area L, some MB II burials, including jar burial 1179, which is presumably from a house, were found at the base of Iron Age walls (Garfinkel & Greenberg 1997: 194). There is no way to assess the intensity of the presumed missing strata.

Other evidence for MB II metallurgy can be found at the site, e.g., tuyères and crucibles in Cistern 9024 (Yadin, et al. 1958: pl. CXVIII:6-14).

The IBA cemetery is much larger than this one tomb would suggest. Sherds and complete vessels of this period have been found periodically on this slope (Epstein 1974: n. 36).
9.7 Golan Heights sites

Surveys and excavations have failed to identify any settlements of the MB IIA period on the Golan Heights, although several dolmens were in use during this period (Epstein & Gutman 1972; Epstein 1985a; Hartal 1989; Kochavi 1989b; Dauphin & Gibson 1992-1993). Apparently these megalithic structures belonged to an IBA population that inhabited the slopes and heights on both sides of the Hula Valley (Epstein 1985a; Eisenberg 1985; Zohar 1992). The burial grounds of this population, which apparently interacted with the lowland MB IIA urban cultures, was the likely source of the bronze eye and duckbill axe in the village of `Ein Sied (Epstein & Gutman 1972: 290-1, figs.). Five excavated dolmens were in use during the MB IIA and the MB IIA-b periods (Epstein 1985a: 30, 32-7). Dolmen #13 contained a copper or bronze socketed spearhead, a pin, and a ring (Epstein 1985a: 32-33, fig. 3:18-20). Dolmen #14 produced pottery of the MB IIA/4 to transitional MB IIA-b periods, including several black-slipped and burnished wares, parts of three painted juglets, and a fragmentary TEY juglet (Epstein 1985a: figs. 5:18-21).

Recent surveys in the Hauran region and excavations at Bosra have demonstrated the presence of IBA and extensive MBA settlement south of Damascus (Seeden 1986; 1988; Braemer 1993). Together with the archaeological evidence from northern Jordan (Eames & Schroder 1997), this suggests that the Golan Heights was only one part of a complex landscape of pastoral and sedentary populations that extend all the way to Jawa (Helms 1989a). This relationship between this region and the lowland Jordan Rift Valley sites has not been sufficiently studied (Braemer 1993: 154-62, figs. 39-40).

10. Lower Jordan Valley (including the Beth Shean Valley and Transjordan)

The most important feature in this region is the Jordan Rift Valley, which has created a fragmented geography with extreme transitions in elevation, making broader cultivable land scarce. Below the Rosh Pina sill is Lake Kinneret (the Sea of Galilee), which is the largest freshwater basin in the region. It is fed primarily by the Jordan River, but receives additional supply from streams on both the western and eastern shores. Although narrow strips of land characterize both of these shores, broader valleys can be found on the northern and southern shores, where the Jordan river enters and leaves the lake. From this point to the Dead Sea, the meandering Jordan river and its tributaries divide numerous sub-valleys and plateaus, of varying sizes, on both sides of the rift (cf. Maeir 1997: 10-37). Intra-regional agricultural potential varies considerably, and because of the low precipitation (300-400 mm) is precarious, except in proximity to permanent water sources (Najjar 1992: 150; Maeir 1997: 21-34). Longitudinal movement was possible on either side of the rift valley. In the Kinneret region,

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375 Among the MBA finds from this region are painted and TEY wares from Tell Sakka (Taraqji 1993: fig. 21, 24-25), TEY wares from tombs at Dhibin, painted and TEY wares, and a bronze axe from Tell al-Ash’ari (Al-Maqdassi 1993: figs. 45-46, 52-53). The decoration of the last painted juglet may be compared with the example from Dolmen #14. The framed vertical line (or horizontal ladder) decoration appears quite often in MBA Jordan Valley sites (e.g., Gesher, Dan, and Ginossar).
longshore terrestrial traffic intersected with latitudinal routes up into the adjacent highlands and nearby valleys; the advantages of lacustrine navigation should not be discounted. Numerous fording points emerged along the Jordan River (Maeir 1997: 37, fig. 11).

**IBA sedentary settlement was extensive along the eastern and central Jordan Valley.** MB IIA settlement is fairly limited in numbers, size, and density, both in comparison with other periods and other contemporary regions (Maeir 1997: 217-221, figs. 18, 88, 92; Magness-Gardiner 1997; Table 6.10).

### 10.1 Beth Shean

Extensive excavations by the University of Pennsylvania and the Hebrew University have not revealed any settlement on the tell between the IBA and the MB IIb period, although some burials may have existed (Mazar 1993; Maeir 1997: 69, table).\(^{376}\) In his study of the large IBA cemetery, Oren (1971; 1973) identified one deposit of MB IIA bronzes in T.92, which he termed a “warrior tomb”. This assemblage was found in an IBA four-chambered shaft tomb, in the back chamber, which was untouched by later disturbances (Oren 1971: 109-11). The finds include a bronze duckbill axe, a socketed spearhead, a dagger, an arrowhead, and a scarab (Oren 1971: fig. 2:1-5). In the absence of pottery, the bronze finds are dated by comparison. Unfortunately, the one scarab is missing and unavailable for modern inspection; it is alternately dated to the FIP or MK period (Oren 1971: 116-7).

### 10.2 Gesher

This MB IIA cemetery was discovered on the southern bank of Nahal Tavor's outlet into the Jordan Valley, from which a number of disturbed objects were collected (Hess 1990). Subsequently, thirteen graves were excavated, all apparently shaft burials cut out of the soft Lisan marl; most were single burials (Garfinkel & Bonfil 1990: 132; Garfinkel 1993). No evidence of an MB IIA settlement has been found in the area.

The layout of the cemetery lacks any stratigraphic relationship, but the excavators have divided the tombs typologically into an earlier and a later phase, anchored by one radiometric determination (*see infra* Chapter Five). All of the vessels are wheel-made and unslipped (Garfinkel & Bonfil 1990: 142), with the exception of one red-slipped globular juglet (Hess 1990: fig. 1:6). In general, the ceramic assemblage has its strongest similarities with the early phases of other Jordan...
Valley sites (e.g., Dan XII, Hagosherim, and Tell el-Hayyat), and to a lesser degree with more distant sites (Garfinkel & Bonfil 1990: passim).

10.2.1 Levantine Painted Wares

This class was found in three of the later tombs. It appears as jugs and handleless jars, which are painted red in horizontal or vertical lines, triangles, with framed net-pattern on the body, and one pendant decoration around the neck (Garfinkel & Bonfil 1990: figs. 4:5, 5:2, 9; Hess 1990: fig. 1:7).

10.2.2 Bronze finds

Both early and later tombs produced bronze objects, including weapons and jewelry. The weapons included three duckbill axes (T.2, 12, & 13; Garfinkel and Bonfil 1990: figs. 1:6, 4:10, 5:3), three socketed spearheads, and an elongated socket axe (Garfinkel & Bonfil 1990: figs. 1:5-6, 4:10, 5:3-4, 10; Hess 1990: fig. 1:10). 378 One toggle pin was found (Garfinkel & Bonfil 1990: fig. 2:8).

10.3 Tel Rehov

Tel Rehov is the largest site in the Beth Shean valley, but has yet to be properly excavated. 379 However, Zori (1962: 176-7, pl. 21:6) noted a rampart fortification, collected MBA sherds, and an OB cylinder seal (Maier 1997: 217). South of the tell, across a stream bed, Yogev (1985) excavated a number of tombs, ranging from the Intermediate Bronze Age through the MB IIb period, some of which were disturbed by modern development. Two of the preserved tombs (2 & 8) contained MB IIa remains. 380 Tomb 2 contained a single interment found near the entrance, whose blocking stone was found in situ (Yogev 1985: 92). The finds included a handleless jar, a dagger with an alabaster crescentic pommel, a duckbill axe, and two socketted spearheads (Yogev 1985: figs. 3:2, 4:2-5, pl. XVIII:3, 8-11). 381 In addition, two complete IBA four-spouted lamps were found near the entrance of the tomb, 30 cm above the floor level (Yogev 1985: 93, fig. 1:89, pl. XVI:4). Yogev (1985: 93) suggests that they were brought in by a current of water, which deposited large quantities of soil. However, the fact that the blocking stone was found in situ argues either for the use of antique

378 Analysis of two of the duckbill axes shows a continuation of the local EBA tradition of mixing bronze alloys with up to 3% arsenic (Shalev forthcoming). The composition of the spearheads, with 0.7-1.6% arsenic, 0.75% nickel impurities, and less than 0.01% tin, is similar to an example from Hazor (Shalev 1997: 349).

379 Excavations have recently begun under the direction of Prof. A. Mazar.

380 The handleless jars from both tombs are paralleled by examples from Gesher and HaGosherim (Garfinkel & Bonfil 1990: figs. 1:3, 3:1; Covello-Paran 1996: 82, fig. 9:6-7), suggesting they belong to an early phase of the period.

381 Analysis of the metal finds using X-ray fluorescence revealed the following percentage composition: spearhead (4:4)Cu 95 As 1-2 Sn 1 Pb 1-2 Ag <0.1; spearhead (4:5) Cu 95 As 1-2 Sn 1 Pb 1-2 Ag <0.2; Dagger Cu 90-99 As <3 Sn 0.5-5.0 Pb 0-5 Ag <0.1; duckbill axe Cu 80-90 As <1 Sn 6-8 Pb 3-8 Ag <0.2 (Shenberg 1985).
IBA vessels during the MB IIa period, or a temporal contemporaneity between IBA and MB IIa material cultures.\textsuperscript{382} Tomb 8, whose blocking stone was also found \textit{in situ}, contained fragmentary IBA vessels and an intact MB IIa handleless jar (Yogev 1985: 94, figs. 2:16-17, 3:1). As finds of both periods appear on the same floor, Yogev (1985: 94) suggests that little time had elapsed between both episodes of use.

10.4 Tell el-Hayyat

Although small even by the standards of the southern Levant, excavations at the half-hectare site of Tell el-Hayyat has provided a rare glimpse of MB IIa settlement east of the Jordan river. Three seasons of investigation have revealed substantial evidence for the sophistication and complexity of village life from the IBA through the MB IIB periods. As excavations at larger sites in Jordan have rarely reached these early levels, and none have been reached in such wide exposures, Tell el-Hayyat has become a key site for the MB IIa period in this region.

10.4.1 Environment and economy

The site is located amidst fertile land on the first terrace above the Jordan River floodplain (Falconer & Magness-Gardiner 1984: 53). The nearest visible water sources are the Jordan river (2 km) and the ancient springs at Pella (3 km). While dry farming was feasible, the possibility of irrigation agriculture, or wells, should be considered (Falconer & Magness-Gardiner 1984: 53). The archaeobotanical assemblage includes wheat and barley, as major components, while peas, lentils, fruits (e.g., figs and grapes), nuts, and olives were also present (Metzger 1984; Falconer & Magness-Gardiner 1989a; 1993: 593; Magness-Gardiner & Falconer 1994: 146-8).\textsuperscript{383} The faunal remains show that sheep and goats dominated, followed by pig and cow (Metzger 1984; Falconer & Magness-Gardiner 1989a: table 4; 1993: 593; Magness-Gardiner & Falconer 1994: 142-6; Falconer 1995: 405-9, fig. 7). Among the ovicapridae, there is a noticeable increase through time in sheep, perhaps indicating a preference for their “secondary products” and use in temple-based ritual activity (Metzger 1984: 69; Falconer & Magness-Gardiner 1989a: 343-4; Magness-Gardiner & Falconer 1994: 143-4, table 2).

10.4.2 Summary of MB IIa remains

Excavation of approximately 400 m\(^2\), or some eight percent of the site, which was restricted to the southwestern quadrant of the site, has revealed six principal architectural phases from the Intermediate Bronze Age through the MB II period (Table 13). For the relative dating, the most recent reports are followed (Falconer 1987: 251; Falconer & Magness-Gardiner 1989a: table 1; 1989b: 255; 1994: 143-4, table 2).

\textsuperscript{382}The section of the tomb (Yogev 1985: plan 3) leaves about a 20 cm gap for these 5 cm high 10 cm wide objects to be swept into the tomb. However, no other IBA vessels, or even sherds, were swept through this narrow gap.

\textsuperscript{383}Lithic remains, including Canaanite blades, cores, and flakes, indicate local production of, \textit{inter alia}, agricultural implements (Falconer & Magness-Gardiner 1984: 56).
1993: 591, table; Magness-Gardiner & Falconer 1994) and for the radiocarbon determinations, see infra Chapter Five.

Only scant IBA remains were found in probes and in later fills (Magness-Gardiner 1996: 184). The state of these remains is probably a result of subsequent building activities. By analogy with the evidence for sedentary life at nearby Tell Abu en-Niaj, the excavators suggest that a village, and not a pastoral/nomadic presence, may have existed at Tell el-Hayyat already in Phase 6 (Falconer & Magness-Gardiner 1989a: 340-1).

In the initial MB IIa level, Phase 5, an area was leveled for the first in a series of four small temples (Falconer & Magness-Gardiner 1989a: 341-2, figs. 5, 7; 1989b: 256, fig. 2a; Magness-Gardiner & Falconer 1994: 136-8, fig. 5a). An earthen wall enclosed this temple and its forecourt, into which a small stela was later inserted, but no other significant architecture was erected. The excavators compare the plan of this temple in antis (external piers or buttresses) to examples from Syria and the Levant (Magness-Gardiner & Falconer 1994: 135-8, figs. 3-4).\footnote{Their parallel from Nahariya, however, is less convincing, as it is based on a speculative reconstruction by Dothan (1965: fig. 1:2) and republished by Mazar (1992: 161-2, fig. 1). Examination of the original plans (Dothan 1956a: fig. 1; 1956b: fig. 1) shows clearly how very little of this plan is based on an actual structure. Dothan admittedly attempted to relate this structure to the Megiddo temples, and never published this reconstruction anywhere else (cf. Dothan 1977; 1993c).}

They also suggest that as the first structure constructed at this site, its institutions may have directed or subsidized the initial settlement (Magness-Gardiner & Falconer 1994: 136).

In Phase 4, a second MB IIa mudbrick temple is constructed along a similar, but more elaborate plan. A group of six limestone stelae are erected outside the northeastern corner of the temple (Falconer & Magness-Gardiner 1989b: 256-8, fig. 2b; Magness-Gardiner & Falconer 1994: 138). A mudbrick enclosure wall separated the temple compound from domestic structures. The temple continued in use during the final two MBA phases.

In Phases 4 to 2, dwellings are established around a wall and alleyway that encloses the temple area. Outside the main area, on the southern edge of the site, an updraft pottery kiln belonging to Phase 4 was discovered (Falconer & Magness-Gardiner 1984: 54-5, figs. 5-6; 1989a: 344-5, fig. 15).

10.4.3 Pottery finds

Only representative examples of pottery have been published for the site. In general, the published ceramics are fragmentary, which may partly explain the repetitive range of forms in both MB IIa phases.

Falconer & Magness-Gardiner (1984: 58-61; 1989b: 256) suggest that some IBA to the MB IIa transitional forms exist among the pottery of Phase 5, but they have never developed this idea. In general, apart from the straight-walled cooking pot, the MB IIa pottery of this phase is wheel-made, and the fabric is coarse, with occasional surface decorations of red-burnishing (Falconer & Magness-Gardiner 1984: 58; 1989b: 260; 1993: 592). Phase 4 ceramics show a greater similarity to the MB IIa/1-3 forms on the western side of the Jordan, including a higher proportion of red-slipped and
painted fine-wares (Falconer & Magness-Gardiner 1989b: 260; 1993: 592). As settlement material from these early phases is still not abundant in the Lower Jordan Valley, the limited range of published material does not permit more than vague comparison with recently published early-MB IIa pottery from Gesher and Tel Dan. For example, the simple, rounded everted storage jar rim of Phase 5 is well-represented at Gesher, although the carinated forms are absent at both Gesher and Tel Dan.

10.4.3.1 Levantine Painted Wares

Painted wares appear in Phases 3 and 4 on closed forms (storage jars and jugs) and a few open forms. The body sherds of the closed vessels are decorated in monochrome and bichrome, often on a white background, variously with a net pattern, horizontal lines, concentric circles, and framed wavy lines (Falconer & Magness-Gardiner 1984: 62-4, fig. 17). Four carinated bowls painted with external horizontal stripes, and decoration on rim interiors, are found in Phase 4 (Falconer & Magness-Gardiner 1984: 61, fig. 14:3). In addition, an internally concave rim of a jar is decorated with red paint strokes (Falconer & Magness-Gardiner 1984: 61, fig. 16:11).

10.4.4 Evidence for ceramic production and exchange

The direct evidence for ceramic production provided by the Phase 4 kiln, is complemented by petrographic and INAA studies that were carried out on samples from Tell el-Hayyat (Falconer 1987; 1987). Comparison with analysis of samples from other contemporary sites demonstrates complex pottery exchange between large and small regional sites.

10.4.5 Metal finds and evidence for metallurgy

Copper-alloy and silver finds, and metallurgy, are significant features of the temple complex during both MB IIa phases (Falconer & Magness-Gardiner 1989a: 344; Magness-Gardiner & Falconer 1994: 154-6, table 8).\footnote{Initially, a limestone mould for tanged weapons was reported in Phase 3 (Falconer & Magness-Gardiner 1989a: 344). However, the most recent publication makes no reference to any metallurgical activity after the MB IIa period (Magness-Gardiner & Falconer 1994: 156).} Finished objects of both a ritual and symbolic nature, e.g., tools and figurines, were found on the temple floors and courtyards.\footnote{Illustrated finds include an anthropomorphic figurine from Phase 5, two bronze socketted spearheads, and two quadruped zoomorphic figurines from Phase 4 (Falconer & Magness-Gardiner 1989a: 342-4, figs. 8, 13).} Utilitarian objects were also found in domestic contexts.

Evidence for metallurgy includes a fragmentary crucible with remains of metal still adhering to it, which was found on a Phase 5 floor of the temple. Quantities of slag, stone molds, broken fragments of tools and figurines, and two flat objects, which according to the excavators resemble...
miniature “oxhide” ingots, were also found on the floors and courtyards. While the figurines and a mold for an anthropomorphic figurine suggest a sacred role for the metallurgy practiced within the confines of the temple precinct, a limestone mold for tanged implements demonstrates that utilitarian items were produced as well. In this respect, these temples are part of a larger Levantine phenomenon of religious sanctuaries that served as the focus for metal recycling and production.

10.5 Jericho

Despite extensive IBA and MB IIb evidence, only one tomb and a few early deposits in multiple-use tombs (T.K3 and T.B48A) with MB IIa/4 or MB IIa-b remains have been identified (Kenyon 1965: 203-28; Gerstenblith 1983: 34-5; Ward & Dever 1994: 68-71). Among the other objects are two, possibly Egyptian, alabaster vessels, scarabs, two rings, a pin and other fragments of bronze, amethyst, turquoise, and other beads of semi-precious stones (Kenyon 1965: 206, 209, 221, 226, fig. 100:1-2; Kirkbride 1965). Although there is no precluding future discoveries, the finds fit the general pattern in the Lower Jordan Valley, where MB IIa material culture is relatively quite limited. It also goes far towards explaining Kenyon's opinion (1960: 155) regarding the short length of this period.

11. The Negev, Arava, and Sinai arid zones

Over 150 km of arid Sinai desert coast separates the Pelusiac mouth of the Egyptian Nile Delta from the southernmost cultivable Levantine zone. It is one of many geographical frontiers in the Levant, and perhaps the only physical barrier in an otherwise contiguous zone of cultivation known as the Fertile Crescent. Owing to a chain of oases and available high groundwater (Gilead & Issar 1987), which may enable small agriculture plots, the coastline was the most amenable route, and was known in Pharaonic times as the “Way of Horus” (Gardiner 1920). In general, these arid zones became increasingly desiccated during the Holocene period and, apart from episodes such the Chalcolithic Negev culture, were sparsely inhabited by pastoral and nomadic groups (see review in Finkelstein 1995a). However, these regions possessed natural resources (e.g., copper, semi-precious stones, etc.) that attracted the attention of sedentary groups in neighboring regions.

Following extensive IBA settlement in the Negev, Arava, and southern Sinai arid zones, no evidence of MB IIa material culture has been identified (Cohen 1981; 1985; Haiman 1986; 1991; 1993; Lender 1990; Avni 1992; Govrin 1992; Gazit 1996; Rosen 1994). Radiocarbon determinations from some sites suggest to Avner et al. (1994: 284-5) that occupation continued into the Middle Bronze Age. The results of analysis by Gat (1998) on the material from the North Sinai Survey (Oren 1973; 1993: 1388; 1997: 275-9) has shown that the traditional “Way of Horus” was maintained by a network of sites stretching across the northern Sinai coast. Egyptian and Canaanite material culture is represented, with the relative intensity varying in direct relation to the proximity of the core areas.

387 Golden's suggestion regarding the use of ingots for the production of sheet metal (see supra, n. 4), may explain the function of these MBA ingots.
Chapter 5
Maritime Trade and the MB IIa Southern Levant

“. . . and the Canaanites dwell by the sea and along the Jordan.”

Numbers XIII:29

The preceding chapter placed the relevant south Levantine MB IIa material culture in its proper relative and geographical context. It is now time to explore the spatial, cultural, and chronological issues in order to elucidate the role of trade in the development of urban culture and the emergence of a nascent internationalism that marked a change in the relations between the southern Levant and the east Mediterranean world.

1. The Distribution of Traded Objects

In summarizing the artifactual evidence for international and inter-regional trade in the southern Levant (Tables 14-16), a number of caveats are necessary. In general, burials tend to offer contexts rich in small finds, and so it is not surprising that the majority of relevant finds derive from mortuary contexts rather than settlement levels. In the particular case of the MB IIa period, this balance is further biased by mortuary practices, which favor military and prestige items that ultimately derive from distant sources (Hallote 1995). In addition, the sample has been skewed by excavators’ bias towards fortifications, gates, and palaces, which have not produced an abundance of finds. Ironically, two non-fortified sites, Tel Nami and Tel el-Ifshar, have produced abundant small finds that have greatly contributed to our understanding of cross-cultural contact.

In general, organic commodities, such as oils, resins, and wine, or raw materials, such as bitumen, which are known to have been important traded items in other periods, have been largely ignored. However, the MB IIa Canaanite jar, whose morphological development continued along the trajectory begun in the Early Bronze Age, has been shown by an INAA study on vessels from Tel el-Dab’a to have been a successful and plentiful commercial container, well suited for transporting such commodities (see supra Chapter Two ). Apart from this study, and a limited sample of jars from Tel Nami (Marcus 1995a), material analysis of this potentially significant evidence for trade has been largely ignored. Small samples of other pottery forms, both fine and common wares, have been analyzed (Falconer 1987; Goren 1990a; 1992; McGovern 1997: 423-4; Maeir 1997), but the state of the research is far behind that encountered in the preceding periods. The evidence for ceramic production encountered at a number of sites suggests a multitude of workshops, which have yet to be sufficiently studied.

1.1. Levantine Painted Ware

The various types and design motifs subsumed under the heading of Levantine Painted Wares are among the most widely distributed and readily identified ceramic families. Although no longer derived or related to the Khabur painted wares (Stein 1984: 26 contra Amiran 1969), this family does overlap
geographically with the Amuq-Cilician Wares (Gerstenblith 1983: 64-70; Artzy 1995: 20, n. 20), but is clearly a distinct ceramic class with typological and decorative analogues that range from the coastal Levant to the Egyptian Delta, and inland to the Jordan Valley (Tubb 1983; Bagh 1988). Chronologically, there are clear typological and decorative developments in this class, from its appearance at the onset of the MB IIA period and throughout the sequence (Ilan 1996a; Beck 1985b: 183, 194), a characteristic that should be a warning about the interpretation of individual examples or isolated body sherds. Only limited material analysis has been carried out on this ceramic class, but the results of INAA and petrographic analysis on examples from Kabri, Tel el-Ifshar, Tell el-Dab’a, Tall al-Fukhar, and other sites, shows that a number of production locales existed (Bagh 1988: appendix A/1; Goren 1990a: xliv-xlvi, table 1; Paley & Porath 1993: 612; 1997: 373; McGovern 1997: 421, 423). Until a geographically and chronologically broader study is carried out, the question of the origin of this class, its cultural implications, and any discussion of trade versus inspiration, must be deferred. However, it is clear from even a cursory comparative analysis of the published examples that there is a much greater relative similarity between types and motifs from the southern and northern Levantine coast, than between the southern Levantine coast and the more geographically proximate Jordan Valley. This suggests much more intense communication along the coast regardless of whether the long-shore similarities are the result of actual trade or inspiration. Lastly, while there has been no attention paid to the meaning of the LPW motifs or the possible contents of the vessels, it is worth considering that some of the designs may be evocations of wicker-work or textiles (cf. Stager 1990; Barber 1991: 220, n. 4, 354-355, 365). Note the similarity between the bichrome pattern on the clothing worn by the ‘Amu in the Beni Hasan depiction and some of the LPW designs (cf. e.g., Newberry 1893: pl. XXVIII; Kochavi, Beck & Gophna 1979: fig. 4:9).

1.2. Tell el-Yahudiyah Ware

Tell el-Yahudiyah Ware is one of the most widely distributed MBA ceramic classes, occurring throughout the Levant, Egypt, and Cyprus, with outliers in Nubia and Thera (Kaplan 1980). This class originated in the MB IIA/2-3 southern Levant, where typologically it represents the continuation of the local juglet development with the application of a distinctive punctured (and often white-filled) surface decoration (1990; Beck & Zevulun 1996). This phase is typified by ovoid and piriform juglets, but other shapes and forms, such as bowls, botanical or fruit-shaped, ichthyomorphic, and zoomorphic vessels are known (Gophna 1969b; Zevulun 1986-1987a; Ziﬀer 1990: ﬁgs. 23*, 61; Amiran 1975). The decorations evoke patterns known from painted vessels (e.g., filled triangles and butterfly motifs), and also seem to complement the botanical forms. A fascinating cross-craft skeuomorph is the ovoid form

388 Three LPW jugs from T.1045 at Kabri and ceramics from Hama, including a MB II carinated bowl, were compared petrographically; the jugs are consistent with a production in northern Israel, as are some vessels from Hama (Goren 1990a: xliv-xlvi, table 1). Only one jug from Tel el-Ifshar, with parallels at Ugarit, was analyzed by INAA and shown not to be an import. For the LPW from Tell el-Dab’a, INAA has only been able to demonstrate a southern coastal Canaan derivation, but some examples of unknown chemical match may have a more northern origin (Bietak 1997: 98).

389 Note Kaplan's confusion (1980) on this issue (Weinstein 1982).
with vertical bands, which is a clear evocation of an ostrich egg container in a metal harness (Zevulun 1990: 184). In a typologically MB IIb unprovenanced example (Ziffer 1990: fig. 20*), a reserved brown burnish over a white background is another example of the use of color to evoke such a container (cf. Vickers & Gill 1994: 106-53). Clearly, as with the hybrid painted TEY vessels at Tell el-Dab’a (Bagh 1988: fig. 37), this class was subjected to extensive experimentation by potters, perhaps with an eye towards creating commercial recognizability. Although there has been no attempt to identify the original contents of the closed vessels, the shape and size suggests some type of oil or resin (hence the acorn decoration), or fruit-juice. While such commodities would be consistent with the petrographic and INAA evidence for TEY production at ’Afula, or at least two more southern Levantine MB IIa sources (Artzy & Asaro 1979; Kaplan 1980; Yellin 1984: 92-3; Goren 1990a: xlv-xlbi, table 1), the local production of these vessels at Tell el-Dab’a, may hint at other commodities or uses.

1.3. Middle Cypriot Ware

The distribution of MC pottery in the east Mediterranean archaeological record is among the clearest evidence of maritime trade. Although recently Maguire has sought to exclude the possibility of Cypriot imports during the MB IIa, because it was represented by equivocal sherdage, dubious, or poorly excavated contexts, there are clearly securely dated MC ceramics to indicate its export to the Levantine coastal regions, already in the MB IIa period (Artzy & Marcus 1992; Marcus 1991; Dever 1976: n. 104), with time enough for local imitations to appear at Kabri and Hazor (see supra Chapter Four).

Part of the reluctance to this date for the beginning of MC exports is the absence of MC imports in MK Egypt and a large portion of the Syro-Lebanese coast, especially Byblos. Given the MB IIa context for MC pottery elsewhere, this selective distribution may be coincidental, or a result of incomplete publishing, or the poor fortunes of excavation. However, it is possible that this distribution pattern owes itself to selective, or even restrictive, trade relations, i.e., unlike the northern Syrian and southern Levantine coast, Egypt and its Egyptianized Lebanese partners were excluded or did not have the same desire for MC imports. Support for this argument may be found in the fact that MC pottery only arrives in Egypt with the Canaanite settlement in the Delta. Further excavation in the pre-Stratum H levels at Tell el-Dab’a should provide some resolution to this question.

In the absence of any residue analysis, it is impossible to explore the role of MC pottery in the extra-Cypriot record, where it is often present in burial contexts. While open vessels are clearly traded for their own desirability, the more common closed forms may have functioned as containers for some unknown liquid commodity, as is the case of the LBA Cypriot juglets (Knapp 1991). In any event, the appearance of MC pottery marks the beginning of extensive contacts between Cyprus and the southern Levant, and given the distribution pattern, most likely by maritime rather than indirect terrestrial contacts.

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390 This point cannot be over-emphasized, as when querying excavators as to whether they have found any MC pottery in MB IIa contexts, the response most often heard by this author is “there are no MC imports in the MB IIa period”.
Whether MC pottery “piggy-backed” on a more substantial cargo, such as copper, has yet to be resolved.

1.4. “Anatolian” cut-away vessels

Since Amirian (1968) first remarked on the similarities between contemporary Anatolian and southern Levantine ceramics, the term “Anatolian” has remained in the archaeological lexicon as a designation for various Levantine types and traits, although their pedigree is unclear (Gerstenblith 1983: 68-70, 80-2). While there is no denying the visual similarities in types, cross-designs, and the red-slipped surface treatment, the traits seem chronologically unrelated in the Levantine context (Beck 1985b: 198), and their relationship still unresolved. In the southern Levant, the distribution of these traits is limited to the Coastal Plain and Jezreel Valley, where it appears in later MB IIa phases (Table 14). The only material analysis carried out thus far has been on examples from Kabri, which were produced locally. Until more extensive sampling is carried out, a distinction between trade and inspiration is unresolvable and the chronological utility of examples from Byblos (Tufnell 1969: 14-5, fig. 5:52), Akko (see supra Chapter Four), Tel el-`Ajjul (see supra Chapter Four), and Tell el-Dab’a (see supra Chapter Three) cannot be assessed.

1.5. Metals

While silver is present in a number of sites, occasionally in some concentration (e.g., Nahariya and Megiddo), copper-based alloys, such as tin-bronze, are abundant in the MB IIa southern Levant. Rarely does an excavated settlement or tomb fail to produce some weapon, jewelry, or other object, as numerous typological studies and corpora demonstrate (Henschel-Simon 1937; Maxwell-Hyslop 1949; Gerstenblith 1983: 89-100; Miron 1986-1987; 1992; Philip 1989). Two parallel technologies were used to produce a variety of objects, one a continuation of the local arsenical copper tradition, the other an imported tradition involving the increased use of tin-bronze, which is often leaded for better casting (Philip 1991b; Shalev 1989; 1997; forthcoming; Ilani, Rosenfeld & Dvorchek 1997; Khalil 1984). This tin-bronze technology is believed to have originated in the northern Levant and inland Syria, where a significant portion of the material repertoire has its typological origin or inspiration. Despite the inherent advantages of tin-bronze technology, the two traditions continue throughout the Middle Bronze Age (Shalev & Northover 1993b). Whether this dichotomy was due to craft conservatism (Ilani, Rosenfeld & Dvorchek 1997: 46), asymmetrical access to raw materials (Philip 1995: 529a), or typology (Shalev 1989: 44), or some combination of all three, is still unclear. Variations in production may well be the result of the multiplicity of metal workshops, such as the temple-based industries at Nahariya and Tell el-Hayyat.

Despite the ubiquity of copper-based alloys, very little is known about the origin of the copper ore (Philip 1995a: 524). No evidence has been found to indicate that the Feinan or Wadi Arava mines were being used during this period (Hauptmann & Weisgerber 1992: 63), although some circumstantial

391 Petrographically, two surface sherds and two examples from T.498 at Kabri, were consistent with local production at the site, or elsewhere in the southern Levant (Goren 1989b).
evidence for exploitation of the Sinai mines is suggested, as well as some Egyptian sources. In contrast to previous periods, the southern arid zone populations appear to have played an extremely limited or no role at all in this enterprise, except perhaps in the Sinai, under Egyptians tutelage. This marginalization is reflected in the absence of any contemporary Negev, Arava, or Sinai sites.

Despite the lack of a comparative analytical study of the south Levantine and Cypriot copper industries or their raw materials, textual evidence and some technological and typological affinities between Cypriot and mainland metal forms (Balthazar 1990; Philip 1991a), make it difficult to ignore the possibility of the introduction of Cypriot ores into the Levantine network. Which sources were exploited, and the identity of the miners and smelters, are all unknown. Increasing artifactual evidence, metallurgical analysis, and the study of settlement patterns, suggest an initial interest in some Cypriot copper sources, followed by a growing intensification of metallurgy (Todd 1988: 140; Gale & Stos-Gale 1989; Knapp, et al. 1992; Knapp 1990: 159-61; 1994: 279-80). The absence of coastal sites might indicate a general lack of Cypriot orientation towards overseas export (Knapp 1990: 158), but such maritime interfaces might be obscured by radical geomorphological changes, such as those that nearly conceal later LBA Cypriot ports (Gifford 1985; Blue 1997).

Regarding tin, textual evidence indicates a land-based network originating east of Mesopotamia. Even if Anatolian tin were mined in the Early Bronze Age, it was apparently exhausted by the second millennium (Yener, p.c. cited by Pulak 1997: 240), when the Assyrian caravan trade supplied tin to Asia Minor. In the southern Levant, Hazor may have served as a “gateway” for tin, which may have been one of the reasons for its emerging greatness in this period (cf. Ilan 1995a: 306-7; Maeir 1997a: 237-42). However, the possibility of a maritime tin route from the northeastern Mediterranean should not be excluded, particularly in light of the role of Ugarit in east-west maritime trade, and the evidence for communication between the northern and southern Levantine littoral zones.

The leaded tin-bronze industry might be one reason for rare finds of lead, in particular the almost pure specimen from `Afula (see supra Chapter Four). It is clearly an import, perhaps from Anatolia (Philip 1991b: 101), if not the Aegean (Gale & Stos-Gale 1981b: 151; Gale, Stos-Gale & Davis 1984). Philip (1991b: 101) suggests that the use of lead was partly a result of its abundance as a by-product of silver cupellation, a precious metal that also appears in the Anatolian region. In any event, the occurrence of lead in the Jezreel Valley is particularly instructive as it is the principal southern Levantine lowland between the parallel copper and tin routes.

How metals were transported is also unknown. No ingots have been found; rather it seems likely that finished goods served as a convenient means of transport, and perhaps were valued principally for their weight (cf. Vickers & Gill 1994: 33-46). Support for this may found in the Kamose stela and the Mit Rahina inscription, both of which mentions weapons as a prized commodity, or the numerous metal objects in the Tod treasure, and other hoards (Tufnell & Ward 1966; Philip 1988). In whatever form, raw materials and finished products of similar type seem to have been mobile, as they have been found over long distances throughout the Levant and the Egyptian Delta. In inter-regional terms, the distribution of
southern Levantine metals, suggests close highland-lowland relations, as evinced by the concentrations of metals in the Upper Galilee and Central Highlands.

1.6. Organic Imports

As older excavations rarely involved any collection of organic samples, the evidence for imported woods is quite limited. However, even more recent excavations have produced only two examples of imported cedar, from a well at Tel Nami (Lev-Yadun, et al. 1996), and a patrician dwelling at Tel el-Ifshar (Porath & Paley 1993: 34). Given the local absence of the requisite longwoods for roof timbers capable of spanning large halls (Liphschitz & Biger 1995; Liphschitz 1992b), presumably cedar or other coniferous woods were imported for the palaces of Aphek, Kabri, and other elite or public structures.

A unique organic import is *lathyrus clymenum*, Spanish vetchling, which was discovered in several local jars and scattered in two rooms at Tel Nami (Kislev, Artzy & Marcus 1993; Marcus 1995a). As this domesticated pulse never grew in the Near East, but was cultivated in the Aegean (Sarpaki & Jones 1990; Sarpaki 1990; 1992), it is clearly an import from that region, the earliest in the southern Levant. In the absence of any other MBA Aegean finds at Tel Nami, including additional samples from other phases and areas, or any other examples of this food plant in the Levant, it is difficult to assess the meaning or significance of its presence at the site. A number of possibilities include an Aegean at Tel Nami, who desired his own cuisine, a Canaanite, who had developed a taste for this product, or a one-off exchange with the crew of a visiting ship. This particular species contains the most powerful neurotoxin of the genus and, if not prepared properly by soaking, will in large quantities cause *lathyrism*, debilitating disease involving paralysis or death (Kislev, Artzy & Marcus 1993; Klawans 1988: 29-45). Thus, despite the absence of any Aegean kitchenware, which might support an ethnic identification based on the presence of a particular cuisine, it seems very likely that this find should not be considered ephemeral. Note that the medicinal effects of the “keftiu bean” (*see supra* Chapter Two), e.g., as a laxative, does not correspond to any reported effects of this pulse.

1.7. Semi-precious Stones and other Lithics

Semi-precious stones are a fairly common artifact in the archaeological record, where they are more often found in mortuary contexts. As with other artifacts, this distribution is partly a result of their role as prestige items (Hallote 1995: fig. 10), but also because they are easy to miss in settlement levels, if sieving is not consistent. No synthetic study on the subject has yet been done, and often some identifications may be confusing or in error. Apart from the rare notable exception (Avidor 1991), semi-precious stone beads are usually “re-buried” in excavation reports without any consideration of the evidence they provide for trade. This ill-handling is unjustified as the desire for semi-precious stone beads in antiquity was considerable, as is best exemplified by the thousands of beads found on the Uluburun ship (Pulak 1997: 245). Among the materials found in the southern Levant, which derive from external sources are amethyst, agate, chalcedony, and rock crystal from Egypt (Lucas & Harris 1962: 386-9, 392, 402-3; Shaw & Jameson 1993; Moorey 1994: 94); serpentine perhaps from Egypt (Lucas & Harris...
1962: 420-1), although a Cypriot or Anatolian source is also suggested (Avidor 1991); and carnelian or garnet—the two are often confused (Ilan 1996b: 235)—from either the southern arid zones or Anatolia. Other common stone artifacts, such as the distribution of basalt in regions lacking this material (e.g., Gophna & Beck 1981: 63, 74), or the production of geometric sickle blades, which replace the previous Canaanean technology (Rosen 1989: 218-9; 1997: 59-60, 111-2, fig. 3.19), are largely ignored as evidence for inter-regional trade.

1.8. Egyptian and Egyptianizing objects

As in the preceding EB II-III urban culture, the relative degree of contact between the southern Levant and Egypt pales in comparison to the latter's relationship with Byblos. In this respect, there is as Weinstein (1975) pointed out, little evidence to support any notion of an Egyptian empire or hegemony of any kind, but the small finds indicate that some limited contact did exist. Various contemporary objects and curated antiques, along with the appearance of Egyptian signs and ceramic evocation of Egyptian motifs and vessels, suggest that a cultural exchange was occurring. In some instances, such as the pottery and perhaps the granary at Tel el-Ifshar, there is evidence of more profound, but inexplicable influence. However, only in the later part of the MK/MB IIA period can any widespread impact be documented. Ben-Tor (1994; 1997) has demonstrated that scarabs only occur at the end of this chronological phase, when they are both imported and produced locally, and enter Canaanite mortuary practice probably via their Egyptianized compatriots in the Delta. These types of hybridization of Near Eastern and Egyptian symbols, and even a text (Malek 1996) are also reflected in glyptic representations, but always with a distinctly Levantine character (Keel 1989; Teissier 1990; 1996; D. Ben-Tor 1997: 185; Beck 1998).

2. Additional Cross-cultural Contacts

2.1. Small Finds

In addition to the widely distributed evidence just detailed, other small finds suggest substantial cross-cultural relationships. A unique object is a glass bead from Tel Dan, which is indicative of inland contacts. The sudden appearance of the conoid loom weight in the MB IIA southern Levant indicates the introduction of the warp-weighted loom (Barber 1991: 283-93, 299-302, fig. 14.3; Marcus 1991; Marcus & Artzy 1995). Barber (1991: 300-1, fig. 14.3) traces the antecedents of these weights to EBA Anatolia and suggests that it may have been brought by immigrant craftswomen from Cilicia. This object is absent in the Syrian and Lebanese coastal and inland regions, which suggests a maritime route for this transference (Barber 1991: 300, n. 3, Appendix A), and at Tell el-Dab’a (M. Bietak, p.c.).

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392 To Barber's catalogue (1991: Appendix A) should be added the examples from Tel Nami and Tel el-Ifshar, and additional MB IIb weights from Kabri palace (Rosenberger 1991).
2.2. Writing

Despite the advent of writing in the core areas of Egypt, Syria, and Mesopotamia already in the fourth millennium, only in the Middle Bronze Age is there sufficient evidence to begin considering south Levantine literacy, and its social and cultural implications. Moreover, recent discoveries at Hazor (Ben-Tor 1992; Horowitz & Shaffer 1992a; 1992b; Horowitz 1996; 1997) suggest that the paucity of local documents may be remedied shortly by substantial discoveries. When, and if, an archive at Hazor is finally discovered, contemporary developments (e.g., highland scribal centers and signs of the Proto-Alphabet) are quite remarkable (Teissier 1996: 8-9), and are, to a large degree, a by-product of cross-cultural relations and the ethno-linguistic make-up of the south Levantine population. Moreover, the wider use of writing is a prerequisite for more sophisticated administrative organization, commercial ventures, and trade, some of which may involve transactions that span long periods of time (Wiener 1987: 263, nn. 21-22).

The preceding millennium provides only equivocal indirect evidence of a written means of communication, such as a glyptic tradition of cylinder and stamp seals. While cylinder seals were typically used to impress a broad field (e.g., a tablet or a jar), stamp seals were meant to impress relatively small areas, such as bullae, which were used to seal bags, boxes, and bundles of papyrus (Williams 1977); however, this should not be a considered rigid division. While both sealing traditions are amply represented in the archaeological record, which accords well with a region situated between papyrus and clay-based writing traditions, neither clay tablets nor papyrus have been documented in the southern Levant during this period. It is unlikely that direct evidence for an archival overlap between these two traditions will ever be archaeologically demonstrated, as the preservation factor that favors the survival of clay tablets, i.e., fire, utterly destroys papyrus (Millard 1986: 391). However, indirect evidence, serendipitously preserved on durable materials, shows that a papyrus-based syllabic writing system did develop in Byblos, perhaps as early as the late Old Kingdom. No similar indirect evidence for the use of this system or of papyrus has been found anywhere else in the EBA Levant. The only extra-Byblian example of the syllabary, which appears to have remained unnoted, are two incised cobras on the neck of an MB IIb jar from Tel Dan (Ilan 1996b: 178-9, fig. 4.23a, 4.94:1). A possible reading would be nun, i.e., “fish.” Although the nahāš sign appears in Proto-Sinaitic as well, the full form of the cobra snake depicted here most closely resembles the Byblian paleography, which better preserves the original hieroglyph (Sass 1988: 125-6, tables 4-5; Hoch 1990: 119; Colless 1992: 59).

In addition to hieroglyphic and syllabic scripts, Byblian scribes were familiar with cuneiform, as suggested by a single Ur III tablet from an IBA level (Dossin 1969; Saghi eh 1983: 64), which is the earliest cuneiform text in the coastal Levant. A seal from Ugarit demonstrates that cuneiform was being used there as early as the nineteenth century (Millard 1979: 613). The earliest cuneiform inscriptions found in the southern Levant appear, no earlier than eighteenth century, at Hazor (Yadin, et al. 1960: 115-212).

While the arid zones would seem the most likely region where papyrus might survive, these were far from the Egyptian sphere of influence. The exception, of course, is Sinai, which has not produced any evidence for papyrus either.
followed by later examples at Shechem, Hebron, and Gezer (Shaffer 1970; 1988; Anbar & Na'am 1986-1987). These tablets, an inscribed envelope from Gezer, and an inscribed jar from Hazor, represent OB Mesopotamian influence on the Canaanite scribal tradition (Demsky 1990: 158). The range of texts include a lexical list dealing with rates of exchange, mathematical exercises, juridical documents, letters, religious, administrative or economic records, and divination models, all indicating a well-developed local scribal system serving a complex society (Demsky 1990). The personal names appearing in these texts reflect an ethno-linguistic make-up of a chiefly Amorite population with some Hurrian groups (Anbar & Na'am 1986-1987: 7, 10-1; Shaffer 1970: 111; Horowitz & Shaffer 1992a: 22-3). The geographical distribution of these texts suggests that cuneiform writing first appeared in the Upper Jordan Valley, then in the central Highland and Shephelah, and only reached the coastal region in the Late Bronze Age.

Lastly, although best preserved on metal and stone, the Proto-Sinaitic alphabetic script was designed for pen and ink, i.e., a papyrus-based writing system (Millard 1986: 395). An Egyptian origin is clear, both in the derivation of the signs and the direction of the writing (Millard 1986: 395; Sass 1988; 1989; Hoch 1990), but the precise date and location of its development is still debated. The earliest preserved Twelfth Dynasty-MB Ila examples derived either from MK group writing (Sass 1988; 1989) or from the Byblos syllabary (Hoch 1990: 119-21).

Thus, in the Middle Bronze Age, scribes in the Levant were writing in at least three different scripts: the Proto-Sinaitic, the Byblian Syllabary, and Old Babylonian cuneiform. The first two were used in specific regions, expressing different, but related Semitic languages. The third script reflects the Syro-Mesopotamian character of the urban cultures of the Jordan Valley corridor and the Hill Country (i.e., legal system, extispicy, language, and literature), which maintained relations with inland Syria (e.g., Mari). The fact that three writing systems co-habited in the Levant may suggest three primary socio-cultural, economic, and, perhaps, ethno-linguistic zones: the Byblian, the southern Levantine coastal, and the Jordan Rift Valley-Central Highland.

### 3. Settlement Pattern and Specialization

The MB Ila settlement landscape is hierarchical pattern of fortified, rural, and specialized sites, whose material cultural and, hence, urban demographic core is in the Coastal Plain and inland valleys. A number of studies have analyzed, characterized, and attempted to simulate the general MBA socio-political intra-regional organization, based on geographical and spatial criteria (Kotter 1986; Finkelstein 1988; 1992).


395 Given the nature of Egyptian-Canaanite relations in the Delta, it is interesting that no epigraphic evidence of this script has been found. We should not discount future incised or inked examples on durable materials, such as pottery, as in the MB Iib Gezer jars (Colless 1991: 20-31).
In terms of international and inter-regional interaction, specifically for the MB IIA period, an urban site division of the core area of settlement into “central-places” and “gateways”, along with rural hinterland (Marcus 1991; Ilan 1995a: 305-6), is indeed a fitting characterization of the settlement pattern as known to date, and a model for understanding some facets of the MB IIA economic organization.

An examination of the settlement landscape by sub-regions shows distinct divisions in site location. In the core area of the Coastal Plain, the major urban sites are located either in the inland agricultural or coastal maritime zones. The former may best be characterized as “central-places” that are the focus of the rural hinterland, but also interface with highland pastoral and horticultural communities, and benefit from some degree of latitudinal communication. The coastal centers generally lack a large agricultural hinterland, and instead their position on the shore or immediately up a navigable waterway (e.g., Tel Gerisa) gave them the role of a maritime “gateway” that interfaces with long-shore trade networks. This general model of twin sites arrayed in a synaptic settlement pattern holds for most of the Coastal Plain, although the physical geography may have afforded some coastal (e.g., Dor) and inland sites (e.g., Tel Zeror and Tel el-Ifshar) a dual role. The location of one coastal site, Tell el-'Ajjul, gave it a unique role as both a terrestrial and maritime “gateway”. Inland valley urban sites are located on various phytogeographical interfaces, usually near mountain pass (e.g. Megiddo, Shimron), or along river systems (Greenberg 1996), with geographical and cultural inland “gateways” that changed with time (e.g., MB IIA: Dan; MB IIB: Hazor). Highlands centers arose along longitudinal and latitudinal routes in the pastoral-horticultural zones, sometimes near intermontane valleys (e.g., Shechem). Their interaction with the lowland society is indicated by the appearance of MB IIA pottery types, metals, particularly tin-bronze, and occasional foreign exotica. Apart from the traditional highland-lowland dimorphic interaction of lowland agricultural produce and imported materials for highland orchard and pastoral products (Finkelstein 1992c), there may have been other inter-regional interactions of both a perennial or sporadic nature. Whether the Jezreel or Hula Valleys served as “bread baskets” for coastal communities, on a regular or an emergency basis is unclear, but certainly each region had a dynamic agricultural potential which might be altered by short-term climactic shifts, that might take them below or beyond subsistence levels (contra Gophna, Liphschitz & Lev-Yadun 1986-1987). Such a longitudinal sub-regional variation has been documented in MBA herds, with a decrease in cattle and pig to the south, and concomitant increase in caprovinces (Horwitz 1996: 61).

Lastly, a number of very small, specialized sites stand out in any review of the MB IIA settlement landscape. In terms of the role and impact of trade, the finds from Tel Nami clearly demonstrate that traded items were not only the privy of palatial and elite segments of the society, but smaller specialist sites also had access to the fruits (or legumes) of cross-cultural interaction.396 More importantly perhaps are the two small fortified sites in the central Sharon Plain: En Zurekiyeh and Tel Poleg. In the MB IIA/2, En Zurekiyeh was the sole fording point across the Poleg basin, followed by Tel Poleg in the MB IIA/3. Given

396 Unless future research should suggest that Tel Nami functioned as a satellite port of Dor.
the swampy surroundings, and limited agricultural and demographic base, it seems unlikely that these fortified sites, particularly Tel Poleg, were built by their inhabitants (cf. Finkelstein 1992b: 211). Instead, it seems much more likely that an unknown central authority, perhaps from the Yarkon River basin or the northern Sharon Plain, built and maintained these coastal road forts. While there are no criteria at present for identifying the patrons of these site, it seems reasonable to suggest that these sites mark a border that divided the Sharon Plain, and perhaps their character is indicative of inter-regional competition or hostility. Another similar border may have developed between the Carmel and Sharon Plains at Tel Mevorakh. If indeed there were a number of competing or even hostile socio-political units in the coastal lowlands, then it may explain the widespread construction of fortifications, the latitudinal economic array with a multiplicity of ports, and possibly some of the sub-regional variations in material culture.

4. Towards a Radiocarbon Chronology of the MB IIA Period

Sir Mortimer Wheeler mused that the establishment of an ancient chronology is akin to preparing a railroad time-table (cited by Manning 1993: 928), and although he implored us to run some trains, it would be remiss not to consider their schedule to some degree, if only to avoid a head-on collision. As with many archaeological periods, MB IIA chronology is the most contentious topic of research (Bietak 1984; 1991a; 1997: 125-8; Weinstein 1992; 1996; Lilyquist 1993; Ward & Dever 1994; Beck & Zevulun 1996). Essentially, there are three fundamental sub-topics in the ongoing debate: i) the reliability of the internal relative chronological sequence; ii) the calendrical dates for the beginning of MB IIA material culture; and iii) the transition to the MB IIB period, which is dependent on historical synchronisms. The goal of this discussion is not to rehash all of the previous arguments and then enter the fray armed with a new relevant artifact or two. Rather, it is to offer a brief epistemological consideration of the evidence, with an attempt to glean reliable fact from polemical supposition (and posturing), and to offer some suggestions for possible avenues of research.

4.1. Relative Chronology

Although the continued publication of ceramics from more refined excavation of multi-period tells and other contexts have provided an increasingly richer and more reliable relative chronological sequence, a number of fundamental issues remain unresolved. First and foremost is the degree to which the relative sequence of the various sub-regions of the southern Levant (and beyond) followed uniform stages of development. As a number of scholars have noted (Gerstenblith 1983: 52; Beck 1985b: 194-200; Ilan 1991b; 1995a: 299-300; 1996b: 231, 242-4; Maeir 1997a: 322-3), these regional variations are clearly evident within the confines of the southern Levant, and even more so with the distant material cultural analogues in the northern Levant, inland Syria, and the Canaanized Egyptian Delta. With every substantial contribution to the ceramic corpus these differences become more acute, and therefore greater weight and reliance must be placed on regional key sites for the relative chronology.

The second issue regards the generally espoused relationship between cultural and temporal nomenclature, which pigeonholes seemingly disparate material culture into rigid, formalized matrices, and
precludes any discussion of temporal overlap (Ilan 1995a: 297, fig. 3). Thus, for example, in the traditional sequence, the possible contemporaneity of IBA and MB IIa cultures becomes, a priori, either a methodological paradox or a non-subject of research. Only by moving beyond the sole reliance on ceramic morphology for the creation of relative chronologies, i.e., archaeological time, can an objective study of this phenomenon begin.

In considering typological parallels alone, only recently has consideration been given to the question of the nature of the ceramic parallel, i.e., whether the perceived similarity is a result of trade, inspiration, or the movement of potters. As Porat's work (1989a) amply demonstrated, petrography can go beyond merely identifying the loci and modes of ceramic production, and becomes a valuable tool in elucidating relative chronological issues. Whether a similar argument can be posited for MBA ceramics and chronology is still unexplored.

These are questions that this work does not seek to answer, even though they go to the very heart of the comparative ceramic method, and its reliability as a means of temporal synchronism. Arguably, the resolution of these issues must await far more extensive publication of the already excavated body of evidence, combined with material analysis and an independent temporal control. In lieu of such a resolution, the approach taken in Chapter Four relied on the few published key sites, and the material culture was organized within a sub-regional framework in the hope of mitigating the potential incongruities that relative degrees of communication may impart to the ceramic sequence.

4.2. Historical Synchronism

In the absence of a written Levantine history, which might provide an indirectly-based calendrical sequence for the local material culture, the historical synchronization of the relative chronology must rely on the Syro-Mesopotamian and Egyptian archaeo-historical record. Unfortunately, this task is fraught with difficulties, not the least of which is the equivocal nature of both the pertinent historical and archaeological evidence.

From broad political events in Syro-Mesopotamia, such as the vague movements of the Amorites (Dever 1977: 84-86), to purported Egyptian pictorial depictions and references, to the socio-economic and, by inference, chronological stage of Levantine culture (e.g., Redford 1992: 82-87; 1996), nearly all the proposed arguments have been based on equivocal interpretations and suppositions. For example, hardly a shred of evidence offers a reliable marker for the beginning of the period. The one exception is the depiction of epsilon, fenestrated, and duckbill axes in successive tombs at Beni Hasan, which suggests a date for the IBA/MB IIa transition around 1900 (Bietak 1993-1994; 1997: 125; Shaheen 1990). While there is no reason to doubt the general identification of the axes, such a utilization of the Egyptian pictorial record is tantamount to viewing tomb depictions as newspaper photographs. Regardless of

397 A similar method is employed by Matth?us (1995) for LBA Aegean bronze vessels, but the radical typological changes over the short timespans between successive tombs are a major flaw in this argument (noted by S. Manning in his comments following Matth?us' lecture at the Institute of Classical Studies, 10 April 1994).
the nature of the Egyptian artistic idiom in this specific case, all that really can be said is that the Beni Hasan evidence provides a *terminus post quem* for Egyptian familiarity with one aspect of MB IIa material culture; it says absolutely nothing about when the duckbill axe appeared in the Levant or how much time passed before the Egyptians became familiar with the weapon. For the latter part of the period, textual evidence does not offer any reliable chronological anchors, and the purported synchronization of Hazor in the Mari archives with the MB IIb city relies solely on the supposition that any reference to Hazor must be to the city at its greatest expanse (Malamat 1998d), a point that is clearly debatable (Ilan 1996b: 244; Maier 1997b: 321).

Archaeological synchronisms for the beginning of the MB IIa period are equally lacking. Unlike at Byblos, where the early Twelfth Dynasty scarabs of the Montet Jar were found (Ben-Tor 1998), no scarabs are documented in the southern Levant until late in the MB IIa sequence, when they are also produced locally (Ben-Tor 1994; 1997). scarabs, other glyptic or inscribed finds in the Levant (see supra Chapters Four and Five), and Levantine imports to Egypt, offer *termini post quem* for the middle and late phases of the MB IIa period. For example, the scarab seal impression from the Tel Nami loom weight offers a *terminus post quem* for the site's final MB IIa/3 stratum in the reigns of either Senusret II (1868-1862 high, 1842-1836 low) or Amenemhet III (1843-1798 high, 1817-1772 low). The cylinder seal from Kabri provides a late nineteenth or early eighteenth century date for the MB IIa/4, if not the MB IIa/3 phase at the site. An exceptional find, the Egyptian jug at Tel el-Ifshar, confers a *terminus post quem* of 1900 for the MB IIa/2 or MB IIa/3 phases, depending on its final stratigraphic attribution. An argument could be made that this import arrived during an earlier phase and survived the periodic conflagrations that ravaged the site, but its unblemished appearance suggests that it was not an heirloom, but a relatively recent acquisition. If it were deposited shortly after its production and arrival, a *terminus ante quem* of 1850, or shortly thereafter, could be argued for either phase. If correct, this evidence could offer a unique temporal bracket for the middle of MB IIa sequence.

Other critical contexts for the synchronization of the MB IIa/MB IIb transition with either the late Twelfth or early Thirteenth Dynasties include the Royal Tombs at Byblos, which contained objects bearing the names of Amenemhet III and IV (Tufnell 1969; Lilyquist 1993: 41-4), and the assemblages from Stratum G at Tell el-Dab’a, whose evidence is still divisive (Weinstein 1992: 29-30; 1996; Ward & Dever 1994: 77-9; Beck & Zevulun 1996; D. Ben-Tor 1997: 163-4; Bietak 1997). In the context of this work, the resolution of this debate is neither sought, nor warranted. As this transition marks the lower chronological boundary of this work, it matters little whether the MB IIa archaeological and historical processes under consideration ended with the final or penultimate MK Dynasty.

What does matter is the relative synchronism of the southern Levant with Tell el-Dab’a, a topic which has elicited considerable debate. For the present study, the key question is to what stage of the Levantine MB IIa sequence does the beginning of Tell el-Dab’a belong. In a recent article, Bietak (1997: 98) chided Dever (1991) for stating that he had claimed to have material culture at Tell el-Dab’a that

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398 The literature on scarab typology and MBA chronology is voluminous (e.g., Ward 1978b; 1987; Tufnell 1984; Bietak 1984; 1989a; 1991a; O’Connor 1985; Giveon 1988; Ward & Dever 1994).
represents earliest phases of the Middle Bronze Age. In support of Bietak, he never explicitly made that claim. However, in Dever's defense, by drawing parallels between the incipient Stratum H and the earliest phases at Tell Aphek and Tell el-Ifshar, Bietak (1989a: 96; 1991a: 53-4; 1992: 36) implies an MB IIa/1-2 date for Stratum H. Moreover, in one instance, Bietak (1991a: 54) states that “Stratum H=d/2 is close to or even contemporary with Phase 2 at Aphek. At least in Palestine, the beginning of MB IIa cannot be much earlier” In the absence of a sufficient range and quantity of published ceramics from Stratum H, it has been difficult to assess this synchronism. However, based on the presence of a TEY juglet, some red-burnished juglets, and LPW jugs Weinstein (1992: 28-9, 32) agreed with Bietak's date, even though such an assemblage would be incongruous in the Levantine ceramic sequence (Beck & Zevulun 1996: 68), particularly if the now illustrated examples of “Anatolian” cut-away vessels are included (Bietak 1996: fig. 29). One study suggested that regional differences could account for this discrepancy (Ilan 1991b: 238), but this does not seem likely for the founding stage of settlement of foreigners, when cultural analogues have yet to suffer significant divergence from the source region. Instead, the solution rests in correcting the misinterpretation by Bietak of the LPW “vessels” in Stratum H. As already noted, all of the relevant LPW examples are sherds, some even from pits. Until recently it was assumed that Stratum H was the earliest phase at Tell el-Dab’a, such that there was no context earlier than Stratum H from which to derive this material. With the discovery of at least five Twelfth Dynasty strata preceding Stratum H, one of which included an LPW sherd, it now seems that the LPW sherds in Stratum H are derived from an earlier phase, and this stratum should be dated by the other reported material, i.e., no earlier than the MB IIa/3 phase.

4.3. Radiocarbon Chronology

As with many other historical periods of the Near East, radiocarbon dating has not been systematically applied to the issues of MB IIa chronology, a sore point that has been bemoaned by a number of scholars (Weinstein 1984; 1996: 57; Waterbolk 1987; Bruins & Mook 1989; Ilan 1995a: 299). The goal of a radiocarbon chronology, however, should not be seen as a substitute for other relative or historical chronological frameworks, but as representing parallel and interrelated sets of data.

The history of radiocarbon dating and its interpretation (cf. Damon 1987) shows clearly the improvement in precision and accuracy of the laboratory methods, along with improved sampling, handling, and recording by archaeologists. Much standardization has emerged and more frequent, and now published, inter-laboratory comparison is subjecting radiocarbon facilities to ever more rigorous standards of quality assurance (Scott, et al. 1990; 1991; Pilcher 1991: 32; Kalin, et al. 1995). However, it

399 This notion is analogous akin to the more extreme “founder effect” in island colonization (Vayda & Rappaport 1963; Held 1989: 8).

400 Lack of space prohibits a consideration of the full implications of this re-dating on the subsequent strata. Suffice to say that the large-scale arrival of Canaanites at the site must now be seen as a later MB IIa phenomenon, which reaches its peak just before the end of MB IIa/4 or the beginning of the MB IIb phase.
must be recognized that the plethora of previously published determinations, in particular those produced in the early days of radiocarbon dating, may have found regular statistical biases, even in assays from common sites (Waterbolk 1987).

In this work, a number of criteria are used for deciding the inclusion here of particular determinations (Tables 19-20). Most of the pertinent determinations were carried out relatively recently and are considerably more reliable. Older assays with error margins greater than one hundred are generally excluded, following Waterbolk (1994: 368, figure key), but some short-lived samples with higher margins of error are included, while others are presented for comparative purposes or for use as upper bounds, i.e. *termini post quem*.

Long-lived samples (e.g., wood and charcoal) continue to be the principal material submitted for radiocarbon determination. However, despite their abundance in the archaeological record, their chronological utility is limited to the degree that an assessment can be made of the relative age of the sample in comparison with the parent wood. Old wood samples can enter a context either by re-use or because they originated in an inner ring of a long-lived tree. Thus, the radiocarbon determination precedes, by X number of years, the felling of the tree and the context in which the sample was found. Species identification is often difficult and only rarely does the anatomy of a sample reveal outer rings or bark. Offsetting the radiocarbon date by a stated number of years is an assumption (Manning & Weninger 1992: 638-9; Manning & Swiny 1994: 161-2, fig. 10), as is assuming that charcoal in arid environments derives from fairly recent trees, except when they are identified as twigs or bushes (Avner, Carmi & Segal 1994: 279). Examples of some Levantine species, Red Juniper (*Juniperus phoenicia*) and Lebanese cedar (*Cedrus libani*), are reported to have lived 865 and nearly 1000 years, respectively (Lev-Yadun 1987). The roof timbers of the Al-Aqsa mosque, which was built in 693 CE and refurbished between 750-780 CE, probably derived from an earlier Byzantine building (Lev-Yadun, Lipschitz & Waisel 1983; Lev-Yadun 1992).

In general, unless there is evidence to the contrary, it is prudent to assume that a long-
lived tree was the source of all charred samples. This caveat is increasingly true further back in time, when longer-lived trees had still escaped man's impact on the natural vegetation (Lev-Yadun, p.c.; Gophna, Liphshitz & Lev-Yadun 1986). Thus the typical lone sample and even a consistent series of charred wood can only provide a spurious terminus post quem for the context. Instead, better temporal resolution should be sought among short-lived samples, particularly single-year cultigens, i.e., seeds. Ideally, the best context is an in situ sample stored in a jar, granary, or silo, where presumably the harvest preceded the deposit by no more than a few years to a decade. Scattered seeds found within rooms should not be discounted, particularly where they are in undisturbed, well-stratified layers, e.g., sandwiched between stone or lime-washed terra pissé floors. The ability to date minute samples is an important result of the development of Accelerator Mass Spectrometry (Hedges 1983; 1991), a promising technique especially for the archaeology of historical periods.

Regardless of the error margin, given the slope and the “wiggly” nature of the calibration curves for the period under discussion (ca. 2200-1700), single determinations can have multiple calendrical equivalents (e.g. 3500 BP, Fig. 9), and the relationship between suites of samples is certainly affected (Pilcher 1991). Given the nature of the curve, and the error margin associated with the determination, the result cannot be seen as a single intercept, but rather as a distribution of calendrical ranges with varying probabilities. A working group to compare methods of calibration found that differences of opinion among scholars exist about whether to divide the calibrated calendrical ranges along lines of probability or to treat them as a span (Aitchison, et al. 1989). In this work, ranges are treated as a span, in which all of the dates are considered of equivalent “possibility”.404

4.3.1. IBA radiocarbon determinations

Reliable radiocarbon determinations for the IBA culture are limited in number and geographical scope. All of the samples from sites west of the Jordan river come from the southern arid regions, where difficulty exists in distinguishing material culture of different EBA phases, especially from surface survey (Sebbane, et al. 1993; Avner, Carmi & Segal 1994: 279-82). The samples from Transjordan come from somewhat better settlement contexts.405 The calibrated IBA distributions ranges cluster in the last two centuries of the third millennium (Fig. 10). A number of ranges pass the 2000 mark (RT-1421: 2200-1900; RT-899c: 2280-1910; RT-1438: 2340-1980; P-2573: 2400-1970; SI-2875: 2140-1740; BM-2621: 2320-1970; BM-2622: 2280-1880), suggesting at least the possibility that this material culture extended into the second millennium.

404 A study is in preparation that incorporates a more detailed probabilistic interpretation of these stratified determinations and the historical data, utilizing Bayesian statistics (Buck, et al. 1991; 1992; 1994; Litton & Buck 1995).

405 Dever (1992: 20, n. 2) reports an unpublished radiocarbon determination on an oil residue from Tell Handaquq with a calibrated range of 2341-2044, but neither the raw determination or the standard deviation are indicated.
4.3.2. MB IIa Radiocarbon Determinations

With the recent addition of samples from Tel Nami and Tel el-Ifshar (Hedges, et al. 1997: 256-57), the number of MB IIa radiocarbon determinations has more than doubled. Moreover, with the exception of the samples from Gesher, and the two determinations from Tell el-Da’ba, all are from single-year cultigens, which greatly increases the temporal proximity between the radiocarbon *event* being dated, i.e., the harvest, and the deposit of the sample in the archaeological record. With the exception of the statistical outliers from Tell el Hayyat (AA-1238 and AA-1237), all of the calibrated ranges are fairly tightly clustered in the first three centuries of the second millennium (Fig. 11), in some instances overlapping with IBA ranges (fig. 12). By themselves, the 2 sigma ranges are too broad to be the arbiter between the different proposed chronologies, although a number of individual determinations (OxA-5358, OxA-5359, OxA-4532, and AA-1239) clearly place the MB IIa period before 1740, and their upper bounds starting point for dating the beginning of this material culture. With the incorporation of the stratigraphic sequence and the inclusion of the historically synchronized data from Tel el-Ifshar and Tel Nami, these ranges are sufficiently truncated to provide meaningfully short time spans that may be the chronological basis for the various sub-phases. For example, given the interpretation suggested for the Tel el-Ifshar jug, the calendrical ranges from samples deriving from Phase E onwards would begin with 1900; those prior would have to end somewhere around 1850.

Until regular sampling of short-lived cultigens is carried out and radiocarbon determinations are *de rigeur*, a southern Levantine MB IIa radiocarbon chronology is still premature, although the evidence does not favor a low date for the start of the period. The ranges available to date suggest that further strategic sampling of stratified sequences can provide more refined timeframes and be a tool for assessing the degree of temporal overlap between IBA and MB IIa material cultures.

5. On the transition from IBA to MB IIa

The interpretation of the IBA-MB IIa transition has oscillated over the years from one of gradual change to sharp break (Amiran 1960: 215-7; Prag 1974; 1984; Tubb 1983; Dever 1985; Beck 1985: 200-1; Palumbo 1991), depending on which sub-region or material culture aspect is emphasized. While

406 This projected was initiated by the author, and enjoyed the support and assistance of Dr. P.R.S. Moorey, and various of the Oxford Radiocarbon Accelerator Unit, in particular Dr. Rupert Housely and Dr. Christopher Bronk Ramsey.

407 In the case of Tel Nami, stratigraphic separation by plaster and stone floors, and the origin of the imported *lathyrus clymenum* in jars increases the reliability of the sequence. Apart from the granary context in Phase E, some of the Tell el-Ifshar samples have imprecise phase attributions, and, although similar floor separation is probably reflected in the sequence, future study is needed to clarify this view.

408 Note that the Tell el-Dab’a ranges are consistent with this cluster, but as wood samples they are not refined enough for a comparison with the single-year determinations.

409 Despite its high range, the sample from the Gesher axe handle is excluded, as in contrast to Ward and Dever (1994: 57), old, hard wood may have been preferable for such a use.
evidence from surface surveys in the Coastal Plain and Jezreel Valley can only be considered circumstantial (contra e.g., Raban 1982; Ilan 1995a: 301-302), increasing excavated settlement evidence from the Jordan Valley (Greenberg, et al. 1998) suggests a gradual development from IBA to MB IIa life in that region. Unless MBA building activity is evoked as the catch-all solution for the lack of a stratigraphically demonstrable IBA-MB IIa development, then the western lowlands, with its numerous newly founded sites, have seemed to represent a distinct phenomenon.

While some IBA elements do continue into the succeeding material culture, such as shaft tombs, some weapons and tool types, arsenical copper metallurgy, and a few vague ceramic traits, others, such as city-planning, public structures, fortifications, mortuary traditions, the general ceramic repertoire, and even lithic types, are clearly new attributes. To date, none of the attempts at deriving the MB IIa from an IBA antecedent by rural agricultural revival (Tubb 1983: 57; Palumbo 1991: 133-4; Falconer 1994a; Magness-Gardiner 1997: 315), or peer-polity interaction (Bunimovitz 1992: 228; 1996: 18-9; Ilan 1995a: 298, 301), have convincingly documented any evidence for an IBA-MB IIa urban social transformation that also explains the decidedly exogenous attributes.

The rural agricultural revival model fails to explain the wide range of new material cultural traits, or the location of the core areas of the phenomenon. If MB IIa culture was merely the intensification of an existing rural base, then it presumably would have been built on, and thrived initially in, those areas that had previously formed the socio-economic core, i.e., Transjordan and the Highland areas, relying and building on pre-existing symbols and institutions. For example, if the Tell el-Hayyat temple was “an expression of local communal piety rather than the arms of centralized institution” (Magness-Gardiner & Falconer 1994: 156), it should demonstrate some autonomy if not a considerable divergence of form, rather than emulating, in scaled-down fashion appropriate for its community, the temple types of the more sophisticated north. Unless this model is modified to account for a latitudinal “colonial” move from the IBA core to the coastal and inland lowlands, with some explanation of how so many northern material attributes were assimilated, it is not a viable explanation.

Regarding peer-polity interaction as a model for social change (Renfrew 1986), a number of criteria for its implementation are not applicable in IBA society, namely spatially well-defined autonomous social units and documented polity interaction at its inception. Moreover, the notion of peer symmetry among IBA groups who inhabit heterogeneous phytogeographical zones, and practice, alternatively, highland or lowland subsistence strategies, seems contradictory. It must be remembered that this model was developed primarily as a diffusion-less explanation for the “core”-less Aegean (Renfrew & Cherry 1986: viii), and indeed may not be applicable in a region proximate to a well-developed state (Cherry 1986: 150). This model in its original form suggests that among autonomous social units of comparable scale, an organizational change in one will be followed by a similar transformation in others, with the emergence of concomitant institutional features that “will not be attributable to a single locus of innovation”, but rather the result of polity interaction (Renfrew 1986: 7-8). Such a model cannot tolerate all the documented external trappings at the incipient phase of the MB IIa period, nor the notion that a foreign-inspired edifice, i.e., a rampart, was the “outcome of competitive emulation between neighboring
tribal groups” (Bunimovitz 1992: 228). On the other hand, the notion that a combination of exogenous and endogenous factors molded MB IIa culture (Ilan 1995a: 300-2, fig. 4) is welcome—it just need not be called peer-polity interaction.\textsuperscript{410}

Instead of attempting to resolve the two traditional approaches, the IBA-MB IIa transition should be seen as a process of amalgamation between at least two material cultural traditions and populations, a new lowland culture with a demonstrably urban orientation and a highland culture, which maintained its low-level agricultural and pastoral way of life.\textsuperscript{411} In the Coastal Plain, and probably the Jezreel Valley, these IBA groups/elements were assimilated into the urban social pattern, which rank-size analysis has demonstrated to have been a “primo-convex distribution” which may reflect the “superimposition of a centralized or colonially derived system” (Falconer & Savage 1995: 41, table 4). In the Highlands, the relative paucity of MB IIa material culture may indicate a longer lifespan for IBA pastoral life, perhaps until it was assimilated by MB IIb lowland material culture (Finkelstein 1991). Such an amalgamation process may have varied by region, perhaps reaching the Lower Jordan Valley at a later MB IIa phase. Although dependent on exogenous factors for much of its inspiration, this model goes far towards explaining the perceived temporal overlap documented at various tombs and sites (see supra Chapter Four), and the highland-lowland IBA-MB IIa socio-economic divergence. In this context, the Coastal Plain and Jordan Valley should be seen as two parallel corridors that convey cultural change and population, both enclosing between them the continuation of highland culture (cf. Kenyon 1966). It is quite possible that inter-regional trade was an important catalyst in the highland-lowland interaction, but for explaining developments along the southern Levantine shore another catalyst must be invoked.

\textbf{6. Maritime activity and the origin of MB IIa urban culture}

Had the MB IIa settlement pattern been identical to its EBA urban predecessor, perhaps some form of model combining agricultural intensification with trade (Gerstenblith 1983: 123-6), with some external colonization, might suffice in explaining the re-emergence of urban life. But, the difference in weight of settlement from the Central Hill Country towards the Coastal Plain, and the establishment of a multitude of port sites, whose orientation is clearly not towards maximizing command over an agricultural hinterland, demand a different explanation.

Given the current state of research, two hypotheses may be suggested. With the resumption of maritime trade between Egypt and Byblos, agricultural groups that had moved terrestrially into the Coastal Plain were stimulated by the vibrant long-shore traffic to establish ports-of-call. The alternative is that the ports of the southern Levant were founded specifically by maritime-oriented groups from the northern Levant, which had entered the second millennium with their urban culture intact (Van Loon 1992). With their maritime seafaring tradition, which had continued unabated during the Intermediate Bronze Age, \textsuperscript{410}Moreover, there is no evidence that the some terminal phase of IBA culture took advantage of the purported positive endogenous factors.

\textsuperscript{411}Note that skeletal remains are limited to the MB IIb period, but are indicative of a new population (Smith 1995: 69).
these groups sought to participate and secure their position in the burgeoning trade with Egypt. Bietak's suggestion (1996: 60, fig. 50) that Egypt set up this network is not supported by the evidence, although the distribution of anchor types clearly delineates this cabotage route from Egypt to Byblos, and possibly Ugarit. Whatever the origin of this phenomenon, the crystallization of this synaptic pattern with a maritime “gateway” to the west and an agricultural “central-place” to the east enabled these coastal polities, whatever their configuration (i.e., independent port city or port-inland agricultural alliance) to participate actively in the growing maritime network. Maritime centers became entrepôts for import and export, and as their material wealth increased it was conspicuously consumed in lavish public works projects. The material wealth enjoyed by these polities may have been one of the factors behind the rapid pace of urbanization documented in the archaeological record.412

While the reality of maritime activity and the potential of its economic impact on the southern Levant are fairly straightforward, the identities of the seafarers and their ports of origin are not. Although, an intermittent maritime tradition appears to have existed along the southern Levant coast from earliest times up to the MB IIa period (see supra Chapter Three), the absence of sufficient long woods for ship construction (Liphshitz 1992b: 42), suggests that even if these ports were directly involved in long distance seafaring, they were always dependent on timber from the northern Levant or Cyprus. The corpus of maritime artifacts is equivocal on the subject, as applying an “anchors equals sailors” identification beyond the generic Levantine appellation, seems unwarranted and probably incorrect (cf. Kingsley 1996).

7. Tell el-Daba’ and beyond

In this maritime model for the rise of urbanism along the southern Levant, the establishment of Tell el-Daba’a should be seen as part of the process of coastal settlement and the founding of ports. The site location, its harbor, the evidence for trade, the reference to maritime trade in the Kamose stela, the maritime motifs on the Tell el-Daba’a cylinder seal (Fig. 5), which might suggest the worship of Baal ēafon and Asherah (Bietak 1996: 26-9; 1997: 104; Brody 1996: 21-30, 42-6), and an ex voto copper trident in a temple deposit (Bietak 1997: 105), all point to this being a maritime-oriented site that was the central hub of a vast east Mediterranean trade network. With such a maritime characterization, it might seem surprising that no votive anchors have been found in over thirty years of excavation. However, as Brody (1996: 70-81) has noted, anchors are usually found clustered in specific temples, usually with adjacent temples lacking in similar or other maritime artifacts. Thus, it is possible that future excavation will discover a temple with ex voto anchors and other maritime paraphernalia, if they were not looted in antiquity.

In this model, a significant component of the gradual Canaanite settlement of Tell el-Daba’a should be seen in light of the re-establishment of the MK “Byblos run”, which involved other polities in the Levantine interstices, and more distant regions, such as Cyprus, Anatolia, and the Aegean (Bietak 1996: 14-20, 55-63). It is possible that several mutually exclusive maritime networks existed at the same time.

412 This phenomenon is reflected in the fortification of urban sites, almost immediately after an initial founder phase (e.g., Dan, Aphek, etc.).
which might be reflected in the restrictive distribution of MC wares. The increasingly foreign, heterogeneous demographic make-up of the site, the origin of which may not necessarily be equated with the eventual supply source(s) of the earliest LPW vessels or other pottery (contra Bietak 1996: 55-60; 1997: 98-9), might reflect different economic networks interested in commercial access to the Nile Valley. However, given the redating suggested here, the southern Levant is no longer a chronologically objectionable origin (Bietak 1996: 59-60). As Canaanite Avaris (Stratum H onwards) rode the wave of MB IIa/3-4 maritime trade, a vibrant east Mediterranean “Trade Diaspora” of various Canaanites and, perhaps, Cypriot groups was created (Bietak 1997: 98-9), in some sense forming the first “pre-Phoenician” Canaanite maritime colony. This urban population, particularly the elite, went through a process of Egyptianization, which was partly cemented by intermarriage (Bietak 1996: 36), but was balanced by the maintenance of social and cultural traditions, and by close relations with their Canaanite homeland. Their position at this critical trade node and principal Nile “gateway” no doubt enabled the accumulation of considerable economic wealth. While the events surrounding the Canaanite usurping of political control of the Delta from the MK rulers is cloudy, it must be assumed that one component was their ability to translate their material wealth into political power. In this respect, the state structure in the Delta, and in a considerably scaled-down version along the Levantine coast, is akin to the riverine coastal state models of southeast Asia, in which control of the entire river system and, indirectly, the highland-lowland interaction, is achieved by “direct rule on only coastal plains and rivermouths” (Hall 1985: 1-3). In addition, if not written for southeast Asia, the following description could easily describe the Egyptian Delta:

for a river plain state desiring to participate in the international commercial networks, the aid of foreign merchants and seafarers was a necessary source of extended economic contacts,

but

the use of seafarers of as maritime allies was a double-edged sword . . . these allies could be a source of support or a serious threat to the political system's stability . . . there was always the potential for a port community to initiate a challenge to the state's authority . . . by establishing its autonomy from royal control or by undermining royal authority by supporting one royal faction against another (Hall 1985: 19).

While this analogy does not prove the economic basis for the eventual Canaanite domination, it certainly suggests avenues for further inquiry.

The following MB IIb period is characterized by an intensification of east Mediterranean maritime interaction, with Tell el-Dab’a serving, perhaps, as axis mundi. Following the destruction of the Canaanite kingdom, the Egyptians established an imperial apparatus in the southern Levant to insure that this region would no longer threaten the Nile Valley with invasion. However, the role of the Delta as a maritime staging point continued in the NK with the dockyards at prw-nfr, which may have been located at the harbor of Avaris (Bietak 1996: 82), in Classical times with a Greek colony at Naukratis, and finally by Alexandria, which even in twentieth century CE maintains a cosmopolitan, east Mediterranean character.
8. Conclusion

“Civilization is a matter of roads, ports, and quays”
Charles Seignobos (cited by Braudel 1987: 5)

In some respects, Seignobos’ remark is an apt epigram for the conclusion of a work that began with an oft-handled observation regarding the relationship between terrestrial road networks and ports. In the intervening pages, the discussion has lead from the longue durée of the southern Levant’s role in Egyptian-East Mediterranean relations, to the terrestrial and maritime means that enabled these relations to take place, to the impact of maritime trade on the MB IIa zenith of southern Levantine urban culture. This discourse has not been without some difficulties, primarily the synchronic and diachronic unevenness of the available textual and archaeological data. Nevertheless, it has demonstrated the utility of a maritime approach to the history of the Levant, and the nascent internationalism of the early second millennium. While there is no ignoring the contribution of terrestrial approaches to the southern Levant, they should not be applied with a total negation or ignorance of the maritime component. The maritime history of this 250 km long coastal interaction zone deserves more than to be relegated to a mere footnote, as so often has been the case.

Inasmuch as this work has sought to challenge long-accepted norms regarding the history of the southern Levant, it has also sought to stimulate others to transcend temporal chauvinism and be cognizant of the reality of inter-regional and international terrestrial and maritime trade. It is hoped that more substantial basic materials research will be applied to some of the questions posed herein, and only partially answered.\textsuperscript{413} Only then can a full appreciation of the impact of trade and seafaring as a cross-cultural conveyor be achieved. In the final years of the twentieth century CE, it is incumbent upon us make an effort to maintain cross-disciplinary dialogue on cross-cultural issues, if we are to fully understand the maritime dynamics that emerged in earnest at the end of the twentieth century BCE. If this work should stimulate some to bring relevant data to publication, and others to explore the theoretical, socio-economic, and linguistic facets of the emergence of the MBA cultural \textit{koine}, then a first step will have been made towards enabling the chronicles of these southern Levantine shores to take their rightful place amongst other Mediterranean maritime histories.

\textsuperscript{413}Among these should be analysis of ceramics, stone, metals, and more targeted and regular radiocarbon sampling.
MARITIME TRADE IN THE SOUTHERN LEVANT
FROM EARLIEST TIMES THROUGH THE MIDDLE BRONZE IIa PERIOD

VOL. II: BIBLIOGRAPHY, TABLES AND FIGURES

A Thesis submitted to the University of Oxford
in Fulfillment of the Requirements
for the Degree of Doctor of Philosophy (D. Phil.)

Trinity Term 1998

EZRA S. MARCUS
Wolfson College
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Figures 1 - 13
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<table>
<thead>
<tr>
<th>Egyptian period</th>
<th>Levantine Period</th>
<th>Characterization</th>
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<tbody>
<tr>
<td>Second Intermediate Period</td>
<td>MB IIb</td>
<td>Canaanite Deltaic “Hyksos” Kingdom</td>
</tr>
<tr>
<td>Middle Kingdom (Twelfth to Thirteenth Dynasty)</td>
<td>MB IIa/3-4</td>
<td>Thriving east Mediterranean maritime trade, Canaanite settlement in the Delta</td>
</tr>
<tr>
<td>Middle Kingdom (Twelfth Dynasty)</td>
<td>MB IIa/1-2</td>
<td>Resumption of Maritime trade with Byblos and south Levantine urban culture</td>
</tr>
<tr>
<td>First Intermediate Period</td>
<td>Intermediate Bronze Age</td>
<td>Minimal Land-based trade</td>
</tr>
<tr>
<td>Old Kingdom (Fourth to Sixth Dynasties)</td>
<td>EB III</td>
<td>Byblos Run</td>
</tr>
<tr>
<td>First to Third Dynasties</td>
<td>EB II</td>
<td>Beginning of trade shift northwards</td>
</tr>
<tr>
<td>Naqada IIIb (Dynasty “O”)</td>
<td>EB Ib</td>
<td>Egyptian colony abandoned</td>
</tr>
<tr>
<td>Naqada III a</td>
<td>EB Ib</td>
<td>Colony zenith (Abydos Tomb Uj)</td>
</tr>
<tr>
<td>Naqada IIc,d</td>
<td>EB Ib</td>
<td>Colony</td>
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<tr>
<td>Naqada IIb</td>
<td>EB Ia</td>
<td>Egyptian colony / Uruk maritime expansion</td>
</tr>
<tr>
<td>Naqada I-IIa</td>
<td>Chalcolithic</td>
<td>Negev Culture - Expeditionary Trade</td>
</tr>
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<td>Neolithic (Amratian - Badarian)</td>
<td>Pottery Neolithic</td>
<td>“First contact”</td>
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Table 2. Twelfth Dynasty Rulers - “High” and “Low” Chronologies (after Kitchen 1987)

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<tr>
<th>Ruler</th>
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<tr>
<td>Amenemhet I</td>
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<td>1937-1908</td>
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<tr>
<td>Sesostris I</td>
<td>1959-1914</td>
<td>1917-1872</td>
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<tr>
<td>Amenemhet II</td>
<td>1917-1882</td>
<td>1875-1840</td>
</tr>
<tr>
<td>Sesostris II</td>
<td>1884-1878</td>
<td>1842-1836</td>
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<tr>
<td>Sesostris III</td>
<td>1878-1859</td>
<td>1842-1836</td>
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<td>Amenemhet III</td>
<td>1859-1814</td>
<td>1817-1772</td>
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<tr>
<td>Amenemhet IV</td>
<td>1814-1805</td>
<td>1772-1763</td>
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<tr>
<td>Sobeknofru</td>
<td>1805-1801</td>
<td>1763-1759</td>
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<td>Pharaohs</td>
<td>Al</td>
<td>SI</td>
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<tr>
<td>----------</td>
<td>----</td>
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</tr>
<tr>
<td>Archaeological Period (after Bietak)</td>
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<tr>
<td>Revised synchronism</td>
<td>IBA-MBA?</td>
<td>MB IIa?</td>
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<td>M</td>
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<td></td>
</tr>
<tr>
<td>% of Levant wares</td>
<td></td>
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</tr>
<tr>
<td>Levant wares</td>
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</tr>
<tr>
<td>Anatolian “cut-away” neck</td>
<td></td>
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</tr>
<tr>
<td>Tell el-Yahudiya ware</td>
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</tr>
<tr>
<td>Metals</td>
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<tr>
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<tr>
<td>Aegean imports</td>
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### Table 3 Tell el-Dab`a

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<th>SI</th>
<th>AII-SII</th>
<th>SII-SIII</th>
<th>AIII</th>
<th>AIV-So</th>
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<td>MB IIa/1-2</td>
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<td>MB IIa?</td>
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<td>MB IIa</td>
<td>MB IIa?</td>
<td>MB IIa/3-4?</td>
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<td>L</td>
<td>K</td>
<td>I</td>
<td>H</td>
<td>G/4</td>
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<tr>
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<tr>
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<td></td>
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</tr>
<tr>
<td>Means</td>
<td>Carrying Capacity (kg.)</td>
<td>Distance (total km/ no. of hrs)</td>
<td>Reference</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td>----------------------------------</td>
<td>----------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td>20-30</td>
<td>30 /10</td>
<td>Dorsey 1988:895; Broodbank 1995:54</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Donkey/Ass</td>
<td>90</td>
<td>25/6</td>
<td>Moorey 1994:12</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Donkey/Ass</td>
<td>50</td>
<td>25/6</td>
<td>British Army Regulations; Moorey 1994:12</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mule</td>
<td>77</td>
<td>32-40/6</td>
<td>British Army Regulations ;Moorey 1994:12</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Horse</td>
<td>1 man+</td>
<td>40-50/10</td>
<td>Dorsey 1988:896</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Paddled Craft</td>
<td>1-4 persons + 50-150 Kg</td>
<td>40 km/8</td>
<td>(see Chapter 3)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>canoe</td>
<td>25 man (minimum cargo)</td>
<td></td>
<td>(see Chapter 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>longboat</td>
<td>(dependent on size of vessel)</td>
<td></td>
<td>(see Chapter 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sail Boat</td>
<td>Straight sail (tacking is less)</td>
<td>74/10 111/10</td>
<td>(see Chapter 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 knots (7.4 km/hr)</td>
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<td></td>
<td>(see Chapter 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 knots (11.1 km/hr)</td>
<td></td>
<td></td>
<td>(see Chapter 3)</td>
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Table 5. Percentage of Observed Offshore Winds along the Levantine Coast, 1941-1970 (compiled from the Mediterranean Pilot)

<table>
<thead>
<tr>
<th>Place</th>
<th>Port Said</th>
<th>Tel Aviv</th>
<th>Beirut</th>
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<tr>
<td></td>
<td>0800</td>
<td>1400</td>
<td>0800</td>
</tr>
<tr>
<td><strong>Month</strong></td>
<td><strong>SW</strong></td>
<td><strong>S</strong></td>
<td><strong>SE</strong></td>
</tr>
<tr>
<td>January</td>
<td>26</td>
<td>18</td>
<td>7</td>
</tr>
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<td>February</td>
<td>26</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>March</td>
<td>14</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>April</td>
<td>10</td>
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<td>8</td>
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<td>May</td>
<td>9</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>June</td>
<td>9</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>July</td>
<td>11</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>August</td>
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<td>September</td>
<td>10</td>
<td>3</td>
<td>2</td>
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<tr>
<td>October</td>
<td>8</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>November</td>
<td>17</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>December</td>
<td>26</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td><strong>Means</strong></td>
<td>15</td>
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<td>5</td>
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Table 6. MB IIa Sites by sub-region

**Key:**

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<tr>
<th>Site Size</th>
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<tbody>
<tr>
<td>T. = tell or tel</td>
<td>VS = very small</td>
</tr>
<tr>
<td>Kh. = Khirbet</td>
<td>T = tomb(s)</td>
</tr>
<tr>
<td>K. = Kefar</td>
<td>&lt; = “less than”</td>
</tr>
<tr>
<td>Kb. = Kibbutz</td>
<td>↓ = decreasing to”</td>
</tr>
<tr>
<td>S. = “south of”</td>
<td>↑ = “increasing to”</td>
</tr>
<tr>
<td>E. = “east of”</td>
<td>? = uncertain (e.g. size)</td>
</tr>
<tr>
<td>Rd = road</td>
<td>R = site fortified by a rampart</td>
</tr>
<tr>
<td>? = unknown</td>
<td>tmpl = temple</td>
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### 6.1 Northern Coastal Plain

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<tbody>
<tr>
<td>T.Akhziv</td>
<td>7</td>
<td>Prausnitz 1975: 203</td>
</tr>
<tr>
<td>T.Nahariya</td>
<td>3</td>
<td>Yogev 1993</td>
</tr>
<tr>
<td>tmpl/workshop</td>
<td></td>
<td>Dothan 1993c</td>
</tr>
<tr>
<td>T.Akko</td>
<td>20</td>
<td>Dothan 1993a: 17</td>
</tr>
<tr>
<td>T.Bira</td>
<td>20</td>
<td>Prausnitz 1993b: 262</td>
</tr>
<tr>
<td>Kh.Kurdaneh (Afek)</td>
<td>2</td>
<td>Maisler [Mazar] 1939</td>
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<td>T.Zvat</td>
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<td>S.Yankelevich, p.c.</td>
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### 6.2 Carmel Coast

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<td>Tirat Carmel</td>
<td>T</td>
<td>Marcus 1995c</td>
</tr>
<tr>
<td>T.Megadim</td>
<td>1</td>
<td>Broshi &amp; Gophna 1986: 84; Wolff 1998</td>
</tr>
<tr>
<td>Atlit</td>
<td>?; T</td>
<td>Johns 1993; Raban &amp; Linder 1993</td>
</tr>
<tr>
<td>T.Nami</td>
<td>0.4</td>
<td>Artzy 1993; Marcus 1991</td>
</tr>
<tr>
<td>Nami East</td>
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</tr>
<tr>
<td>Sites 101-104</td>
<td>? &lt;2</td>
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<tr>
<td>T.Dor</td>
<td>10</td>
<td>Broshi &amp; Gophna 1986: 83</td>
</tr>
<tr>
<td>S. of Dor</td>
<td>0.4</td>
<td>Gophna &amp; Beck 1981: 46-48</td>
</tr>
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<td>T.Mevorakh</td>
<td>0.1</td>
<td>Stern 1984</td>
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### 6.3 Sharon Plain

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<td>T.Burgha</td>
<td>25R</td>
<td>Kochavi, Beck &amp; Gophna 1979: 142-151</td>
</tr>
<tr>
<td>T.Esor</td>
<td>3?, T</td>
<td>Dothan 1993d; Ne'eman 1990 : 23-25</td>
</tr>
<tr>
<td>Barqai</td>
<td>T</td>
<td>Gophna &amp; Sussman 1969</td>
</tr>
<tr>
<td>T.Jatt</td>
<td>?</td>
<td>Ne'eman 1990 : 63-64</td>
</tr>
<tr>
<td>T.Zeror</td>
<td>5</td>
<td>Kochavi, Beck &amp; Gophna 1979: 151-161</td>
</tr>
<tr>
<td>Kh.Ibreiktas</td>
<td>T</td>
<td>Edelstein 1971</td>
</tr>
<tr>
<td>T.Ifshar</td>
<td>4.4</td>
<td>Paley &amp; Porath 1993: 609</td>
</tr>
<tr>
<td>Tulkarm</td>
<td>T</td>
<td>Broshi &amp; Gophna 1986: 85</td>
</tr>
<tr>
<td>Ein Zurekiyeh</td>
<td>0.4</td>
<td>Gophna &amp; Ayalon 1982</td>
</tr>
<tr>
<td>T.Poleg</td>
<td>1.2</td>
<td>Gophna 1993c</td>
</tr>
<tr>
<td>E.of Shefayim</td>
<td>0.2</td>
<td>Gophna &amp; Portugali 1988: 26</td>
</tr>
<tr>
<td>K.Shamaryahuatem pl</td>
<td>0.1</td>
<td>Kaplan 1971; Gophna &amp; Portugali 1988: 26</td>
</tr>
<tr>
<td>Jaljuliya</td>
<td>0.2</td>
<td>Gophna &amp; Portugali 1988: 26</td>
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<tr>
<td>Biyar Adas</td>
<td>0.2?</td>
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<td>Gophna &amp; Beck 1981: 71</td>
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<td>Gophna &amp; Portugali 1988: 26; Kaplan 1993</td>
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<td>Gophna &amp; Beck 1981: 50 ;</td>
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<td>T.Hashomer</td>
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### 6.4 Southern Coastal Plain and Shephelah

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<td>Albright 1993; Greenberg 1993</td>
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### 6.5 Jezreel Valley

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<td>[Zigelman] 1977</td>
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### 6.6 Galilee Highlands

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### 6.7 Carmel Highland

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### 6.8 Central Highlands

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### 6.9 Upper Jordan Valley and Golan sites (Hula Valley and immediate environs)

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**Dolmens:**

- #8                        Epstein 1985b: 30
- #13                       Epstein 1985bb: 32-33
- #14                       Epstein 1985bb: 33-34
- #23 (Qubbet Qar’a)        Epstein 1985bb: 35-36
- #25 (El-Arba’in)          Epstein 1985bb: 37

| T.Hazor                  | 10↑20R| Dunayevsky & Kempinski 1990 |
| Ginnosar                 | T     | Epstein 1974                 |
### 6.10 Lower Jordan Valley sites (including Beth Shean Valley and TransJordan)

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<td>Helms 1989: 583-588</td>
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<td>Kenyon 1965:203-228</td>
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<td>T.el-Khaizah</td>
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<td>Jobling 1989: 8</td>
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### Table 7. Tell Kabri

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<tr>
<td>MB IIb</td>
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</table>

| Stratum | Layer scrape off tell, sherds found in rampart | Some dubious sherds | T.990 | T.1045 | T.1050 | Robbed walls | T.984 | [1 | 2 | 3] |
|---------|-------------------------------------------------|---------------------|-------|-------|-------|---------------|-------|------|
| B       |                                                 |                     |       |       |       |               |       |      |
| C       | Ramparts->                                        | buildings           | floors| 5-----| 4-----| 3-----| 2-----| 1-----| 1 | 2 | 3 | 4 | T.902 |
|         | installation                                     |                     | T.498 |       | [1 | 2 | 3 | 4 | T.902 |
|         |                                                  |                     | T.503 | -     | T.502 |

<table>
<thead>
<tr>
<th>D</th>
<th>Pre-palace layers</th>
<th>Palace phases 3a-d</th>
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<tr>
<td>F</td>
<td>Public precinct</td>
<td>Part of Palace</td>
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<tr>
<th>Levantine Painted Ware</th>
<th>levantine Painted Ware</th>
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<tr>
<td>“Anatolian” cut-away neck</td>
<td>“Anatolian” cut-away neck</td>
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<tr>
<td>Tell el-Yahudiya Ware</td>
<td>Tell el-Yahudiya Ware</td>
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<tr>
<td>Middle Cypriot Ware</td>
<td>Middle Cypriot Ware</td>
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<tr>
<td>Duckbill axe</td>
<td>Duckbill axe</td>
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<td>Cylinder seal</td>
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<td>Levantine Painted Ware</td>
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<td>Duckbill axe</td>
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<td>Building (Ben-Dor’s phasing)</td>
<td>Ceramics finds</td>
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<td>Bamah complex (Dothan’s phasing)</td>
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### Table 9. Akko Ramparts

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<th>Archaeological Period</th>
<th>MBIIa/?</th>
<th>MB lia/2-3?</th>
<th>MB lia/3?</th>
<th>MB IIa/4?</th>
<th>MB IIb</th>
<th>MB IIc</th>
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<td>Area \ Phase &lt;&gt;</td>
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<tr>
<td><strong>B</strong></td>
<td>Clay rampart, wall? (infant burial)</td>
<td>Kurkar, loam, clay and sand, wall + bastions</td>
<td>Loam + kurkar slabs against wall</td>
<td>Sand rampart, citadel</td>
<td>Sand</td>
<td>Sand</td>
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<td><strong>F</strong></td>
<td>Clay rampart</td>
<td>Gate (3 phases), rampart</td>
<td>Gate phase 2, rampart</td>
<td>Post gate, rampart</td>
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<td><strong>P</strong></td>
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<td>Rampart--------------------&gt;</td>
<td>?Pottema----------&gt;</td>
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<td><strong>Harbor</strong></td>
<td>Anchorage to the lee of an island</td>
<td><em>Tombolo</em> forming shallow peninsula and two bays</td>
<td>Dredging activities?</td>
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</table>

| Middle Cypriot wares | -------------------------------200(?) examples ------------------------------- |
| "Anatolian" cut-away neck | --------- [ ] --------- |
| Tell el-Yahudiya ware | [?------------------------1 reported from Area F------------------------?] |
| Egyptianizing object | [?-------------------------------------------------------------?] |
Table 10. Tel el-Ifshar

<table>
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<th>Absolute chronology</th>
<th>1900-1850?</th>
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<tr>
<td>A</td>
<td>Remains of walls and floors</td>
<td>Large building, wide brick wall (city wall?)</td>
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<td>B</td>
<td>Levantine Painted Ware</td>
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<tr>
<td>C</td>
<td>Tell el-Yahudiya Ware</td>
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<tr>
<td>D</td>
<td>Egyptian pottery</td>
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<tr>
<td>E</td>
<td>Egyptianizing element</td>
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<td>F-G</td>
<td>Cedrus libani</td>
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### Table 11. Tel Aphek

<table>
<thead>
<tr>
<th>Archaeological Period</th>
<th>EB II</th>
<th>EB III</th>
<th>IBA</th>
<th>MB IIa/1</th>
<th>MB IIa/2</th>
<th>MB IIa/3</th>
<th>MB IIa/4 - MB IIa-b</th>
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<td>C</td>
<td>D</td>
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<td>17</td>
<td>16</td>
<td>15</td>
<td>14 c-a</td>
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<td>4</td>
<td>3</td>
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<td>frag. floors, use of EB I wall?</td>
<td>Poorly built dwellings</td>
<td>City Wall, structures</td>
<td>City Wall repair</td>
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<td>Area X strata</td>
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<td>19</td>
<td>18</td>
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<td>16</td>
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<td>X</td>
<td>Poorly built dwellings</td>
<td>Fill for Palace I</td>
<td>Palace I (patrician building?)</td>
<td>abandoned</td>
<td>Palace III begun?</td>
<td>Palace IIIa</td>
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<td>Area G strata</td>
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<td>O1</td>
<td>use of Ory’s early (EB I) wall?</td>
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<td>Tombs 2,4,5</td>
<td>Tombs</td>
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</table>

**Levantine Painted Ware**

**Tell el-Yahudiya Ware**

**“Anatolian” cut-away neck**

**Egyptian or Egyptianizing Object**

**Scarab**

**Socketed spearhead**

**Dagger**

**Duckbill axe**
<table>
<thead>
<tr>
<th>Archaeological Period</th>
<th>Stratum</th>
<th>EB II</th>
<th>EB III</th>
<th>IBA XIII</th>
<th>MB IIA XII</th>
<th>MB IIa-b XI</th>
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<tbody>
<tr>
<td>Area A MBA phases</td>
<td>A</td>
<td>domestic dwellings</td>
<td>T.23 w.6, l.11 tabun</td>
<td>Pit L.44</td>
<td>L.42,43 W.28, W.29</td>
<td>Rampart---&gt;</td>
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<tr>
<td></td>
<td>B</td>
<td>7 phases domestic</td>
<td>domestic</td>
<td>---------&gt; T.4244</td>
<td>City Wall?---------&gt;</td>
<td>Rampart---&gt;</td>
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<tr>
<td></td>
<td>M</td>
<td>5 phases domestic</td>
<td>?</td>
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<td>T.8096a T.8185?</td>
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<td>K</td>
<td>Gate or monumental structure</td>
<td>2 phases</td>
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<td>Mudbrick Gate</td>
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<tr>
<td>Area Y MBA phases</td>
<td>Y</td>
<td>3 phases of architecture; sloping stone fortification?</td>
<td>T.902b-d cache domestic</td>
<td>---------&gt; T.1025 T.3050</td>
<td>T.3126</td>
<td>T.1062</td>
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<td>T</td>
<td>Massive fills surfaces fortification</td>
<td>---------&gt; offset-inset wall? glacis?</td>
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Levantine Painted Ware
Monochrome Painted Cream Ware 1 sherd
Middle Cypriot Ware
Tell el-Yahudiya Ware ?
Scarab
Carnelian or garnet
Amethyst
Crystal
Frit beads
Glass bead
Duckbill axe
Silver
Toggle pin
Dagger
Spear or arrowhead
Miscellaneous bronze
Table 13. **Tell el-Hayyat**

<table>
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<tr>
<th>Archaeological Period</th>
<th>IBA</th>
<th>MB Ila/1-2</th>
<th>MB Ila/2-3</th>
<th>MB Ilb?</th>
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<td>4</td>
<td>3</td>
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<tr>
<td></td>
<td>scant remains</td>
<td>shrine with <em>massebot</em></td>
<td>Temple, <em>massebot</em>, village, kiln</td>
<td>Tower (?) temple, village</td>
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<tr>
<td>Levantine Painted Ware</td>
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<tr>
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Table 14. Traded Objects in the Coastal Plain, Jezreel Valley, and the Galilee Highlands

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<tr>
<th>Location</th>
<th>LPW</th>
<th>TEN</th>
<th>ANATOLIAN</th>
<th>CYPROIT</th>
<th>Cu/Br</th>
<th>Ag</th>
<th>Au</th>
<th>ELECTRUM</th>
<th>TPM</th>
<th>AMETHYST</th>
<th>PYRENES</th>
<th>SERPENTINE</th>
<th>CARNEIAN</th>
<th>SELLIM</th>
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<th>Misc. items</th>
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Miscellaneous items:
- Ostrich eggs
- Catfish bones
### Table 15. Traded objects in the Carmel and Central Highlands, and the Upper and Lower Jordan Valleys

| Location                  | L | P | W | T | E | Y | A | N | P | R | O | I | T | Cu/Br | Ag | Pb | Au | E | G | Y | P | T | I | A | N | A | M | R | A | N | E | L | A | N | C | Y | L | S | E | A | L | C | E | D | A | R | Misc. items                      |
| 'En-Hashofet              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Farah (N)                 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Shechem                   |   |   |   |   |   |   |   |   |   | ? |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Samiyeh/Sinjil            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Jerusalem                 |   |   |   |   |   |   |   |   |   |   | ? |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Beth Shemesh              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Gibeon                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Kh. Kufin                 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Efrat                     |   |   |   |   |   |   |   |   |   | ? |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Dan                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Hagosherim                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Kefar Szold               |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Na`ama                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Hazor                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Ginossar                  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Golan dolmens             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Beit Yerah                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Munhata                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Tall el-Fukar             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Beth Shean                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Gesher                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Rehov tombs               |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Hayyat                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Jericho                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

- Ostrich egg
- Ostrich egg, bitumen, ivory, alabaster
- Glass bead, frit, crystal
- Ostrich egg?
- Crystal
- Alabaster, turquoise, other stones
Table 16. Occurrence of MB IIa Traded Objects by sub-phase

|               | LPW | TEY | ANATOLIAN | CYPRiot | Cu/| BRONZE | Ag  | Pb  | Au | ELECTRUM | EGYPTIAN | ELEPHANT | SPTINE | CARNE | SEAL | IMPRE | CEDAR | Misc. items |
|---------------|-----|-----|-----------|---------|----|--------|-----|-----|----|----------|----------|----------|--------|-------|------|-------|-------|---------|----------------|
| MB IIa/4      |     |     |           |         |    |        |     |     |    |          |          |          |        |       |      |       |       | Crystal    |
| MB IIa/3      |     |     |           |         |    |        |     |     |    |          |          |          |        |       |      |       |       | Aegean legumes |
| MB IIa/2      |     |     |           |         |    |        |     |     |    |          |          |          |        |       |      |       |       | glass?     |
| MB IIa/1      |     |     |           |         |    |        |     |     |    |          |          |          |        |       |      |       |       | Crystal    |
Table 17. Relative synchronization of the MB IIa sites of the Northern, Carmel, and Sharon Coastal Plains, and the Jezreel Valley

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<th>el-Jisr</th>
<th>Yavne -Yam</th>
<th>Poran</th>
<th>Ashkelon</th>
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Table 18. Relative synchronization of the MB IIa sites in the Upper and Lower Jordan Valley

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<td>2580-2400 (96)</td>
<td>2850-2800 (2)</td>
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<td>2700-2250 (98)</td>
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<td>2140-1970</td>
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<td>2280-2240 (3)</td>
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<td>charcoal</td>
<td>2140-1970</td>
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Table 20. **Middle Bronze IIa radiocarbon determinations** (parenthesis refer to probability within the calibrated range)

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<td>Phase B/C</td>
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<td>Phase F/G</td>
<td>OxA-5358</td>
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<td>wheat</td>
<td>2030-2000 (9) 1980-1870 (74)</td>
<td>2120-2080 (3)</td>
<td>2040-1750 (97)</td>
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<td>Phase G</td>
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<td>1940-1770</td>
<td>2030-2000 (2)</td>
<td>1980-1740(98)</td>
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<td>Phase 4 (lower)</td>
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<td>1930-1680</td>
<td>Bowman et al. 1990:65; J. Ambers, letter of 5</td>
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<td>Burleigh &amp; Matthews 1982: 160-161</td>
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**Note:** Lab # refers to the laboratory number, BP stands for before present, and σ represents standard deviation.
Figure 1. A. Arrival of sea going ship from the time of Sahure (after Wachsmann 1998: fig 2.3).
B. Associated cargo from Sahure’s relief (after Smith 1965: fig 7).
Figure 2. A,B. Light-faced Painted Ware. C. Red Polished Ware. D,E. Metallic Ware jars. (after Stager 1992: figs. 10:1, 12:1-2, 14:7,13).
Figure 3. ‘Amu caravan from tomb of Khnumhotep (no. 3) at Beni Hasan (Newberry 1893: pls. XXIX and XXXI.)
Figure 4. A. Scene of pottery making and ship construction from tomb of Khnumhotep (no. 3) at Beni Hasan (Newberry 1893: pl. XXIX).
B. Close-up of a bearded Levantine shipwright.
Figure 5. Cylinder seal from Tel El-Dab’a depicting a sailboat and patron gods (from Bietak 1989a: fig. 10).

Figure 6. Depiction of Canaanite boat from the New Kingdom tomb of Kenamun (from Davies & Faulkner 1947: pl. 8).
Fig. 7. EB I boats from Megiddo (after Engberg & Shipton 1934: 30, fig. 10:G, H)
Figure 8.  

a. Old Kingdom anchors from Abusir (from Frost 1979: fig. 1)
b. MB IIa anchor types (from Nibbi 1992: fig. 10).
Figure 9. 1993 Radiocarbon Calibration Curve
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Figure 10. Calibrated Radiocarbon Determinations
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Figure 11. Calibrated MB IIa Radiocarbon Determinations.
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Calibrated date

Figure 12. Calibrated IBA-MBA Radiocarbon Relationships
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