Between Foraging and Farming: Critically Evaluating the Archaeological Evidence for the Southern Levantine Early Pre-Pottery Neolithic Period

Besin Toplayılıcıktan Tarıma: Güney Levant'ta Çanak Çömleksiz İlk Neolitik Evrenin Arkeolojik Verilerinin Eleştirisel Değerlendirilmesi

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Hem yeni gelişmekte olan hem de daha önceleri yayınlanan malzemelerin tekrardan değerlendirilmesine dayanarak, Güney Levant'tan ele geçen radiometrik, mimari ve ölü gömme adetlerine ait verilerin incelenmesi Çanak Çömleksiz Neolitik A / Pre-Pottery Neolithic A (PPNA) ile Orta Çanak Çömleksiz Neolitik B / Middle Pre-Pottery Neolithic B (MPPNB) evreleri arasında zaman ve kültür bakımından güçlü bir sürekliliğin bulunduğunu önermekteyim. Bundan başka, Güney Levant'tan ele geçen veriler, Çanak Çömleksiz Neolitik A/Pre-Pottery Neolithic A (PPNA) ile Orta Çanak Çömleksiz Neolitik B/ Middle Pre-Pottery Neolithic B (MPPNB) arasında İlk Çanak Çömleksiz Neolitik B / Early Pre-Pottery Neolithic B (EPPNB) gibi bir geçiş evresini gösteren kanıtları taşımamaktadır.

Güney Levant'ın geçiş evresine (EPPNB) ait önerilen tip yerleşmelerin eleştirisel değerlendirilmesi, bu yerleşmelerin zaman içersinde arkeolojik veriler için yanlışsız bir saptamayı sağlayacak temel ölçütleri (radiometrik ve arkeolojik kazılara dayanan tarihleme) yansıtmamaktadır. PPNA ve MPPNB yerleşmeleri olan Eriha, Zahrat adh- Dhra'2, Ain Ghazal, Netiv Hagdud, Tel Aswad Ib ve Harvat Galil'in yayınlanmış uyarlamalı Radiokarbon tarihlemeleri, bu evreler arasında kronolojik bir boşluk olmadığını göstermektedir. Nihayet, Güney Levant PPNA ve MPPNB nin göreceli olarak kısa süren geçiş evresi M.Ö. 8 400 civarında oluşmuştur ve bu süreç çok değişik bir şekilde ve birkaç yüzyıl sonra Kuzey Suriye ve Türkiye'deki yerleşmelerde de ortaya çıkmaktadır.

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1. Introduction

Archaeologists, like all social scientists, formulate interpretations on the basis of available data and revise these interpretations when new data become available. Revision of and reflections on current interpretations require reconsideration of the intellectual foundations of our arguments, as well as an understanding of the historical genesis of such arguments. Such discussion can center on the meanings of specific archaeological data sets, the links between archaeological data and human behavior, and how archaeological data sets can be organized into cultural-historical schemes. In the case of cultural-historical schemes, discussion and debate among researchers often center upon which criteria can and should be used to segment a continuous trajectory of human behavior in some meaningful way. One, but by no means the only, example of this is seen in the ways in which archaeologists have interpreted changes in material culture from the Pre-Pottery Neolithic A (PPNA) to the Middle Pre-Pottery Neolithic B (MPPNB) periods in the southern Levant (today defined by the modern political units of Jordan, Israel, the Palestine Autonomous Authority, and southern Syria). These include which archaeology data sets (e.g. the appearance of generalized bipolar core reduction or the appearance of rectangular architecture) should be utilized to define the transition from the PPNA and MPPNB phase in different areas of the Near East, and if this transition should be viewed as one of local cultural continuity or abrupt replacement of specific populations by other populations.

In the context of the southern Levant, researchers since the mid-1970's have generally employed a cultural-historical framework that envisions a transitional Early Pre-Pottery Neolithic B (EPPNB) phase between the PPNA cultures, such as found at the settlements of Netiv Hagdud and Jericho, and the MPPNB period occupations at 'Ain Ghazal, Jericho, and Yiftahel. Although poorly defined in the southern Levant this transitional phase is based, at least partially, on the assumption of a similar cultural-historical phase seen at the Neolithic sites of Çayönü, Jerf el Ahmar, and Mureybet and is believed to be independently supported by several archaeological sites in the southern Levant (Figure 1).

While widely accepted by researchers, I believe that consideration of recently published data raises serious questions about the archaeological foundations for the EPPNB phase of the southern Levant. As articulated elsewhere (Kuijt 1998), I remain concerned about the intellectual foundation for the cultural-historical construct of the EPPNB in the southern Levant, and the fact that this cultural-historical unit is based on remarkably limited archaeological data from both the southern Levant and Anatolia. This concern centers on several points. First, the original formulation of the EPPNB as a cultural-historical unit in the southern Levant was based upon the assumption that if such a phase exists in the northern Levant that it should also be found in the southern Levant. Thus, the materials from several sites, such as Tell Aswad, were interpreted in reference to the expectation of preliminary excavation results from Mureybet. Second, support for the cultural-historical construct of the southern Levantine EPPNB is currently based upon a number of type sites that do not meet basic criteria for the accurate placement of archaeological data sets in time. Third, researchers have argued that there is a distinct chronological "gap" between the late PPNA and early MPPNB, and that the EPPNB should be the cultural manifestation that filled this gap. In this paper I want to do several things: 1) highlight that, as currently articulated, the EPPNB in the southern Levant is based upon remarkably poor data (specifically the wide-spread reference to undated & unex-

cavated sites), and 2) consider how calibrated radiocarbon measurements illustrates that there is no distinct chronological "gap" between these periods.

I suggest that examination of architectural and mortuary evidence from currently available data from the southern Levant highlight that there is a strong case for temporal and cultural continuity between the PPNA and MPPNB periods in settlements, many of which appear to be centered around the Jordan Valley. I argue, moreover, that this transition occurred at around 8,400 B.C.[1] Before discussing the argument of sufficient archaeological evidence to support a southern Levantine EPPNB phase, it is necessary for me to outline some of the key aspects to my approach of how culture-history is constructed in archaeology and what material manifestations can be used to confidently develop such chronologies. First, like most archaeologists I view the successful construction of cultural-historical schemes as being based upon minimum standards of data, and for archaeological research on individual type sites to have followed a traditional research trajectory (Figure 2). In general, these standards do not change with the excavation of different periods of time or geographical location. As part of this, I believe that the only definitive way under which researchers can understand material patterning (architecture, lithic technology, mortuary practices) through time is by absolute dating methods such as radiocarbon dating. In unfortunate cases where it is not possible to date layers of a site through radiometric means, it is possible to bridge from one collection / site to another on the basis of demonstrated similarity in patterning. Such a procedure requires, of course, homogenous and tight patterning from the dated and undated sites. The strength of the interpretation is, moreover, linked to the similarity of cultural materials between the two settlements, the spatial proximity of the two settlements, the radiometric dating of the original site, and an independently defined determination of the temporal longevity of a specific phenomenon that provides the bridge between these two data sets / settlements (e.g. the projectile points from site A and B are all el-Khiam projectile points, the sites are in close proximity to each other, and while the deposits from site A cannot be dated there are radiocarbon samples from site B that are in direct association with recovered el-Khiam projectile points).

Second, I argue that while the study of stone tool technology and specific tool forms can be used to organize cultural-historical schemes, it remains to be demonstrated that in all cases this should take precedent over other phenomena (specifically, subsistence systems, economy, architecture and mortuary practices) and that these should be used judiciously. I concur with Bar-Yosef (1981) that there are distinctive tool types that are discrete in time and space, but I suggest that with some tool types researchers have assumed, rather than demonstrated, that these can be utilized to define a period of time in way that prioritizes them over other material patterns. Specifically, I suggest that in developing cultural-historical schemes in select cases, major transitions in subsistence practices, architectural systems, and mortuary practices are as important, perhaps even more important, than lithic typology. In the case of the EPPNB, I believe that the construction of culture-historical phases must be primarily based on strong evidence for major changes in these categories, and secondarily on the development and longevity of projectile point styles.

Finally, as an Near Eastern archaeologist who studies lithic technology, I believe that the successful use of stone tool typologies to develop cultural-historical schemes requires that we first consider technological systems of core reduction, blade production and organization, and

then go on to consider typological changes and variability that occurs on the items that are produced on blanks. In the case of the MPPNB, for example, most researchers focus on systems of core reduction and blade production with the purpose of producing long blades from bi-directional cores, and secondarily considering the shaping of these blades into one of several projectile point shapes, such as Helwan or Jericho projectile points. Such an approach must be based on both a consideration of technological changes in blade production (e.g., the development of generalized bipolar core systems compared to earlier single platform blade cores) as well as typological changes in the objects that are produced by these technological changes (e.g., how different projectile points are manufactured from the same blades). Having now outlined the context for some of the broader arguments for the utility and importance of lithic technology and typology in the construction of cultural-historical frameworks, I want to turn to a consideration of the historical genesis and intellectual foundations of the EPPNB phase.

2. The EPPNB: Historical Context and Genesis

In the case of the southern Levantine EPPNB, it is necessarily to briefly explore the historical context of this cultural-historical phase. Kenyon (1957), in her landmark excavations at Jericho from 1952-1958, provided the first solid evidence to indicate that the Pre-Pottery Neolithic of the southern Levant should be divided into at least two different cultural phases. On the basis of variation in architectural systems, mortuary practices, and material culture between the upper and lower levels at Jericho, Kenyon (1957) proposed a two-part division of the Pre-Pottery Neolithic into the Pre-Pottery Neolithic A and the Pre-Pottery Neolithic B periods. From its inception in the 1950's until the late 1970's this classification scheme remained largely unmodified, and the overall framework continues to be widely accepted as the major cultural and chronological divisions for the Pre-Pottery Neolithic in the southern Levant. Alternative cultural-historical treatments are presented by Cauvin (1977, 2000) and Moore (1985).

Excavations conducted during the 1970s and 1980s furnished new data on site-level chronology, architecture, and stone tool technology, permitting several researchers to identify important variability within the PPNB sequence of the Levant. Based on architectural and stone tool evidence at the key site of Mureybet in the northern Levant, J. Cauvin (1977, 2000) noted that material and cultural variability in the PPNB was chronologically based. Similarly, in his Neolithic synthesis, Mellaart (1975:55) mentions that select layers at Beidha, Munhata, and some of the Syrian PPNB sites may represent an early PPNB phase. Mellaart and Cauvin's early published attempts to divide the Pre-Pottery Neolithic was further developed by Bar-Yosef (1981:564-565) who explicitly argued that in the southern Levant the PPNB sequence should be provisionally subdivided into three phases: an Early, Middle, and Late phases. As an important expansion on the previously noted transition from circular/oval residential structures to rectangular ones (Aurenche 1981, Flannery 1972; Kenyon 1957), Bar-Yosef (1981:562) provided an initial outline of the diagnostic aspects of the differences between the PPNB and PPNA, arguing that the following were characteristic of the PPNB period: 1) the use of generalized bipolar cores (naviform) for blade production; 2) heat treatment of flints; 3) the high frequencies of arrowhead types shifting from Helwan, Jericho, Byblos and Amuq points; 4) changes in the morphological features of axes, sickle blades, and retouched blades. Based on archaeological levels from sites then known in the southern Levant, Bar-Yosef's synthesis and divi-

sion of the PPNB represented a significant conceptual revision of the Neolithic cultural-historical sequence with the recognition that there was material and cultural variability within the PPNB sequence.

Continued field research and publication of previous research in the 1980's has continued to sharpen our understanding of the material and chronological change within southern Levantine PPNA and PPNB sequences, as well as areas further to the north. In an overdue and much needed integration of new Levantine data from the PPNB, Rollefson (1989, 2001) explores how individual Levantine Pre-Pottery Neolithic sites fit into either an Early, Middle, Late Pre-Pottery Neolithic B phase, and/or the PPNC / Final PPNB phase which appears to date from ca. 6,700 to 6,400 B.P. While focused on the possible links between paleoclimatic culture change through time, Goring-Morris and Belfer-Cohen (1998) provide a detailed overview of southern Levantine Neolithic paleoclimatic and cultural changes, and identify the existence of the EPPNB. Additional research at Jerf el Ahmar, Syria, provides important additional data on this phase. Although not published in its final form, the excavators of this site have outlined important evidence for cultural continuity with the Jerf el Ahmar sequence (Stordeur 2000a, b; Stordeur and Abbes 2002)

In what is unquestionably the most direct and clear presentation of arguments for the EPPNB in the southern Levant, Gopher (1996) provides a valuable articulation of the central arguments and archaeological sites used to support the cultural-historical construct of the EPPNB. Building upon earlier works (e.g. Bar-Yosef 1981), Gopher (1996) identifies three sites from excavated southern Levantine PPNB that he believes date to the EPPNB and several other sites that, while not as clearly understood, also date to the EPPNB. In addition, on the basis of the recovery of Helwan projectile points Rollefson (1996) has recently identified the site of Abu Hudhud as dating to the EPPNB period. While these sites are generally accepted as supporting arguments for the southern Levantine EPPNB phase, close examination of these sites illustrates that many of them are undated, unexcavated, or very limited in scale, and require researchers to reconsider the archaeological foundations upon which the southern Levantine EPPNB has been defined.

2.1. The southern Levantine EPPNB: Looking North for Analogs

As is discussed elsewhere (Gopher 1996; Kuijt 1998), the supportive arguments for the southern Levantine Early Pre-Pottery Neolithic B period are generally founded upon the following arguments: 1) the EPPNB has been defined as a distinct cultural phase in the northern Levant (e.g., Çayönü, Jerf el Ahmar, and Mureybet); 2) lithic materials from the EPPNB were recovered at Tel Aswad; 3) there are several archaeological sites in the southern Levant that are culturally distinct from the PPNA and MPPNB and chronologically fit between them; 4) there is a chronological "gap" between the late PPNA and early MPPNB; and, 5) Helwan projectile points are indicative of a distinct EPPNB phase. In many ways the intellectual genesis for the EPPNB in the southern Levant is based upon the assumption that the existence of such a transitional phase at Mureybet IV necessitated the existence of a similar cultural-historical phase in the south-central Levant, some 350 km away.

In developing arguments for a southern Levantine EPPNB period, researchers have focused considerable attention upon the settlement of Tell Aswad as a type-site for the EPPNB. Based on his excavations, de Contenson (1995) argues that Tell Aswad phase IB includes many characteristic PPNB chipped stone tool and is represen-

tative of an independent phase dating to 8,500 B.C. As argued elsewhere (Kuijt 1998), the interpretation of these dates is problematic for several reasons. First, it must be recognized that the cultural material upon which the phase IB designation is based was recovered from the upper 35-45cm of cultural deposits from a single four by four meter area and, therefore, may well represent charcoal and chipped stone materials from multiple Neolithic occupations. Second, the two radiocarbon dates from phase IB are 9,340±120 b.p. (GIF-2370) and 9,270±120 b.p. (GIF-2371) and, therefore, do not of themselves support arguments for an occupation starting at 8,500 B.C. Considering the small size of the excavated area (4 x 4 meters), the shallow nature of the deposits, the lack of architecture and the potential for mixing near the surface, it is very difficult to ascertain the representative nature of these materials and how they may or may not fit into the southern Levantine cultural-historical sequence.

In many ways discussion of a southern Levantine EPPNB phase has been founded, be it explicitly or implicitly, upon the untested assumption that there should be a similar chronological phase in the southern Levant as is argued for the northern Levant. The examination of the southern Levant from the North is perhaps most clearly illustrated when considering the excavations at Tell Aswad, the only excavated Pre-Pottery Neolithic settlement in southern or central Syria that has the possibility to inform us about cultural links between the northern and southern Levant. In his analysis de Contenson, originally interpreted the Tell Aswad lithic assemblage as being related to the cultural materials from Tell Mureybet. When discussing the flint assemblage of Tel Aswad IA, for example, later termed Aswadian, de Contenson (1989:58) argues: "The assemblage resembles that of contemporaneous Mureybet III but shows few connections with Jericho PPNA". Examination of the materials from Jericho, Netiv Hagdud, and Dhra' illustrate the contrary: that published Tel Aswad IA materials are very similar to those from the southern Levant. Similarly, when discussing the tools of phase IB radiocarbon dating to approximately 8,500 B.C. de Contenson states: "[they]. . . can be compared to that from Mureybet IVA, which is also dated in the same period" (de Contenson. 1989). Given the similarities in materials from Tell Aswad and sites to the south, and that the excavations of Mureybet have yet to be published, de Contenson's intellectual linking of the materials from Tell Aswad and Muryebet seems both dated and unnecessary, and has arguably biased the interpretive foundation of research by looking to the north in exclusion of other areas. In sum, the early genesis of the EPPNB as a cultural-historical unit was imposed on the southern Levant from the northern Levant.

2.2. The Southern Levantine EPPNB: Criteria for Accepting Sites and Tautological Foundations

A number of studies (Bar-Yosef 1981; Gopher 1996; Rollefson 1989) have listed several sites that are perceived as supporting arguments for the existence of an EPPNB cultural-historical phase (see Table 1 & 2). These works represent an important departure from previous research as they attempt to establish the case for a southern Levantine EPPNB on the basis of material from the southern Levant, not in reference to the northern Levant. In many ways these sites have been put forward as type cases for the EPPNB, and are used explicitly or implicitly as supportive evidence for this chronological / cultural construct. As with archaeological sites used to support arguments for the initial peopling of the New World, for these sites to be broadly accepted by researchers they need to meet specific criteria (Figure 2).

To be acceptable as type sites with a specific temporal and cultural context in the past, research at individual archaeolo-

gy sites should be based on the excavation of cultural materials rather than use of surface collections, the use of radiocarbon dating to directly place cultural materials in a chronological order rather than the use of undated cultural materials to generate cultural-historical schemes, a limited degree of mixing and bioturbation so that the depositional context and associations are readily definable, and a basic understanding of site formation processes. As illustrated in figure 2, the intellectual process of developing cultural-historical sequences can be envisioned as a pathway of research steps. While there are variations, the overall trajectory from the initiation of a research program to the development of a regional cultural-historical framework is clear and well understood by archaeologists. It is, moreover, usually necessary for researchers to have completed earlier stages in this process (e.g., excavating part of a settlement and radiocarbon dating this occupation) before developing arguments for a regional cultural-historical framework. Altogether, this provides a means of better understanding and evaluating the support, or lack of support, for regional temporal systems.

From this perspective, it is unnerving to recognize that arguments for an EPPNB phase have not followed this widely accepted pathway for developing cultural-historical frameworks. In point of fact, most of the sites used to support arguments for the EPPNB have not been excavated, and / or are undated by radiometric means. Specifically, three out of the ten sites are undated and based on surface collections (Nahal Levan 109, Michmoret 26 / 26 A, Abu Hudhud), another three out of the ten have had some excavation, but are undated by any radiometric means (Mujahiya, Nahal Oren, and Abu Salem), and one of them comes from a cave context (Sefunim) that is likely to have been subjected to considerable bioturbation and mixing of materials.

The site of Sefunim is clearly problematic. Sefunim is a cave site, and like most caves in the Near East it contains prehistoric archaeological materials from multiple periods of time, including the Middle Paleolithic, the Upper Paleolithic, the Epipaleolithic, multiple Neolithic layers, and a Chalcolithic occupation. The excavator, A. Ronen (1984), notes the presence of multiple pit features and mixing of materials. Several radiocarbon samples have been processed from the site. Ronen describes Layer V at ca. 8,600 B.C. as being PPNA, not as EPPNB. In light of the complex site formation processes at this cave, the multiple occupations that occurred in this small space, and limited material culture recovered, there is no way researchers can be confident in their cultural or temporal designation of the Neolithic deposits from Sefunim. As such, it is difficult to see how Sefunim can serve as a type site for any period of the Neolithic.

From the perspective of even minimal standard requirements (the use of radiocarbon dating with results that are consistent with recovered cultural material) for developing a cultural-historical sequence in which we can deal with both the sequence and timing of cultural materials, it is clear that the seven out of the ten type sites used to support arguments for the EPPNB can provide no detailed chronological understanding other than they probably fit at some point between or within the PPNA and early stages of the MPPNB. Their placement in time is, in short based on the presence of Helwan projectile points and bipolar cores, and the assumption that these date to a specific phase. This is especially true for sites (e.g. Nahal Levan 109, Michmoret 26 / 26A, and Abu Hudhud) where our understanding is based on surface collections, no excavation, and no radiocarbon dating. In sum, our interpretation of all of these sites must remain highly suspect, and in a broader sense, that arguments fails to recognize that both individually and collectively

these archaeological sites have not been evaluated from the commonly accepted and widely-practiced standards for developing temporal and cultural reconstructions.

What then about the remaining archaeological sites frequently used to support arguments for a southern Levantine EPPNB phase? While appearing to substantiate arguments for the EPPNB, I argue that the remaining archaeology sites (Horvat Galil, Aswad IB, and Wadi Jilat 7) are also problematic and do not provide unambiguous support for a cultural-construct of the EPPNB in the southern Levant. As discussed earlier, arguments for Tell Aswad as an EPPNB type-site are seriously undermined by limited recovered data, with recovered materials are from only the upper 45 cm zone. As Baird (1997) notes, Wadi Jilat 7 is widely cited as evidence for an EPPNB occupation (e.g. Gopher 1996: 155). Excavations by Garrard *et al.* (1994) at Jilat 7, located in the Azraq Basin, resulted in the recovery of el-Khiam, Helwan, Jericho and Byblos projectile points, Hagdud truncations, high proportions of bladelets, single platform and change of orientation blade/bladelet cores, and opposed platform blade/bladelet cores including some generalized bipolar types (all from the basal levels of adjoining areas A and C). Gopher (1996:155) argues that the percentages of some of these tools change through the identified three layers and implicitly suggests that this reflects change through time, and presumably one or more of these layers reflecting an EPPNB occupation.

While there is no question that most, if not all, of this lithic assemblage predates the MPPNB occupation at the settlement, it is not clear how much they predate the MPPNB, and perhaps more importantly, the placement of these in the past is complicated by the associated radiocarbon samples that do not fit. There are several possible explanations for the material patterning from Wadi Jilat 7, including that the there were several occupations from different phases of the Pre-Pottery Neolithic with some later mixing, that different types of projectile points diffused at a later time to this area, and/or that as a settlement located in the desert, the cultural practices at Wadi Jilat 7 may have occurred at a different period of time from that of settlements in the Mediterranean zone of the southern Levant. At the moment the chronological placement of the lithic materials and occupations from Wadi Jilat 7 is entirely based on typological analogy with similar materials from other sites (often the undated sites discussed earlier), not by direct radiometric measures that are consistent with the lithic materials. While raising some interesting possibilities and potentially supporting arguments for the EPPNB, the clear disjunction between radiocarbon measurements and associated lithic materials, the lack of radiometric measures in stratigraphic order, and with clear associations with lithic technology, illustrates that at the moment it is not possible to use the evidence from Wadi Jilat 7 as a building block for arguments for the EPPNB.

One of the other archaeology sites cited as an EPPNB settlement is the Pre-Pottery Neolithic site of Horvat Gilil (Gopher 1994, 1996). As noted elsewhere (Gopher 1996) excavations at this site identified rectangular architecture, fine plaster floors, subfloor burials and some evidence for an economic system focused on hunting and cereal growing. The projectile points are dominated by Helwan points and with fewer Jericho and Byblos point types. Unlike most of the other EPPNB type-sites, there are two radiocarbon dates from Horvat Gilil (Table 2). Gopher argues that the remains from Horvat Gilil belong in the EPPNB phase on the basis of projectile point seriation and the radiocarbon dates (Gopher 1996: 154). Examination of other materials presents an alternative chrono-

logical perspective: the architectural practices, use of fine plaster for floors, and subfloor burial practices from Horvat Gilil are characteristic of MPPNB settlements. Horvat Gilil, and the MPPNB levels of Jericho, 'Ain Ghazal, and Kfar HaHorish have the same overall architectural, burial, and technological systems, rectangular to sub-rectangular structures, plaster floors, sub-floor burials, generalized bipolar core production, and the use of large projectile points manufactured on large central blades from bipolar cores. The only significant differences between the occupation of Horvat Gilil, and those of MPPNB Jericho and 'Ain Ghazal, is seen in the presence / greater percentage of Helwan projectile points at Horvat Gilil and that one of the radiocarbon dates from Horvat Gilil (Gif-2370) appears to be somewhat earlier than those from Jericho and 'Ain Ghazal.

As will be discussed in a later section of this essay, radiocarbon calibration of samples from Horvat Gilil, Jericho (PPNA and MPPNB) and 'Ain Ghazal (MPPNB) indicate that it is very difficult to distinguish between the dates of occupation of these settlements, and the radiocarbon dates from Horvat Gilil fit well with those from commonly accepted MPPNB settlements. The lithic technology and architecture are clearly different from what is seen in the PPNA. Thus, I would argue that the results of the excavation at Horvat Gilil illustrate clear affinity to the MPPNB. From this perspective then, the settlement of Horvat Gilil can be interpreted as representing the early stages of the MPPNB. If one accepts that architecture and mortuary practices inform us about major cultural changes, and that specific technological systems and tool forms like Helwan projectile points transcend cultural-historical boundaries (that is to say similar point styles are found early MPPNB contexts), then the argument can be made that the occupation of Horvat Galil should be categorized as an early MPPNB occupation.

While there is a wide-range of perspectives regarding the existence of the EPPNB in the southern Levant, I believe that most researchers would agree that for archaeology sites to be accepted as type cases for a specific period of culture-history, and presumably representative of the economic, social, and technological context of this period, then these sites must meet defined criteria (specifically, data have been recovered from excavation, not surface collections, and they are dated by high resolution radiocarbon measurements that are consistent with the associated material culture) and be based upon independent data. Of the settlements implicitly or explicitly identified as EPPNB type-sites, I suggest that only Horvat Gilil meets acceptable minimum criteria levels, and therefore, can inform us on any detailed level about culture-history of the southern Levant. As noted previously, however, I believe that good arguments can be made that the materials from Horvat Gilil are representative of the MPPNB rather than the EPPNB. Regardless if one interprets the materials from Horvat Gilil as representing the EPPNB or MPPNB, it is clear that overwhelming majority of settlements commonly cited as type-sites for the EPPNB can provide researchers with no detailed understanding of the culture-historical sequence of the southern Levant.

Moreover, problems of material-radiocarbon associations at other sites (e.g., Wadi Jilat 7) make it impossible to directly use the remains from other sites to build a cultural-historical sequence in the absence of other independent data. To build such a cultural-historical foundation requires independent, well-dated, sources or the intellectual foundation for such an argument becomes tautological. For example, interpretations of the EPPNB chronological placement of some (but which?) of the Wadi Jilat 7 materials is at least partially based on perceived similarities to the material from Nahal Levan 109. Nahal Levan 109 is

indirectly dated on the basis of comparison to other undated sites, which are in turn indirectly dated by sites such as Wadi Jilat 7. On this level, acceptance of a southern Levantine EPPNB phase is based, be it implied or explicitly (e.g., Gopher 1996) upon tautological arguments and unacceptable data sets. If nothing else, the application of minimum site level criteria (Figure 2) illustrate that that further archaeological research is necessary to support arguments for a southern Levantine EPPNB phase on the basis of independent, well-dated archaeological data sets, rather than claims of affinity to sites to the northern Levant and circular arguments on the basis of undated and poorly understood archaeological data sets.

3. The chronological "gap" between the late PPNA and early MPPNB: Contrary evidence from Radiocarbon calibration

One of the key misconceptions used to support claims of an EPPNB phase is the perceived chronological "gap" between the late PPNA and early MPPNB (e.g. Goring-Morris and Belfer-Cohen 1998; Gopher 1996). Goring-Morris and Belfer-Cohen 1998:86 exemplify this perception when they note that there is "...chronological gap of ca. 200-400 uncalibrated years between the latest PPNA dates and those from the early Middle PPNB...". Gopher argues that new data have changed this when he (1996:152) comments: "The conclusion so far is that there is a time gap of some few hundreds uncalibrated C14 years between the end of the PPNA and the MPPNB in the southern Levant - and thus, it was correct to retain a slot for an EPPNB entity". Although debate continues over this perceived gap (see Goring-Morris and Belfer-Cohen 1998; Gopher 1996 for differing opinions), in a series of recent publications Gopher (1990, 1996: 152) argues that this gap is filled by several archaeology sites, most convincingly by Horvat Galil, and what he sees as the transitional PPNA and PPNB levels from Jericho. While I agree this data gap has been filled, I argue that the available evidence indicates that it is not filled by a cultural phase that is distinct from those before and after. Rather, we see that the start of the MPPNB is earlier than originally recognized. This is based on the assumption that similarities in architectural systems, mortuary practices, and the appearance of generalized bipolar core forms inform us about major cultural changes, and that variation in tool forms like Helwan projectile points are of secondary importance. Similarly, I believe that analysis of published materials from Jericho illustrate that there is no clear evidence for a transitional EPPNB level at Jericho. In fact, examination of stratigraphic, radiometric, and architectural evidence from several areas illustrate a relatively rapid transition (c. 200 year) from the PPNA to the MPPNB with no strong evidence for a chronological gap (see Kuijt 1998).

Consideration of calibrated radiocarbon samples and stratigraphic information from Jericho, 'Ain Ghazal, Zahrat adh-Dhra' 2, Tell Aswad IB, and Horvat Galil illustrate that there is good evidence for chronological continuity between the late PPNA and early MPPNB at some settlements in the southern Levant. Calibrated radiocarbon dates from Jericho and Zahrat adh-Dhra' 2 in the southern Levant indicate that the PPNA ended at approximately 8,400 B.C. Radiocarbon dated charcoal samples from several round/circular semi-subterranean structures at Jericho[2] provide a total of six radiocarbon dates that when plotted on the basis of probability on OxCal illustrate an occupation concentration centered around 8,400 B.C. (Table 3, Figure 3 and 4). Examination of the stratigraphic relationship between Pre-Pottery Neolithic house forms and their associated radiocarbon dates at Jericho Square FI outlines that the transition between the PPNA and MPPNB occupational horizons (defined by architecture and radiocarbon

dates). This demonstrates that there was a general continuity of occupations at Jericho at this period and that this transition probably occurred at around 8,400 B.C. (Figure 4). It should also be noted that this pattern of overall cultural continuity and the timing of the architectural transition is also seen in Kenyon's excavations in area M at Jericho.

Recent research at Zahrat adh-Dhra' 2 also illustrates the continuation of the PPNA up to at least 8,500 B.C. in the southern Levant (Edwards *et al.* 2001; Sayej 2001, 2002. Excavations have uncovered the remains of several oval or circular structures, a lithic technology that is generally similar to those seen at other PPNA sites, such as Netiv Hagdud (Nadel 1997) and Dhra' (Goodale, *et al.* 2002; Kuijt 2001). Radiocarbon dates, all from good contexts and on wood charcoal, include 9,323±59 (WK-9444), 9,440±50 (OZE-606), 9,470±50 (OZE-607), and 9,490±50 (OZE-605). Dovetailing with these final PPNA dates, as well as those from Jericho, the 'Ain Ghazal radiocarbon dates of 9,100±140 (AA-1164), 9,030±80 (GrN-12960), 9,200 ±110 (GrN-12966), and 9,050 ±80 (GrN-12965) indicate that the earliest occupation during the MPPNB occurred at around 8,400 B.C. (Rollefson *et al.* 1992). Needless to say, it should be kept in mind that all of these radiocarbon samples provide a range of possible dates based on statistical probability within which this transition occurred. Nevertheless, when viewed collectively, they illustrate a recurring pattern, based on associations between different architectural forms and radiocarbon samples, that outline that in select areas of the south-central Levant region the architectural transition occurred at around 8,400 B.C.

4. Discussion

Beyond the paucity of clearly dated and excavated sites used to support arguments for a EPPNB phase, I am also concerned that current cultural-historical debate on the EPPNB is almost entirely centered on consideration of chipped stone typology. Among researchers today discussion, definition and justifications for the EPPNB do not center on understanding broader economic and social changes within Neolithic behavior. In many ways the southern Levantine EPPNB has been exclusively defined as a technological adaptation (e.g., the presence or absence of Helwan projectile points and generalized bipolar core technology), with limited reference to economic and social dimensions rooted in archaeological data. From this perspective we are forced to return to the question of how are we to defined cultural-historical systems, and just as importantly, are archaeologists employing the same criteria with the same interests (the grand social-economic cultural-historical transition vs. technological developments in stone tool manufacture).

Ultimately the critical question is what criteria should be used to define different phases, and how different do they have to be to be given a different label? Based on available data from archaeological sites that met minimum standards for acceptance as case studies (defined by Horvat Galil, for example), I believe that there even if one accepts arguments for an EPPNB phase this cultural manifestation does not differ from what we see for the early MPPNB.

To make this argument let me take the opposing side of the argument I have been making in this paper. Let us assume that:

1) there is sufficient well-dated (radiocarbon dated) evidence for an EPPNB cultural-historical phase in the southern Levant,

2) we have correctly identified that Helwan points are discrete in time and space and that these are undisputed hallmarks of the EPPNB period,

3) we can substantiate this by radio-

carbon measurements from the only clearly dated possible EPPNB sites of Horvat Galil and Tell Aswad IB.

Even if we accept all these assumptions, what do we know about the "EPPNB period" and how does this manifestation differ substantially from the MPPNB other than through a greater percentage of Helwan projectile points? The architectural and mortuary evidence from Horvat Galil is quite similar to that seen at such accepted MPPNB settlements as Kfar HaHoresh or Yiftahel. The architecture is rectangular / semi-rectangular and with plastered floors at Horvat Galil, Jericho and 'Ain Ghazal. People at these settlements all employed generalized bipolar core technological systems and manufactured large projectile points. From the standpoint of lithic technology and architecture people in these sites engaged in very similar practices.

Finally, calibrated radiocarbon samples (Table 3, Figures 4 & 5) illustrate that the occupations of Tell Aswad IB, Horvat Galil, and the Jericho samples (phases VIII-IX) are very close in time with available PPNA dates being just before early MPPNB dates. So if there is no chronological "gap", if these people used the same architectural systems, buried their dead the same way, relied on similar subsistence systems, used generalized bipolar core reduction and are remarkably similar on all levels of material culture (with the exception of people producing and using more Helwan projectile points other than some other types), then what grounds are there for defining them as being from a different cultural-historical phase? Ultimately the question that I am asking is what substantial subsistence, architectural, or mortuary evidence do we have to demonstrate that these manifestations are sufficiently different from the MMPNB occupations of 'Ain Ghazal, Jericho and Kfar HaHoresh to warrant the construction of a different cultural-historical phase?

Consideration of all other phases of the PPNB, as well as arguments for a final PPNB or PPNC phase, are based on demonstrated major observable changes in architecture, mortuary practices, subsistence practices and stone tool technology. Why should we use different acceptance criteria for defining the EPPNB than we used for defining the Final PPNB / PPNC? I argue that we need to employ the same criteria when looking at these cultural-historical units, and that as currently articulated, arguments for the EPPNB are tautological, based on poor data, and unnecessarily lose track of the broader behavior and evolutionary picture (presumably two of the major goals in constructing cultural-historical schemes) by prioritizing relatively minor typological change in specific tool forms.

Needless to say, this critique of the EPPNB as a cultural-historical framework raises a number of issues. First, is the question of what kinds of material culture can / should be used for developing cultural-historical sequences. Along these lines I am assuming that the technological transition from single platform core to generalized bipolar core systems is more important in helping us understand the transition from the PPNA to the PPNB than the typological classification of Helwan projectile points. As one of several types of large projectile points manufactured on large blades from generalized bipolar cores, Helwan points appear early in the PPNB sequence. It may be, moreover, that these projectile points are manufactured in greater frequencies in the northern areas of the southern Levant compared to other areas. Understanding the broader pattern of spatial and temporal distribution on the basis of excavated and radiocarbon dated settlements from a range of ecological contexts is clearly critical to resolving the cultural-historical definition of the EPPNB.

Second, I believe that currently there are insufficient data to support arguments for a pan-southern Levantine cultural-historical transitional unit between the PPNA and MPPNB. Having noted this, I believe that future research may illustrate variation in the timing of new ways of life in specific ecological or cultural regions. This is clearly demonstrated when considering variation in the pathways to different forms of architecture in desertic areas, and the fact that in some areas circular and rectangular architectural systems co-existed in different areas. It is entirely possible that we will see the same thing within micro habitats (e.g., highland adaptations taking longer than in the Jordan Valley than major valley areas) in the southern Levant for different economic, technological, and architectural systems in the same period of time. In this case there may be solid ground for arguing for the brief co-existence of different cultural systems in different geographical areas. Such an argument must be, however, based on demonstration of clear contemporarily of occupation (based on radiocarbon dating) and clear differences in material culture, such as architecture and stone tool technology. In short, such an argument must be based upon the same robust site acceptance criteria applied to other archaeology sites.

Finally, it is necessary to consider the implications of these results vis-à-vis our understanding of the Neolithic of northern areas of the Levant, such as northern Syria and Turkey. Strong arguments have been made for the existence of a transitional EPPNB phase at Çayönü, Jerf el Ahmar, and Tell Mureybet. These highlight the evolution of generalized bipolar core reduction as well as true naviform core reduction several hundred years before it is found in the southern Levant. In some cases this technological package appears to be associated with multiple types of architecture, such as a Jerf el Ahmar (Stordeur 2000; Stordeur and Abbes 2002). While the nature of this association has yet to be fully defined, this appears to be something very different from what is seen in the southern Levant. It represents, moreover, an earlier appearance of opposable core forms than seen in the southern Levant. This clearly raises the possibility of these technological systems rapidly diffused into southern areas several hundred years after appearing in the northern Levant (see Gopher 1994 for further discussion of this). If this pattern is supported by future research, it will be necessary to consider if this is representative of the inter-regional sharing of technologies and social practices, the movement of people from one area into another, or some combination of the two. Whatever the answer to this question, it is clear that future research will be necessary to fully understand the connections and process of diffusion between Anatolia and the southern Levant.

In sum, arguments for a pan-Levantine EPPNB cultural-historical temporal unit are undermined by several issues: a) radiocarbon evidence outlining a PPNA occupation up to approximately 8,500 B.C. at Jericho and Zahrat adh-Dhra' 2 ; b) radiocarbon evidence outlining the start of the MPPNB occupations just after this point at Jericho and 'Ain Ghazal; c) the lack of definitive radiocarbon and stratigraphic data from Tell Aswad level IB; d) the logical fallacy that the existence of a EPPNB phase in the northern Levant supports arguments for a similar entity in the southern Levant; and e) the lack of radiocarbon-dated single component settlements with clear stratigraphic association of architectural forms and stone tool technology. On the basis of these problems, and drawing upon new radiocarbon calibrations, I believe that the most plausible interpretation of the available data is that the cultural transition from the PPNA to the MPPNB was quite rapid, and probably occurred at around 8,400 B.C. within large early agricultural settlements situated

along the Jordan Valley between Damascus and the Dead Sea. To understand why and when this transition occurred in different ecological areas, as well as if the changes in the archaeological record are sufficient for a totally different cultural designation, it will be necessary for researchers to focus upon the description, analysis, and radiocarbon dating of occupational horizons of individual settlements in the southern Levant. Such data, if accompanied by clear stratigraphic analysis, chronometric control and associated architecture, will hopefully avoid the logical problems currently plaguing arguments for existence of an EPPNB phase and allow researchers to debate the more important question of when is there sufficient cultural and material differences to employ different cultural-historical labels.

Acknowledgments

It is hoped that this essay will be taken in the spirit that it is intended: as a serious consideration of archaeological data sets and how we as archaeologists organize these data sets, not as a personal affront to individuals who have a different perspective on the arguments presented in this essay. Critical evaluation of old and incorporation of new data is critical for the development and on-going refinement of cultural-historical schemes so that these schemes are consistent with our available archaeological data. I hope that this essay contributes to this process of reflection and at the same time maintains a spirit of collegiality and friendship. This essay draws upon conversations with many researchers over many years and has been supported directly and indirectly by numerous sources of funding. Most importantly this research has been directly supported by a travel and research grant from the Institute for Scholarship in the Liberal Arts at the University of Notre Dame that made it possible to discuss this research with members of the CNRS in Vallbonne, France, and members of the Prehistory Department of the University of Istanbul, Istanbul, Turkey over February-March 2002. The core of this essay emerged while visiting archaeologists at these institutions with a draft being produced while sitting in seat A-35 on an Air France flight from Paris to Chicago. D. Binder, Y. Garfinkel, O. Bar-Yosef, B. Finlayson, N. Goodale, G. Rollefson, D. Baird, A. Belfer-Cohen, N. G. Morris, G. Sayej, A. Garrard, M Chesson, and several anonymous reviewers provided critical comments on this essay and have been instrumental in the development and shaping of the arguments put forward in this essay. I have tried to address the comments and critiques of these reviewers, or conversely, clarify my arguments, and to accurately represent the opinions of others. Due to other professional commitments, and in a few cases disagreement with the main arguments of this paper, several researchers declined to review and comment on this essay. I am especially grateful to G. Rollefson for providing detailed comments on this paper, for his on-going and noble attempts to turn my words into English, and for serving as a critical and diplomatic foil for the arguments presented in this work and a long list of others over the last few years. While not agreeing with some / most of the concepts and interpretations presented in this manuscript, the constructive, and at times lively, debate with Gary and the rest of these individuals has immeasurably improved the clarity and organization of this paper.

NOTES:

1 . Readers are referred to the following for more detailed considerations of chronological-historical sequences for the southern Levant (Bar-Yosef 1981; Bar-Yosef 1991; Cauvin 1977; Gebel 1987; Kuijt and Bar-Yosef 1994; Rollefson 1989; Rollefson et al. 1992) (Figure 1).
2 Trench I, stage VI, structure BA phase DI x-xi; structure CA; and; stage VIIIa, structure AR

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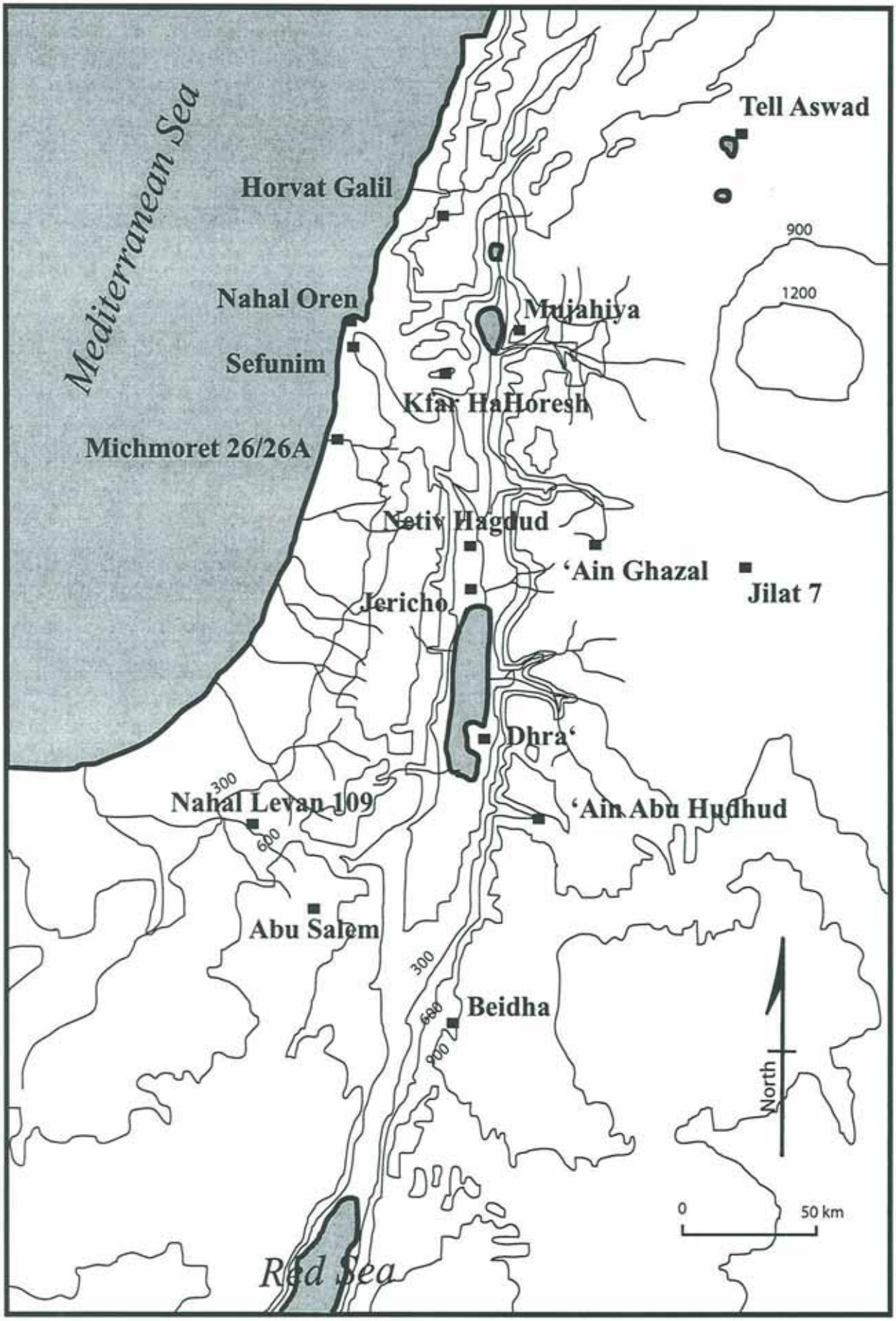

Figure 1. Location of Neolithic sites discussed in this paper.

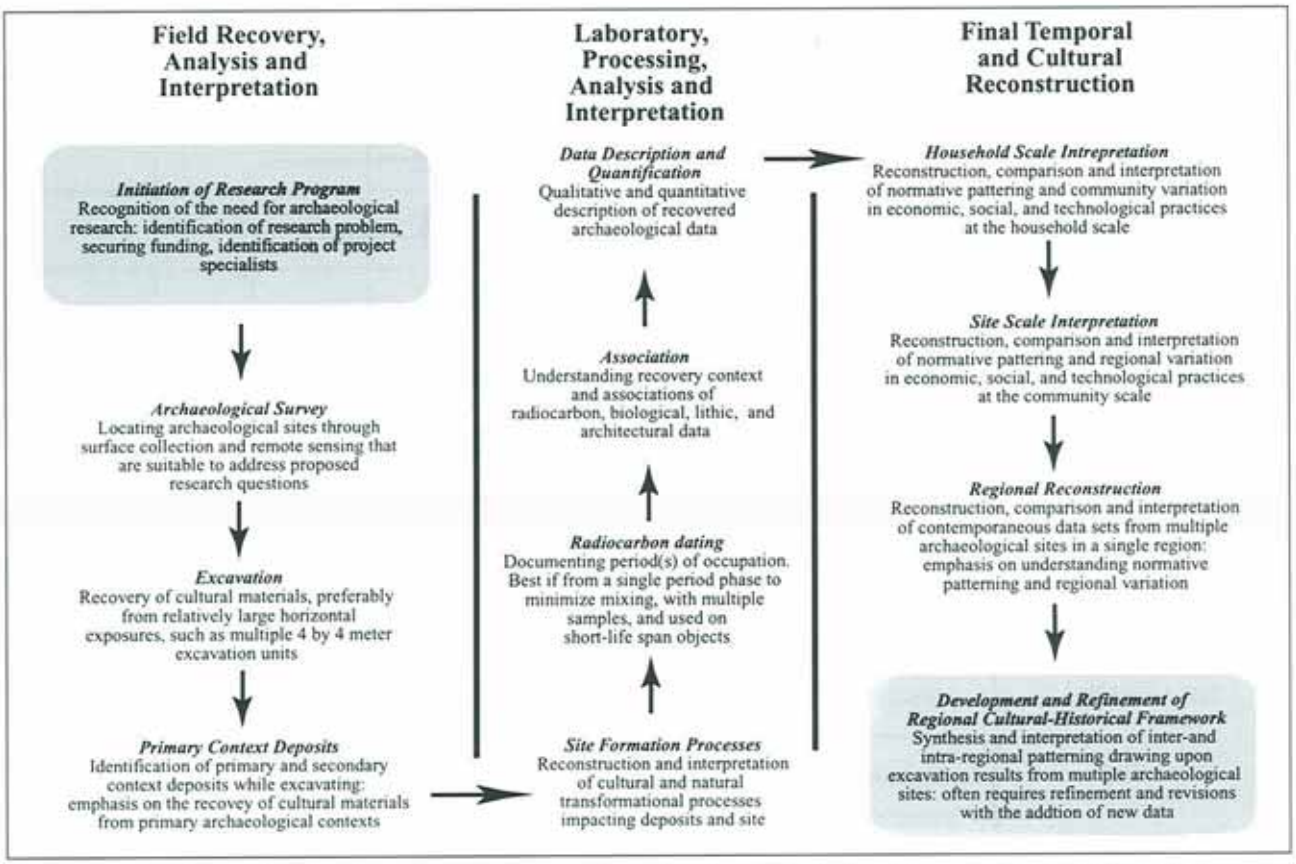

Figure 2. Pathway for the development of regional cultural-historical frameworks highlighting necessary research stages

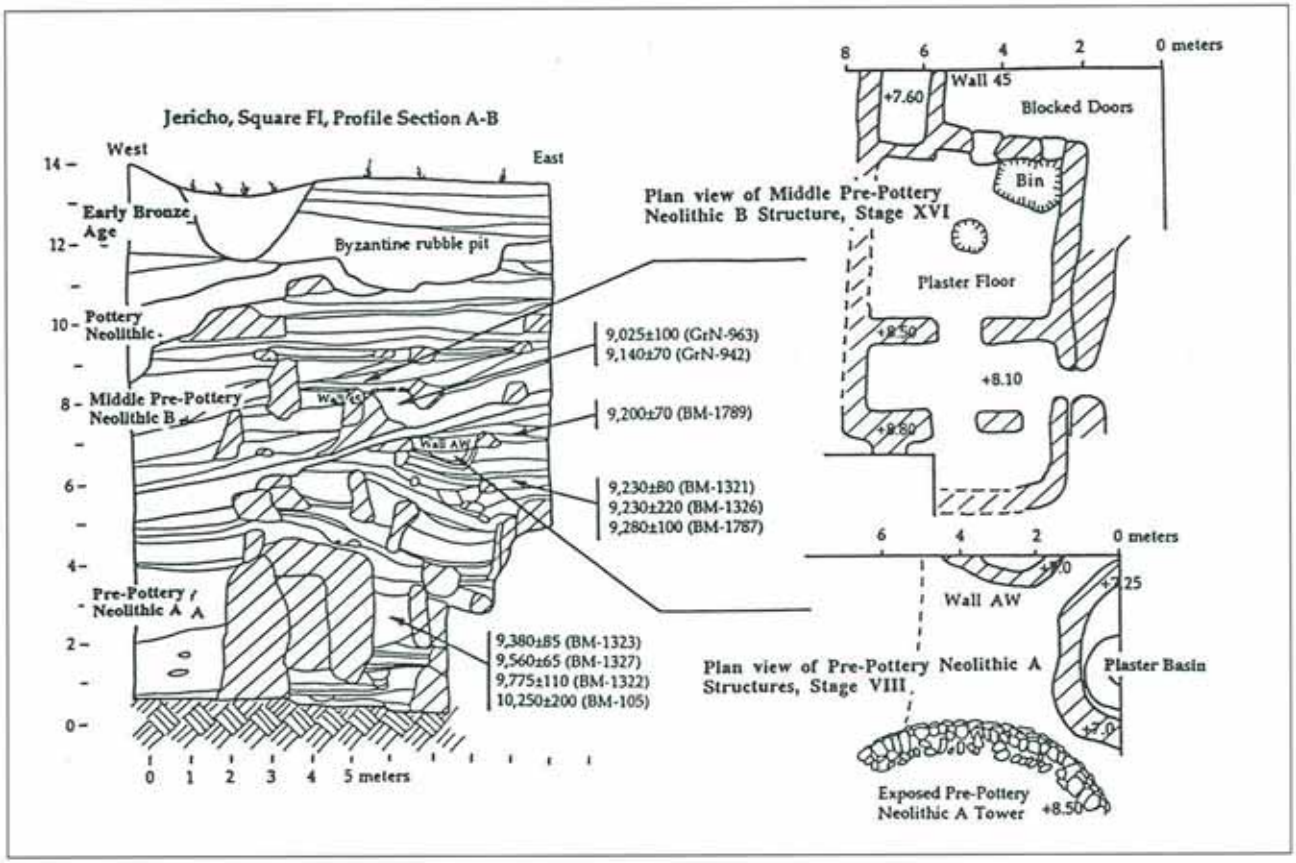

Figure 3. Cross-section of Trench I, Jericho, stratigraphic placement of radiocarbon dates, and associated plan views of PPNA and MPPNB structures.

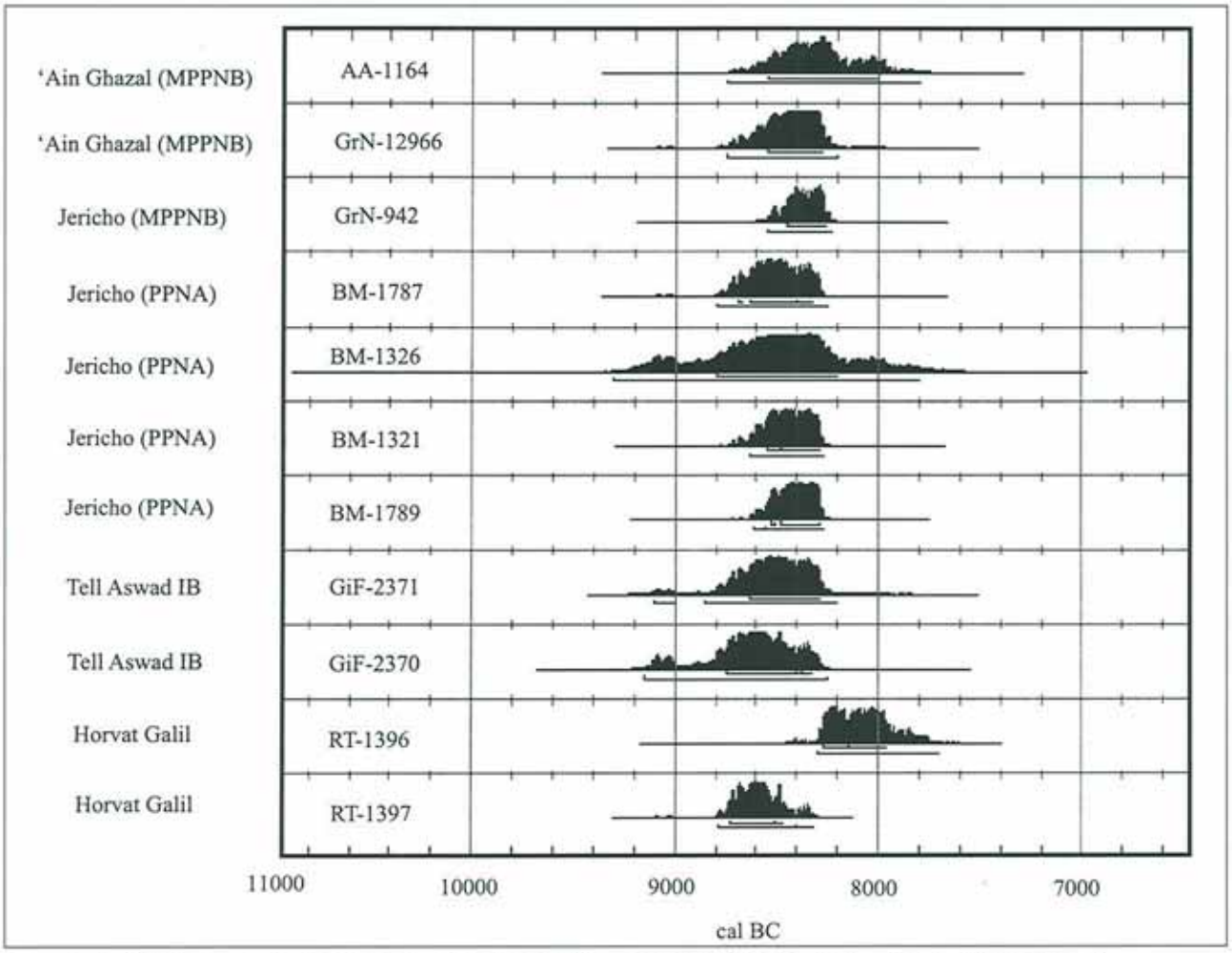

Figure 4. Calibrated Radiocarbon plots for PPNA and MPPNB samples from 'Ain Ghazal, Jericho, Tell Aswad IB, and Horvat Galil (From OxCal)

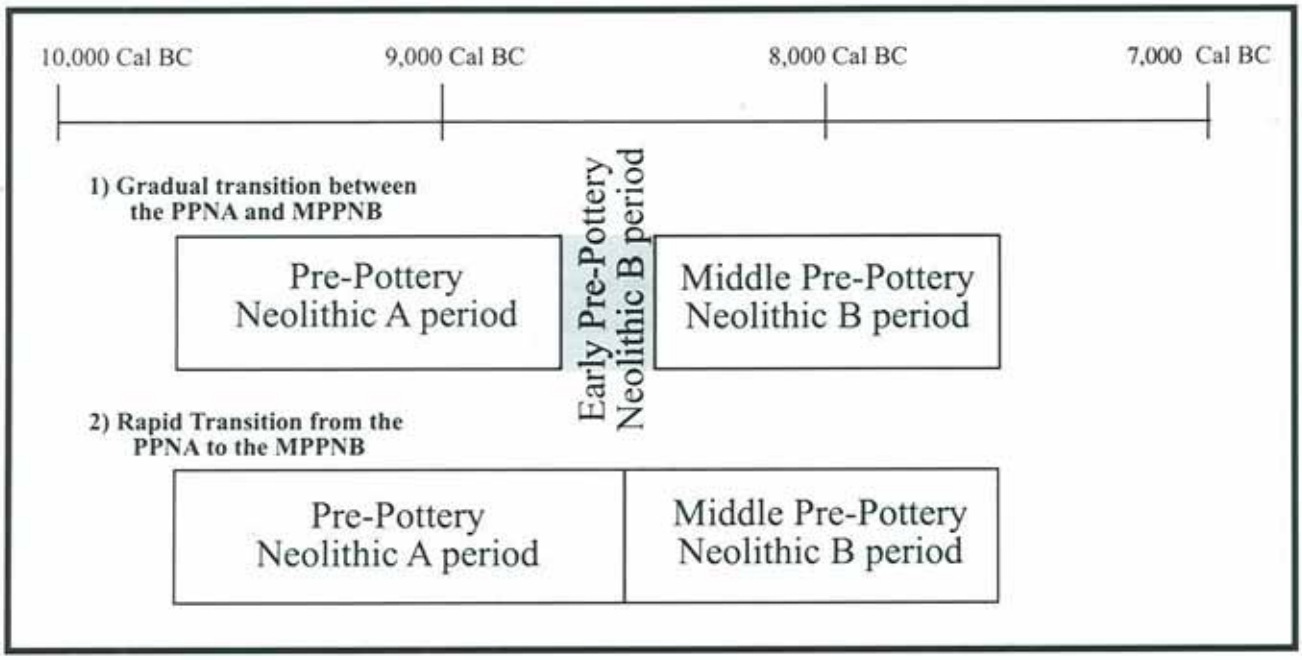

Figure 5. Alternative models for the transition from the Pre-Pottery Neolithic A to the Middle Pre-Pottery Neolithic B phase in the Southern Levant

Site	Site type	Excavation	Absolute dating	Architecture	Concerns	References
Mujahiya	Open air	Yes	None	Oval-circular	Undated excavated collection. While identified as EPPNB this collection may well have PPNA materials as well.	Gopher 1990, 1996
Horvat Galil	Open air	Yes	Yes	Rectangular	Many aspects of material culture could fit in the MPPNB, other than percentage of projectile points there are no substancial differences from MPPNB assemblages	Gopher 1994, 1996
Aswad I A/B	Open air	Yes	Yes	None	Context and stratigraphy unclear. Limited horizontal exposure	De Contenson 1995
Sefunim	Cave	Yes	Yes	None	Cave, multiple occupation periods, with high probability of mixed deposits	Ronen 1984
'Ain Abu Hudhud	Open air	None	None	Oval-circular & Rectangular	Undated surface collection with unknown context	Rollefson 1996
Nahal Lavan 109	Open air	None	None	None	Undated surface collection with unknown context and likely with deflation of cultural materials	Burian et al. 1976
Michmoret 26 / 26A	Open air	None	None	None	Undated surface collection with unknown context and likely with deflation of cultural materials	Burian and Friedman 1965
Wadi Jilat 7	Open air	Yes	Yes	Oval-circular	Muliple periods of occupation and C14 dates do not appear to be related to excavated cultural materials	Garrard et al. 1994
Abu Salem	Open air	Yes	None	Circular	Undated excavated collection	
Nahal Oren	Open air	Yes	None	Not clear	Undated, multiple occupation periods, highly turbated with complex stratigraphy	

Table 1. Type sites for an Early Pre-Pottery Neolithic B cultural-historical phase, southern Levant (based on Gopher 1996 and Rollefson 2001).

Site	Date	Sample Number
'Ain Ghazal	9,100 ± 140	(AA-1164)
'Ain Ghazal	9,200 ± 110	(GrN-12966)
Jericho	9,140 ± 70	(GrN-942)
Jericho	9,280 ± 100	(BM-1787)
Jericho	9,280 ± 220	(BM-1326)
Jericho	9,230 ± 80	(BM-1321)
Jericho	9,200 ± 70	(BM-1789)
Tell Aswad IB	9,320 ± 120	(Gif-2371)
Tell Aswad IB	9,390 ± 120	(Gif-2370)
Horvat Galil	9,000 ± 100	(RT-1396)
Horvat Galil	9,390 ± 70	(RT-1397)

Table 2. Uncalibrated wood charcoal radiocarbon samples from 'Ain Ghazal, Jericho, Tell Aswad and Horvat Galil plotted in Figure 4.