

# **Sociopolitical Discontinuity in the Near East C. 2200 B.C.E.: Scenarios from Palestine and Egypt**

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## **Abstract**

Between about 2300 and 2000 B.C.E. there was widespread sociopolitical devolution in the Near East. Tell Leilan, the particular case in point, was abandoned after deposition of volcanic tephra. Analogs from the Mt. St. Helen's eruption of 1980 suggest that a volcanic dust mantle would have serious biological repercussions, but that recovery would take only years, at most decades. There is no case for a global event, let alone for a "volcanic winter." The local evidence for an incisive and protracted "dry" anomaly is inconclusive, and examination of a wide range of paleoclimatic proxy records fails to support an abrupt climatic shift to greater aridity affecting the Near East and Aegean world between 2400 and 1900 B.C.E. Settlement records to the east, west, and northwest of Leilan are inconsistent; in two cases the settlement network expanded rapidly after the Leilan collapse, in another, sites were abandoned at about the same time. This is incompatible with a major climatic shift and demands exploration of more complex, alternative hypotheses to explain sociopolitical devolution.

The main thrust of this paper is an in-depth examination of devolution in Old Kingdom Egypt and Early Bronze Palestine, regions closely linked by a contentious complementarity. New evidence from Egypt and East Africa shows that the Nile floods were relatively low after 2900 B.C.E., with a brief minimum around 2200 B.C.E.; thereafter floods were exceptionally high 2150-1900 B.C.E. Examination of the historical record suggests that Old Kingdom collapse was unrelated to Nile failure, but preconditioned by decentralization, dynastic weakness, and a shift of wealth and power to several provincial centers during Dynasty 6 (c. 2380-2230 B.C.E.); royal power, anchored in part on the trade monopoly with Syria (e.g., timber, wine, olive oil imports), was devastatingly undercut c. 2300 B.C.E. by Akkadian conquest of the Egyptian entrepot Byblos, with anarchy and then civil wars prevailing in Egypt for almost two centuries after c. 2240 B.C.E.

In Palestine, Early Bronze developments saw a string of prosperous, fortified towns emerge along the hilly margins of the coastal plain. Their wealth was based on wine and oil production, much of it exported to Egypt. Parts of the coastal plain began to be abandoned c. 2700 B.C.E., compensated by clusters of larger towns elsewhere; general depopulation was underway two centuries later, and the last towns fell about 2400 B.C.E., some of them patently destroyed. Two Egyptian military campaigns against this part of Palestine are actually recorded c. 2370-2340 B.C.E., the second specifying large-scale destruction. About 2300 B.C.E. parts of Syria were also ravaged, perhaps by Sargon of Akkad. The ensuing Early Bronze IV of Palestine (c. 2300-2000 B.C.E.) was marked by de-urbanization and agricultural disintensification, but contrary to older assumptions, there is little or no evidence for a shift to pastoralism, let alone for settlement by invading pastoralists. Analogs from elsewhere in the Mediterranean region show how transhumant pastoralism was traditionally practiced from farming villages, as a complementary strategy; when villagers were forced to seek refuge in defensible hill sites, they continued to cultivate vineyards and olive groves on a smaller scale, despite a lack of urban demand. The Early Bronze IV bioarchaeological evidence now accumulating shows that household pig-raising and plow-oxen remained as prominent as before, that sheep/goat-herding did not increase, and that grapes and olives continued to be cultivated -- all demonstrating agronomic continuity in a ruralized setting, until the Middle Bronze urban revival.

In conclusion, it is argued that the Early Bronze Age represented a politico-economic network ("world-economy") that functioned as a set of subsystems, the prosperity of the whole dependent on unimpeded flows of energy and information from Spain to the Indus Valley. Rampant militarism eventually weakened the whole, impoverishing its component parts, and allowing political simplification. As the system was restructured, renewed urbanization and intensification are evident. Climatic change can indeed be examined as one potential variable in such a multi-dimensional, systemic network. But climatic change cannot be treated in isolation, divorced from its historical, structural, and regional context.

### 1.1 The Problem of Sociopolitical Discontinuity

The rise and fall of "high civilizations" have long intrigued the human imagination. Already the ancient Egyptians recognized the continuity of their 2500-year history,

while at the same time grasping its cyclic evolution, when the priest Manetho (c. 300 B.C.E.) divided Egyptian history into 30 dynasties, arranged into three "books"-- representing the crests of political power that we now know as the Old, Middle and New Kingdoms (see Waddell 1956). When Edward Gibbon published the first volume of *The History of the Decline and Fall of the Roman Empire* in 1776, he touched a nerve among Western thinkers who began to confront the instability of their own civilization (Bowersock 1996). Borrowing from the social darwinism of Spencer (1876), Oswald Spengler (1926) viewed societies as organisms with an inevitable life cycle of youth, maturity and decay. In a less deterministic manner, Toynbee (1934) emphasized the role of creative individuals in the growth of civilizations, and attributed breakdown and disintegration to the failure of creative power among the dominant elite, to alienation of the masses, and to pressures of foreign peoples. Similar themes are echoed by Cowgill (1988) in his analysis of collapse.

Clarke (1968) reformulated the model of birth, growth and death as "culture system ontogeny," with formative, coherent, and postcoherent stages, recognizing that a society is an interdependent system of specialized parts. But the analogy has severe limitations, since sociopolitical systems are far less stable than cultural ones and, unlike the inevitable senescence implicit to ontogenetic models, systems are simplified through equilibrium shifts, related to chance concatenations of inputs and complex feedback loops (Butzer 1980). Without belaboring systemic analogs, it bears noting that human ecosystems (Butzer 1982) are "open", liable to both external inputs and internal (evolutionary or disjunctive) change.

### 1.2 The Tell Leilan Collapse

One of the more intriguing questions of macro-historical study is the apparently synchronous nature of political collapse across large areas. The earliest, recognized phenomenon of this type dates between perhaps 2300 and 2000 B.C.E. The Aegean world and much of the Near East were engulfed in a "time of troubles" that terminated the Early Bronze Age. Many if not most urban sites from the Balkans to Mesopotamia and Palestine were abandoned, destroyed, or much reduced in size. Early states such as the Akkadian Empire and Old Kingdom Egypt collapsed c. 2230 B.C.E., Troy II was destroyed, and the Indus Valley civilization came to an end. Mysterious invaders, such as Indo-Europeans or Semitic pastoralists, have long been

conjured up (in two waves, where necessary) to explain these widespread discontinuities, with some sort of climatic deterioration suspected or invoked to explain their apparently synchronous nature (Bell 1971).

The problem is that the late third millennium is barely within the pale of historical records in Egypt and Akkad, while elsewhere we are entirely dependent on archaeology. Yet cause-and-effect relationships are complex, and multicausal explanations are difficult enough in well-documented, contemporary contexts. For historical examples, such arguments become increasingly inferential, since external triggering mechanisms may be more conspicuous than a complex web of underlying socioeconomic problems, typically accentuated by political factors or events. Direct, contemporaneous testimony is unavailable in prehistoric settings, and one can rarely do more than correlate a potential explanatory factor with population shifts or political disjunctions; possible concatenations of variables can seldom be deciphered, so that "conclusions" are little more than models, generally not amenable to satisfactory testing.

Recently, Harvey Weiss and Marie-Agnes Courty (Weiss et al., 1993; Courty and Weiss, this volume) have proposed that an abrupt increase in aridity c.2200 B.C.E. caused not only abandonment of the North Mesopotamian Plain, but also the fall of the Akkadian Empire and synchronous political collapse in adjacent regions. The argument can be summarized as follows. It is based on excavation of the large urban mound of Tell Leilan and examination of other sites on the alluvial plain of a tributary to the Khabur River, in northeastern Syria. Severe and persistent drought is invoked--as an abrupt climatic change--to explain the abandonment of Leilan and adjacent urban tells, located in what is now a marginal environment for rain-fed agriculture. Abandonment of these large towns, forming part of the Akkadian imperial state, signaled agricultural ruin of a key province, to cut state revenues at a time of declining Euphrates discharge in the Akkadian heartland (see Kay and Johnson 1981). The state crumbled and "nomadic" groups moved in. The presence of wind-borne volcanic glass shards at Leilan and adjacent sites is attributed to the cataclysmic eruption of a volcano in Anatolia, possibly causing a "volcanic winter" that destabilized global climate (Weiss et al. 1993; Courty 1994). This is the prime mover invoked to explain political devolution in Syria-Mesopotamia, "synchronous with climate change and collapse in the Aegean, Egypt, Palestine, and the Indus" (Weiss et al. 1993: 1002).

Presented in logical steps and with care, this argument must be taken seriously. Although circumstantial hypotheses for causation cannot be "proven" to be correct, it may be possible to test the validity of supporting data. Specifically in the case to point: (1) Are the empirical climatic data valid? (2) If so, was the climatic anomaly effective and synchronous across the area in question? and (3) Did sociopolitical unrest or collapse everywhere follow upon climatic change, in a form consonant with greater aridity?

If the answers to these questions are unsatisfactory, the next logical question is whether archaeological and historical sources provide demographic, socioeconomic and political information to support alternative hypotheses. After concluding that there is no evidence for synchronous and incisive climatic change during the late third millennium, the present study examines the many threads of devolution in Egypt and Palestine in seeking a more complex understanding of the crisis of the late third millennium.

### 2.1 Palaeo-Environmental Evidence: the Khabur Plains

Local palaeoclimatic evidence to support the "Leilan Collapse" is based primarily on pedogenetic properties and changes over time, in floodplain exposures of the upper Khabur River. The background study relies on successive archaeological associations rather than radiometric dates to identify a sequence of sedimentary units (Courty 1994). Sedimentological relationships and properties are downplayed in favor of selected microscopic analysis of sedimentary particles and post-depositional alteration. For some centuries prior to the collapse, fluvial dynamics were already marked by semiarid aggradation of a braided channel, incorporating wind-derived materials (pelletal sands), the sediments then altered by subarid soil processes. As I understand it, the silt-sized volcanic glass (5 to 25 microns) on top of third millennium settlement strata at Leilan are also found in mixed eolian-colluvial strata that rest on the previous soil, in other floodplain exposures representing similar stratigraphic positions (Courty 1994). Some 30cm of fine sands and coarse pelletal sands, mixed with fine glass shards and silt, begin the standard sequence; they suggest alternations of blowing sand and reworking by heavy rain spells amid degraded vegetation. The next 30cm include much finer materials of similar composition, representing eolian dust, also reworked by heavy rains. The final 40cm are once more coarse-grained and include gypsum particles, attributed to local deflation by wind.

The settlement hiatus at Leilan is therefore linked with devegetation and biological aridity. Modern analogs can be sought 200 or 400 km downwind of the more familiar, ash-spewing eruption of Mt. St. Helens in 1980, when 2 to 3.5 cm of volcanic dustfall of similar grain size blanketed or choked vegetation along the main dispersal axis in eastern Washington state (Carey and Sigurdsson 1982). Of course, the parameters of distal tephra accumulation vary widely from one volcanic explosion another (Carey and Sparks 1986), but this example provides a sense of what is involved. The impacts of Mt. St. Helens on agriculture varied according to crop and the stage of growth (Rosenfeld and Cooke 1982: 74-77; Lyons 1986), and plant recolonization was rapid (Franklin et al. 1985). Biological recovery in the semiarid climate of the Khabur Plains would be slower, so that wind and water could be expected to rework loose sediment on floodplain surfaces for years and perhaps decades—but not centuries. The post-Leilan strata appear to represent a volcanic and edaphic horizon, documenting a catastrophic biological event, rather than an abrupt climatic change in the strict sense of the word. Stream behavior immediately after that event (see Courty 1994: Figs. 10, 13-15) did not change notably, except for a much greater sediment supply. Critical is that a thin mantle of volcanic silt, spread out over the farm lands of a marginal environment, might destroy a staple crop, although the psychological trauma of an unfamiliar natural calamity may have been far more effective in provoking abandonment than actual agricultural losses.

The scenario of a "volcanic winter" finds no support. There is no evidence of a globally effective eruption in this general time range from the published ice corings from Greenland (Hammer et al. 1980), and deep-sea cores in the eastern Mediterranean fail to record volcanic materials from this period (Guichard and Courty, this volume). The Leilan volcanic glass represents a regional, not a global event; its tangible environmental impact would have been limited to the direct biological repercussions of a dust and ash mantle, rather than an indirect response to stratospheric aerosols, such as those released in more recent times by Tambora, Krakatoa, or Pinatubo. A better picture of the impacts of a regional volcano may eventually emerge from reexamination of the potential effects of the eruption Thera (Santorini) in the Aegean c. 1628 B.C.E. on proxy records for Near Eastern vegetation (see Roberts et al., this volume; Bottema, this volume).

The regional settlement records immediately east and west of the Khabur Plains are also not consistent with that around Leilan, as might be expected if either climate or

vulcanism was a prime, forcing agency. An archaeological survey to the east, in the northern Jazira of Iraq, with an identical ecology, showed a growth of urban centers at the expense of smaller settlements during the course of the third millennium (early to mid-Early Bronze Age [EBA]); subsequently these towns continued to be occupied but the number of satellite villages expanded (late Early to early Middle Bronze [MB]) (Wilkinson 1990). To the west, the survey of the ecologically comparable Carchemish-Birecik sector of the middle Euphrates, north of the Turkish-Syrian border, reveals that settlement actually reached a nadir during the early to mid-EBA, contemporary with exponential growth at Leilan, rebounding strongly during the late EBA to early MB; few of these sites are located on floodplains, but the riverine town of Carchemish in northern Syria expanded greatly after the collapse of Leilan (Algaze et al. 1994). A little upstream along the Euphrates, in the more humid area of the Atatiirk Reservoir, the picture is reversed, with growth and decline paralleling that at Leilan (Algaze et al. 1992). Similar inconsistencies are apparent in Syria west of the Euphrates River (Matthiae 1993). Without the benefit of site-specific excavations, archaeological surveys are too coarse and generalizing to provide hard answers. But such contrasting patterns of demographic and urban growth or decline do not support an environmental hypothesis. Instead they suggest a productive avenue of exploration into shifting politico-economic constellations, complemented by micro-studies of socioeconomic change (e.g., Wattenmaker 1994).

## 2.2 The Palaeoclimatic Record c. 2400-1900 B.C.E.: the Near East

The most intriguing evidence for accentuated aridity in the wider area comes from the Anatolian headwaters of the Tigris and Euphrates rivers. The bottom sediments of Van Gölü, an endorheic lake, have been studied through a series of disconnected ("floating") cores (Degens et al. 1984). The cross-correlations appear to be good, judging by the "best" match between vegetation trends documented in a radiocarbon-dated pollen core from an adjacent mountain bog (at Sögütlü, Van Zeist and Bottema 1991: Fig. 18) with both the pollen record and  $^{18}\text{O}$  isotope trace from the varve-dated "floating" cores taken in the lake (see Van Zeist and Bottema 1991: Fig. 17; Schoell 1978). Enrichment of  $^{18}\text{O}$  in Lake Van implies reduced dilution of lake water by precipitation, presumably accompanied by shrinking lake volume (Lemcke, this volume). The isotope trace indicates a pronounced dry spell c. 2350-2075 B.C.E., with positive  $^{18}\text{O}$  deviations of up to 1.40, compared with negative deviations before

2500 and after 2075 B.C.E. (Shoell 1978: Table I). That indicates an initially slow trend, culminating c. 2220 B.C.E., then reversing within about 150 years, in short, not an abrupt change.

Assuming that the Lake Van trace is valid, modern climatic analogs in the region (Kay and Johnson 1981) imply greater aridity across eastern Anatolia and the adjacent Khabur Plains, as well as reduced Euphrates discharge in Mesopotamia. That may help explain increasing salinization and declining crop productivity in Lower Mesopotamia 2350-1850 B.C.E., but the temporal overlap is only partial, and this particular problem has been satisfactorily attributed to intensified cropping without benefit of fallow, a perennial problem in the area (Adams 1981: 151-52).

An arid climatic trend such as that implied by the isotopic chemistry change in Lake Van should leave an imprint on regional vegetation, for which a reasonably tight grid of pollen cores provides proxy records. Curiously enough, that is not the case (Bottema, in this volume).

The key examples can be discussed briefly, by calibrating  $^{14}\text{C}$  years to calendar dates (after Stuiver and Becker 1993) to calculate sedimentation rates between the limited numbers of radiometric dates, and then to interpolate or extrapolate to identify the pollen traces for c. 2400-1900 B.C.E. For Lake Zeribar in the Iranian Zagros there was an abrupt decline of oak and other tree pollen (by 40%), compensated for by grass and other herbaceous pollen, reversing a long-term trend of forest colonization by some 500 years (see Van Zeist and Bottema 1991: Fig. 14). But the switch can only be dated approximately, after 2200 and before 1950 B.C.E. In the case of the cores from Lake Van and nearby Söğütü (Van Zeist and Bottema 1991: Figs. 17-18) there is no distinctive trend or oscillation in our selected time range, which is surprising, to say the least. To the west, there is the Beyşehir I profile, in south-central Anatolia, where there is no evidence of vegetation change, just as in the Ghah III coring, northwestern Syria (Van Zeist and Bottema 1991: Figs. 23 and 36).

In a more southerly direction, the Lake Huleh core in northern Palestine shows an abrupt decline of arboreal pollen, but at an interpolated date of roughly 2000 B.C.E. (Van Zeist and Bottema 1991: Fig. 37). The Lake Kinnereth core records a modest increase of deciduous oak at the expense of olive, in the time frame c. 2450-1900 B.C.E. (Baruch 1990), but comparison of the oxygen and carbon isotope curves with those from tightly dated speleothems in Upper Galilee (Issar, Geyh, et al. 1992: Fig. 2) suggests that this part of the pollen profile should be some 400 years older. The

speleothem isotopes imply a drying or warming climate c. 2450-1900 B.C.E., followed by a sharp reversal (Geyh 1994), but the level of the Dead Sea was relatively low throughout the period c. 2500-1400 B.C.E., following a high stand during the first half of the Early Bronze (Frumkin et al. 1994; see also Donahue et al. n.d.).

The ring of palynological control points can be amplified from further afield, in other areas affected by sociopolitical discontinuity. Notably, pollen cores from northwestern Anatolia (Beug 1967), Macedonia and Thessaly (Bottema 1985), Epirus (Willis 1992), Dalmatia (Jahns 1991), and the Peloponnese (Jahns 1993) yield no evidence for climatic variation at the end of the third millennium.

In effect, the substantial body of palynological data does *not* support an abrupt climatic change, with an amplitude of several centuries, and of regional significance. Lakes Zeribar and Huleh are the only examples documenting greater aridity, but the dates are "soft" and point more towards a shift two centuries later than the Leilan Collapse horizon. Particularly troublesome is the lack of corroboration for the Lake Van isotopic record, itself not "robust" because of the "floating" varve chronology. Finally, even if we accept that isotopic record and the Zeribar pollen core as significant records coeval with the Leilan Collapse, the aridity implied would have been circumscribed by the Tigris-Euphrates drainage basin. There was, then, no abrupt climatic shift to greater aridity affecting the larger region--the Near East and the Aegean world--between c. 2400 and 1900 B.C.E.

The spacing of pollen samples in most cores is sufficiently wide to allow for brief anomalies, measured in decades. Nile flood variations in Egypt, discussed below, were of such a scale. But such short trends are less likely to affect biotic stability, whereas the abrupt climatic change that has been proposed is assigned a duration of no less than three centuries (Weiss et al. 1993; Courty 1994).

### 3.1 The End of the Egyptian Old Kingdom

The Egypt of the Old Kingdom (c. 2730-2230 B.C.E.) was a complex society and territorial state. It extended along the Nile from the mouth of its Delta well upstream into Nubia, exerting some measure of control over the adjacent deserts, and commercially linked to the maritime entrepot of Byblos (modern Jubail, Lebanon), where it enjoyed some degree of hegemony. Agricultural productivity was entirely dependent upon the Nile floods, derived from tropical rainfall in the Ethiopian

highlands, far removed from the mid-latitude westerly circulation that dominated the Aegean world and western Asia. The aridification of the Sahara during the fourth and third millennia affected very small populations in already precarious micro-environments (Kroepelin, this volume), and had little significance for Old Kingdom Egypt.

At the end of the Dynasty 6 (c. 2420-2230), Egypt underwent political simplification and decentralization. The next two centuries, known as the First Intermediate Period, were remembered as a time of anarchy, causally linked to Nile failure, starvation, and political impotence (see sources in Butzer 1984). Various textual elaborations on famine, abandoned farm lands, and dislocated people seem to imply that the agricultural system lost its ability to sustain previous levels of productivity. Food redistribution in times of need as well as the restoration of agricultural production became political virtues. The difficulty of interpreting this "lamentation" literature, much of it written shortly after the political re-unification of Egypt, lies in sorting out fact from ideological interpretation.

Three agricultural disasters can indeed be recognized. The first took place while an Ankhtifi was a provincial governor in upper Egypt, c. 2210-2185; he prided himself on being the first ruler to distribute famine supplies. The second relates to another governor, Djehuti, c. 2100, who was obliged to find food to supply the main temple in Thebes during certain famine years. The third comes from a collection of letters by the owner of a network of estates, Hekanakht, written in 2002.

For the period in question, the Egyptian information base is unrivaled, so that Old Kingdom collapse merits critical examination. The issues will be discussed in two parts. Firstly, did the First Intermediate Period coincide with several centuries of low Nile floods, or were the three episodes of Nile failures nothing but short-term anomalies of monsoonal rainfall in East Africa? Secondly, are there more convincing, alternative explanation for Old Kingdom devolution?

### 3.2 Nile Flood Behavior during the Late Third Millennium

Three proxy records are now available to facilitate more objective resolution of Nile history, two from East Africa and one from the Nile Delta. These are summarized here, with individual  $^{14}\text{C}$  dates or overall sedimentation rates recalibrated to calendar years according to the program of Stuiver and Reimer (1993). Equally important has been research in Egypt's Fayum Depression, an adjunct of the Nile Valley, that helps

unravel a surprisingly complex flood history in the context of the other proxy records. The new Fayum sequence is analyzed and synthesized further below.

Although mainly located in Kenya, Lake Turkana (Rudolf) now derives 80 or 90% of its water from the Omo River basin, in the western highlands of Ethiopia. Although rainfall anomalies in the Blue Nile catchment are not always in phase with those of the Atbara or Sobat rivers (northeast and west of the Blue Nile), Holocene trends in Nile volume are broadly similar to fluctuations in the level of Lake Turkana. That lake was moderately high c. 3200-3000 B.C.E., at an intermediate level c. 2750-2200, rising abruptly to its overflow level 2150-2050, then dipping back briefly to its intermediate stage c. 1700, before returning to overflow level c. 1600-1500 (Butzer 1980b; Owen et al. 1982; Harvey 1982). This segment of the lake level trace, approximately fixed by 15  $^{14}\text{C}$  dates, defines the major trends but has a relatively coarse resolution of  $\pm 100$  years. It mainly identifies periodicities in the order of several centuries.

Cores taken from the bed of Lake Turkana now complement the lake's recent history with higher resolution. Taken in the northern part of the lake, Core LT 84-ZP provides a measure for the influx of Omo River sediment, anchored on  $^{14}\text{C}$  dates and interpolated for intervals 50 to 100 years in length (Halfman et al. 1992). There are strong fluctuations at this scale, with high influxes c. 3350-3075 and 2875 B.C.E., intermediate influxes c. 2600-2300 and 2125-2050, and low influxes c. 2975, 2200, and after 1900. The match with the lake level trace is good, except that there is no correspondence with the high lake stand c. 1500 B.C.E.

That event does however find support in cores from the northeastern Nile Delta, analyzed by neutron activation for rare earth elements in the silt fraction (Hamroush and Stanley 1990; MEDIBA 1991), using ratios of lanthanum to lutetium and of chromium to scandium. Lower values of the first imply greater Blue Nile discharge; higher values of the second infer either greater White Nile and/or Atbara discharge or reduced Blue Nile influx (for database see: Kammar et al. 1992). The results from three, differentially compressed cores (S-7, 22 and 36) are difficult to fully reconcile and have only coarse resolution, but they closely replicate the Lake Turkana trace: moderately high Blue Nile influx c. 3100-2900 B.C.E., mainly low after 2900, to a minimum at c. 2250, then rising rapidly to a maximum c. 1750-1500 B.C.E. This justifies the use of Lake Turkana as a proxy for Nile behavior.

Direct geoarchaeological associations are given in the Fayum Depression, linked to the nearby Nile floodplain by a secondary channel. Here high Holocene lakes were supported by influx of Nile flood waters, with recessions during periods of lower floods. The chronology of early historical lakes is established near the western margin of the residual Birket Qarun, around the small temple of Qasr el-Sagha. Publication, however, is so fragmented as to require detailed delineation. The datum is given by a humic soil, developed on lacustrine White Silts, with Neolithic and terminal Paleolithic sites; that soil marks the beginning of a recession and is dated c. 3900 B.C.E. (Ginter et al. 1982b). The archaeological referents are the temple, attributed to Sesostri II (1897-1878 B.C.E.); a quay or breakwater, linked to a causeway of diabase blocks, with 5th or 6th dynasty pottery (c. 2525-2230 B.C.E.); and two workmen's settlements, related to episodic quarrying up on the plateau, the primary occupation of which has pottery suggesting the period of Amenemhet III (1843-1797 B.C.E.), while a secondary, re-occupation has 13th dynasty pottery (1790-1674 B.C.E.) (Arnold and Arnold 1979). Two  $^{14}\text{C}$  dates of about 1690 and 1740 B.C.E. (Dagan-Ginter et al. 1984) confirm the age of these occupations in the Eastern Settlement, while the foundation of the western counterpart has an approximate date of 1880-1920 B.C.E. However, charcoal in an oven pit under the Eastern Settlement is dated  $2340 \pm 70$  B.C.E., i.e. to Dynasty 6 (see Ginter et al. 1982b: 109, 115, Fig. 57). There is then a definite late Old Kingdom presence, in addition to a variety of Middle Kingdom structures related to the two main episodes of royal building activity in the eastern Fayum, under Sesostri II and Amenemhet III.

The sedimentary sequence consists of four Brown Sands, representing transgressive beach deposits up to 20-24m (above modern sea level), separated by recessional stages, lower by at least 8-10m (Ginter et al. 1982a: especially Figs. 6-7; Ginter et al. 1982b). Brown Sand 1 (20m lake) rests on the fossil soil and predates construction of the quay in late Old Kingdom times. The quay was built during the first recession, and was designed to load boats in an elevation range of 12-20m. Brown Sand 2 (22m) is embanked against this quay. The temple was built during the second recession, the workmen settlements 50 or so years later. Wave action accompanying Brown Sand 3 (22 m) undermined the perimeter wall foundations of the Western Settlement (at 22m) and reduced it to 30cm of debris. The site was reused, in part by a small garrison, during the third recession some 50-100 years later, only to be finally destroyed by the highest transgression, Brown Sand 4 (24m). The

stratigraphy of Ginter et al. (1982a, 1982b) is corroborated by a profile of Said, Albritton et al. (1970: 48, 50, 52).

Interpretation of the four episodes of exceptionally high Nile floods that surged into the Fayum is facilitated by the trend of specific Nile flood levels recorded for dynasties 1 to 5 (Bell 1970), and the inscription of catastrophically high Nile floods c. 1842-1770 B.C.E. at the Semna Cataract in Nubia (Bell 1975; De Putter 1994). The oldest (Brown Sand 1) predates Dynasty 6, and can be assigned to Dynasty 1 (c. 3050-2950 B.C.E.), when flood levels averaged a meter higher than during dynasties 3, 4, and 5; one meter higher represents an increase of about 30% in volume (Butzer 1976: 28). The second episode (Brown Sand 2) was 2m higher still, and fits between 2200 and 1900 B.C.E., but cannot be fixed more precisely. The third episode (Brown Sand 3) was of similar magnitude, and is recorded after 1842 B.C.E. at Semna, which indicates a catastrophic flood every third year or so; peak flood volumes were three times those of the ten highest floods of the 19th century (Bell 1975), implying a flood crest 2-4m higher in Egypt (Butzer 1976: 29). The last episode (Brown Sand 4) was the highest, and post-dates the mid-1600s.

Combined with the proxy records from Lake Turkana and the Nile Delta, the Qasr el-Sagha sequence completes this synthetic overview of Egyptian flood history between 3000 and 1500 B.C.E.: it has a range of uncertainty of less than  $\pm 50$  years. Nile floods were high c. 3100-2900, then lower, with a brief minimum around 2200. Exceptionally high floods were again common c. 2150-1900, 1840-1770, and 1600-1500. The complex arguments necessary to arrive at these conclusions illustrate the need for detailed resolution and convergent lines of evidence in paleoclimatology, so as to leave little ambiguity as to the direction of change. Until dendroclimatological sequences become available in the Near East, this is the best level of resolution currently possible in the region for the third millennium.

Applied to the sociopolitical history of Egypt, an image of drought at the end of the Old Kingdom was impressed in ancient Egyptian memory by recurrent Nile failure in the time of Ankhufi, c. 2210-2185 B.C.E. In turn, three documented Nile failures between 2200 and 2000 gave modern researchers (including this author) the misleading impression that this was a time of generally low Niles and dearth, in part based on the didactic Egyptian "lamentation" literature. The fact is that Egyptians mainly had to cope with destructively high floods, over a span of about 600 years. There is a lesson here, not to assume too much from scattered bits of information.

The devolution of the Egyptian state into a number of petty principalities was already far advanced when Ankhtifi proclaimed his magnanimity as a provincial ruler. Put differently, the Old Kingdom had collapsed before the low-Nile anomaly of the 8th and 9th dynasties. That will have compounded the sociopolitical turmoil, but the roots of political decentralization go back two centuries prior to Old Kingdom collapse. The anarchy spawned by devolution subsequently set in train a number of social adjustments. These generalizations can now be examined.

### 3.3 Old Kingdom Devolution: Decentralization

The authority of the pharaoh was initially uncontested, but construction of the great pyramids came at a price, and also set a precedent for permanent mortuary cults, supported by tax-exempt land endowments. Both such institutional estates and the "pious foundations", i.e., land donations to temples, were authorized on an increasingly large scale during Dynasty 5 (c. 2420-2380 B.C.E.). This, withdrew prime agricultural lands and their produce from the revenue base (Kemp 1983: 85, 104-107), and allowed the larger temples to emerge as strong competitors for power. At the same time, key bureaucrats and provincial magnates began to build sumptuous tombs, and de facto governors combined all branches of administration in their provinces (Baer 1960: 281-286). Pepi I (c. 2360-2330 B.C.E.) formed a close dynastic alliance with a prominent family from Upper Egypt, where provincial autonomy was gradually being consolidated, perhaps with the pharaoh's support, as a misguided effort to counterbalance the excessive power of the high-level bureaucracy in the capital (Baer 1960: 301-302). On his death, that family practically ruled the country in the name of his underage sons, Merenre (died within a year) and Pepi II (c. 2330-2240 B.C.E.), expediting the process of decentralization (Baer 1960: 297-298). A futile attempt to reassert central authority may be indicated by a sudden drop in the ranking of titles for provincial governors after about his 40th regnal year. Whatever the competence of Pepi II as a mature monarch, after he had outlived his dominating uncles, his ability to rule effectively in his old age will have been severely curtailed. At his death, the Egyptian state promptly disintegrated into a suite of regional principalities (O'Connor 1974) or city states (Kemp 1983: 177), with power devolving to powerful local families, as the culmination of a two-century, accelerating decline of central authority.

Table 1. Tentative Correlation of Third Millennium Archaeological Sequences. The approximate dates between time units are inferred from the Egyptian chronology.

Egypt	Palestine	Byblos	Ras Shamra	Amuq	Hama	Ebla	Mesopotamia
Dyn. 12-13 (2000 B.C.E.)	MB II	H =====	====	K =====	H5	III =====	Isin-Larsa
Dyn. 10-11 (2200 B.C.E.)	↑	J II	IIIA3	J =====	J1-4 =====	↑	Ur III
Dyn. 7-9 (2270 B.C.E.)	EBIV =====	J I =====	↑	Late I	J5 =====	II B2 =====	(Late) Akkad
Dyn. 5-6 (2520 B.C.E.)	EB IIIb =====	K IV	IIIA2	Early I	J6-7	II B1	Early Dyn. III
Dyn. 3-4 (2730 B.C.E.)	EB IIb-IIIa =====	K III =====	IIIA1 =====	H =====	K 1-5	II A	Early Dyn. II
Dyn. 1-2 (3100 B.C.E.)	EB Ila	K I-II	II B	G			Early Dyn. I

===== Destruction Levels

Sources: (Egypt) Kemp 1983, Hartung 1994, and others; (Palestine) Callaway (1980), Seger (1989, 1995), Brandl (1992), Stager (1992), Joffe (1993), and others; (Byblos) Saghih (1983); (Ras Shamra, Amuq, Hama) Kühne (1976), de Contenson (1989), Conti and Persiani (1993), and others; (Ebla) Matthiae (1982), Matthiae et al. (1985), Oates (1985), Schwartz and Weiss (1992); (Mesopotamia) Gald (1971), Porada et al. (1992).

Old Kingdom prosperity and, indirectly royal power, was also linked to the Byblos trade, a royal monopoly that probably was applied to redistribution and even credit at the pharaoh's disposal. Fortunately, the problematic stratigraphy and implications of this site have now been resolved by Saghih (1983). The town was first founded as an unwalled settlement, at the time of Dynasty I, and its early temple has architectural elements of Mesopotamian origin (level KII). Egyptian influence appears immediately after the subsequent burning and destruction of public buildings: a new temple was built in plainly Egyptian style (level KIII), and Byblos was now fortified. KIII pottery types are found in Egyptian tombs of dynasties 3 and 4 (c. 2730-2520 B.C.E.) (Table 1), suggesting that the political shift was related to events (? Egyptian military action)



at the end of Dynasty 2 or during Dynasty 3. With level KIV that temple was modified and enlarged, to incorporate spatial arrangements pioneered by Dynasty 5. But the KIV town was systematically destroyed during the reign of Pepi II, as dated by goods inscribed with his cartouche. When Byblos was rebuilt, in Akkadian times, its public buildings emulated

Mesopotamian and Anatolian models: Egyptian hegemony had been replaced by Mesopotamian indirect control.

Byblos represented *the* pharaonic commercial entrepot in Asia, regardless of whether or not there was an Egyptian military presence. The town was probably destroyed by Sargon of Akkad or one of his immediate predecessors of the late Early Dynastic III (see below), thirty-some years into the reign of Pepi II. Regardless of who sacked Byblos, the impact of its destruction for the Egyptian state will have been catastrophic--by putting an abrupt end to the pharaonic trade monopoly and its lucrative profits. That will have left Pepi II devoid of the currency of power, at a time when the faltering Egyptian monarchy desperately needed it. Finally, after the death of the king, the respect probably still accorded to his person no longer extended to the kingship.

There also appears to have been a progressive economic decline during the reign of Pepi II, judging by an overall reduction in the size and opulence of funerary architecture among both low and high-echelon officials, in the capital as well as in the provinces (Kanawati 1977). That generalization appears to be contradicted by closer study of a very large sample of cemeteries and rock-cut tombs at Qau, the dating of which was tightly controlled by pottery seriation (Seidlmayer 1987). Here both the number of pots placed in graves and the volume of the burial chambers increased steadily through Dynasty 6 and the First Intermediate Period, until the reunification of Egypt, declining with equal regularity thereafter. This is attributed to greater economic prosperity.

During Dynasty 6, what is today called "capital" shifted from Memphis to the provinces, continuing to accumulate in local centers until re-unification, after which the provincial centers were once again impoverished. Kanawati's (1977) argument is based mainly on rock-cut, elite tombs and on provincial centers in Middle rather than Upper Egypt. In conjunction, the two studies seem to imply a greater equalization of wealth across the class spectrum, but an uneven equalization of capital among different centers along the Nile Valley. The elites, now dispersed away from the

capital, were less wealthy than before, but they were not impoverished either, judging by gold objects and beads from Byblos found in tombs at Qau belonging to dynasties 8 to 10.

The funerary architecture speaks for decentralization, reduced elite wealth, some equalization of wealth across the class spectrum, and capital accumulation around new nodes of provincial power between c. 2300 and 2130 B.C.E. That is incompatible with repetitive agricultural disasters, which should instead lead to rural impoverishment and depopulation, something precluded by the Qau cemetery record. But it is consonant with political devolution, social readjustments, and reduced economic productivity--a typical outcome of weakened politico-economic integration (see Butzer 1990, 1994).

By 2150 B.C.E. an increasing fraction of the male population was buried collectively in the rock-cut tombs of powerful men, matching a shift in representational art, which once had shown "big men" in a mix of bucolic and domestic contexts, but now depicted them surrounded by squads of retainers rather than family members, with a novel emphasis on armed men (Seidlmayer 1987). This suggests a change from a society organized around family units, to one focused on patron-client coteries, perhaps analogous to the proto-feudal organization of Merovingian Gaul around "big men" and their retinues. Such trends normally stem from prevailing insecurity and violence. If these inferences are correct, then the underlying theme of anarchy in the "lamentation" literature becomes appropriate: political devolution would have brought a breakdown of law and order, that was confronted by a militarization of society at the local level. The practice was ended under Sesostri III (1878-1842 B.C.E.), who seems to have neutralized the local or provincial "war-lords" and thus completed the return to autocratic central authority.

This analysis of Old Kingdom collapse suggests an alternative scenario or model, unrelated to ecological disaster. It emphasizes elements of internal weakness that, amplified by feedback loops and accentuated by external crisis, led to political devolution and subsequently provoked adaptive, social change. The Egyptian "insider's" view of these events is eloquently rendered by the controversial "admonitions" of Ipuwer, a litany of social chaos, probably addressed to a new pretendent to the throne after the fall of the Old Kingdom (see text in Faulkner 1965). Most of the passages represent a dialectic around the theme that the high-born and the wealthy were deprived of their property or dignity, while simple people or

robbers basked in undeserved glory or ill-gotten gains. This didactic device served to affirm the traditional values of the old social order. More significant are comments on the prevalence of violence, land laid waste, hunger, and towns destroyed--possibly with reference to civil war and a breakdown of law and order. The living king was deposed by the rabble, and the tombs of dead kings looted, implying disrespect for the kingships and the previous dynasties. The palace and the temple stood empty, perhaps because Memphis had been abandoned as the capital. Lastly, the archives and land records had been thrown out or destroyed, perhaps a symbolic note inserted by Ipuwer, but possibly also an allusion to rampaging mobs during the last days of Memphis.

But the end of the Old Kingdom had nothing to do with a social revolution, which itself is a modern concept. The successors of Pepi II were disempowered when rival provincial magnates gradually withdrew their support for the kingship, and subsequently engaged in numerous military raids or minor wars in a vain struggle for supremacy that dragged on for two centuries (Hayes 1971). Even so, decentralization was a continuing process, until a new, Theban dynasty began to consolidate power and ultimately restored the kingdom. There was no "revolution" or systemic implosion, as the incremental changes in burial patterns and grave goods verify (Seidlmayer 1987). But the periodic warfare supported by varying alliances of war lords was brutal, including the plundering of cemeteries by troops (Hayes 1971: 466), and insecurity or desolation must have descended on some contested areas for decades at a time.

Much like the "lamentation" literature, other Egyptian records of the Old Kingdom are introspective. They never reveal the degree to which Egypt was interlinked with the outside world, nor the economic interdependency that bound the societies of the Near East during the third millennium. Thus we must turn to the archaeological record of Palestine for insight into processes of change different than those in Egypt, that draw attention to the importance of commercial networking and military confrontation between the two countries.

#### 4.1 Early Bronze Palestine: Ecological and Ethnic Dichotomies

The Early to Middle Bronze Age archaeology of Palestine drives home the point that Old Kingdom Egypt approximated what is now a nation state. By contrast, even at its apex of third millennium urbanism, Palestine was a melange of small, probably

autonomous towns and nascent city-states, possibly interconnected by rival confederacies or ephemeral principalities that controlled several towns and their hinterland. Its socio-political organization was less complex than that of Egypt and, in default of written records, its bureaucratic institutions less elaborate.

In economic terms, Palestine resembled Syria and the broader Aegean world, with regional clusters of nodal points engaged in complex networks of short and long-distance interaction. How this translates into political terms--on the spectrum of independence, autonomy, alliances, hegemony, or direct control--is largely obscure, because of a lack of familiar modern precedents for loosely-structured commercial centers along the axes of a major trading network. Such clusters or centers fostered the exchange of ideas, and did not represent a commercial and cultural periphery. In the Bronze Age, eastern Mediterranean world, such configurations were common and apparently stable for centuries at a time, but also prone to abrupt and synchronous simplification, followed by renewed elaboration and commercial reintegration after a century or two, thus at the end of the Early Bronze or the Late Bronze Age.

A second contrast between mid-third millennium Egypt and Palestine was in regard to agroecology and what that implies in the economic and social spheres. Largely surrounded by hyperarid deserts, Egypt was practically homogeneous in ecological terms, composed almost exclusively of farmers practicing flood or irrigation agriculture, regardless of elite stockraising in marginal floodplain environments. But Palestine, in the prevailing archaeological conception, was ecologically riven between groups practicing agriculture versus those engaged in pastoralism, as well as spatially between sedentary and nomadic forms of settlement. Some archaeologists have created a polarity between sedentary agriculturalists and nomadic pastoralists--as distinct ethnic rather than socioeconomic groups, perhaps even belonging to different linguistic families. These dichotomies tend to be implicitly superimposed on evolutionary schemata--of dispersed settlements consolidating into nucleated towns or vice versa--so as to introduce an additional, processual dialectic. Such implicit models have a variety of roots: deep-seated misconceptions about the practices of Mediterranean agriculture, the old dichotomy of "the desert and the sown," notions of "black tent nomadism" such as that of the Rwala Beduin, or oversimplified views of the Arab expansion in early Islamic history (S. Rosen and Avni 1993). As a result, urban collapse towards 2200 B.C.E. is commonly linked to the ascendancy of pastoral groups.

Pastoralism is noted for the versatility of its adaptations today (Galaty and Johnson 1992), and there is reason to believe that it also evolved rapidly over time, just as specialized forms of agriculture have. Yet its prehistory is poorly understood, because archaeological resolution has lagged and remains difficult (Bar-Yosef and Khazanov 1991). Several points bear emphasis in regard to interpretation of the Palestinian Early Bronze Age, in support of the generalizations offered above:

a) Historically and ethnographically, agro-pastoralism in subhumid Mediterranean environments was a unified, complementary enterprise (Stager 1985b; Spurr 1986; Butzer 1988, 1994a, 1996; Whittaker 1988). Farmers worked their fields and also kept livestock for milk products, meat, and fiber. During the cool season, sheep or goats were grazed on fallow or stubble, where their manure provided the fertilizer necessary for long-term productivity. During the warm season, animals were herded on the rougher terrain of the local commons, or driven beyond a town's jurisdiction, to mountain pastures used through leasing arrangements. The latter involved professional shepherds, rarely accompanied by family members. The switch from local to medium or long-distance movements was dictated by the size of herds, and large herds tended to reflect wealthy or corporate owners, i.e. a commercial component.

In the early Middle Ages, Christian or Muslim herders drove sheep or cattle back and forth across the shifting frontier zones of Spain, in long-distance treks, in part to sell at market; later, under the designation *Mesta*, the herds of large cities, grandees, or the king were driven across the length of the peninsula (Butzer 1988). Except for the scale, there were similar state-owned herds in Ur III and Old Babylonian Mesopotamia (Zeder 1994; Kraus 1966), and the contracts binding shepherds in the Spanish *Mesta* recall those of the Code of Hammurabi (T. J. Meek in Pritchard, 1969: Laws 261-267); such conventions are therefore deeply grounded in Mediterranean common law, back at least to the time of Hammurabi, i.e., to beyond 1750 B.C.E. Related, ecological patterns of pasture management are apparent in Spain by 4000 B.C.E. (Stevenson and Harrison 1992). The hallmark of such variable forms of *transhumance* is that the herds belong to sedentary villagers or town folk, who practice full-time cultivation. Above all, pastoralism and cultivation were complementary strategies to minimize subsistence-risk, a critical fact overlooked by Wilkinson (1994) in his emphasis on vulnerability to climactic anomalies.

b) By contrast, *nomadism* refers to the seasonal rounds of herds that are accompanied by their owners, their families, and some or all of their belongings. There

are several degrees of nomadism, and such activities have not been confined to semiarid, desert margins. In the southern Balkans, for at least a millennium prior to 1912, minority Vlachs of Latin tongue lived seasonally in permanent mountain villages, following their herds into the Greek, Slavic, Albanian, or Turkish-speaking lowlands, where they occupied seasonal settlements during the cool season (Beuermann 1967: 120-195). These patterns of the Aramani Vlachs are accentuated among their Sarakátsani brethren, who originally lacked permanent settlements, although their seasonal dwellings and animal sheds were elaborate, and would leave a complex archaeological record of post holes and rock-wall rubble. In recent decades, the Sarakátsani have moved into abandoned mountain villages, or settled down on the lowland margins. Where such semi-nomadic peoples had access to cultivable land, they practiced supplementary agriculture, but in general they filled the ecological and spatial interstices of sedentary societies, as a marginalized socioeconomic class or as different ethnicities. Distinguishing such semi-nomadic groups from agro-pastoral societies in the archaeological record would probably require extensive excavations in an adequate number of small sites, selected in distinctive ecological contexts. For the moment, that leaves considerable uncertainty in regard to the interpretation of small Early Bronze sites in Palestine.

c) The camel nomads of the "ethnographic present" (e.g., Musil 1928) did not exist in the third millennium, when the camel and horse had not yet been domesticated. Camels, raised for their milk products by nomadic beduin, can subsist on ephemeral desert pastures inadequate for other livestock, and can carry the baggage of whole encampments. Horses not only reinforced that mobility, but made swift, mounted pastoralists a military force to be reckoned with. The Biblical image of destructive Amorite raiders belongs to a later era, as do the horsed beduin who terrorized Palestine during the Ottoman era (see Esse 1991: 19-25). Such historical dichotomies did not exist 2200 B.C.E. Without such military advantages, the small contingents of interstitial or marginal pastoralists of Early Bronze Palestine can have had little more than a nuisance effect through petty thievery for the much larger sedentary populations implied by the very scale of agricultural labor. The instructions of the Egyptian ruler Merikare (c. 2100 B.C.E.) argue the point explicitly: the nomadic pastoralist does not conquer, yet cannot be conquered; he may rob a single person, but he cannot seize a populous town (J. A. Wilson, in Pritchard, 1969: 416). Occupying specific economic niches and complementing each other through the

exchange of produce, meat, milk products, and dung, the sedentary and non-sedentary peoples of Palestine most probably formed symbiotic relationships. It seems implausible that pastoral groups living in or around Palestine had either means or motive to destroy urbanized civilization in Palestine in the third millennium.

#### 4.2. Early Bronze Palestine: Settlement, Economy, Time

The Early Bronze Age of Palestine is subdivided into time frames that parallel events in Egypt, reflecting the close interactions between the two regions (Stager 1992; Amiran and Gophna 1992; Finkelstein and Gophna 1993; Hartung 1994).

During EBIa (spanning Nagada IIa-IIb and Maadi), Egyptian-style pottery--mainly household wares--was being made in several settlements of southwestern Palestine, suggesting at least some Egyptian craftsmen in residence c. 3750-3550 B.C.E. (Brandl 1992). The Egyptian presence broke off at the beginning of EBIb (equivalent to Nagada IIc-IIIc, c. 3550-3150 B.C.E.), while Canaanite wares appeared in increasing quantity at Upper Egyptian sites. By about 3350 B.C.E. these included great quantities of imported wine jugs in royal tombs. Not long thereafter, Egyptian way stations were established along the north Sinai coasts and Egyptian potters were reestablished in adjacent parts of Palestine (EBIc, Seger 1995). Egyptian as well as local clay seal-impressions suggest the presence of some bureaucratic institutions. Large, mainly Egyptian storage vats and tall, cylindrical vessels also appear, presumably for olive oil carried back to Egypt by donkey caravans.

This intensive overland trade seems to have broken off late in Dynasty I (c. 3000 B.C.E.). That marks the beginning of EBII, when Egypt's Near Eastern trade began to switch to large ships, plying the open sea between the Nile Delta and Byblos. The EBII appears to span dynasties I to 3, judging by final <sup>14</sup>C dates of c. 2600 B.C.E. (Arad: Stager 1992: II, 51). During EBIII times (dynasties 4 to 6, c. 2660-2230 B.C.E.), Egypt's main commercial links were with Byblos. This maritime trade (Drower and Bottéro 1971: 343-351) terminated abruptly with Pepi II, when Byblos was destroyed (Saghih 1983). EBIII ended at about this time, to be replaced by the EBIV (also Middle Bronze I or Intermediate Bronze), notable for a fundamental change in settlement.

The Egyptians depended on Syria and Palestine for raw materials such as timber (especially for long cedar beams or planks), fir resin or Dead Sea asphalt (as adhesives), and copper (for metallurgy), but especially for wine and olive oil, for cult

purposes and elite use (Stager 1985b). Wine is verified as an import by grape pips in jars dated c. 3350 B.C.E. (Abydos cemeteries, of Nagada IIIa1 age: Hartung 1994). Olive oil is trickier to prove, since olive pits or wood are difficult to distinguish as to wild or cultivated. The oldest possible wine press in Palestine dates to EBIb, but presses only become common in the EBIII (Esse 1991: 119-125). However the oil lamps of many EBII sites suggest olive oil already was common, at the same time that clay pastes resistant to acid and suitable for long-term oil storage became standard for large pottery vessels (Miroschedji 1989). This supports the impression that olive oil was exported to Egypt in quantity somewhat before Dynasty I, reflecting commercial production of wine and olive in Palestine by the end of EBIb.

Significant agro-economic changes are apparent amid the foothills debouching on the coastal plain, where a string of large villages appeared along gently-dissected stream valleys or near large springs at the head of small catchments. The population of this ecotonal belt, with 300-500 mm rainfall today, increased several fold between EBIa and EBIb (Gophna and Portugali 1988), but the northern third (the Plain of Sharon) lost half its population by EBII times, whereas some of the larger villages further south (the Shephelah) took on a more urban character and were surrounded by stout walls. Scattered small towns also appeared in small basins of the central hill country, as well as near permanent water sources in the Upper Jordan catchment (Finkelstein and Gophna 1993; Esse 1991).

Towards the end of EBII, a number of towns were abandoned and the northern Shephelah lost a third of its population, while that of the southern Shephelah increased by a half (Gophna and Portugali 1988, and other sources). That trend continued during the early EBIII. These drastic realignments probably reflect more complex processes than local shifts in hegemonic control. That impression is heightened by more detailed analysis of urban histories during the course of EBII and III (Callaway 1980, Seger 1989, 1995). Of nine key Shephelah towns, four date back to EBIIa or earlier, and one was abandoned at the end of EBIIb and three more by the beginning of EBIIIb1. Only two towns remained by the beginning of EBIIIb2, one of these surviving well into EBIV. The pattern in other parts of Palestine appears to be similar, with a general depopulation under way by the end of EBIIIa (perhaps c. 2500 B.C.E.), and settlement discontinuity almost complete by the end of EBIIIb1 (perhaps 2400 B.C.E.) (Seger 1989). Whatever the nature of the crisis, urban devolution of EBIII Palestine was progressive and essentially complete a century

before the EBIV becomes archaeologically visible, i.e. well before the critical date of c. 2200 B.C.E.

Assuming 200 people per hectare within a compact, fortified settlement, the EBII/III towns had populations in the order of 1000 to 5000 people. There were some public buildings, primarily linked to religious functions, although elite architecture was modest. Authority may have been wielded by a hereditary priesthood. But the importance of walls and their implementation according to a sophisticated and standardized plan (oval ramparts with rounded bastions, above a long, sloping glacis) implies a professional, military caste (Miroschedji 1989). Fulltime craftsmen were part of these town fabrics, perhaps living in special quarters and supplied through redistributed foodstuffs. Children suffered from poor health and malnutrition, judging by depressed stature and dental hypoplasias, while life expectancy was about 30 years (Smith 1989). A case for sociopolitical stratification seems convincing, at first glance.

The function of the EBII-III towns is partly elucidated by their location. All are found adjacent to or within potentially productive lands, some are sited with respect to defense, while others still are either found along trade routes or at the intersection of commercial arteries. The Shephelah towns, for example, are situated at the terminus of the overland route from Egypt. Even though Egyptian objects are uncommon, trade may have emphasized basic commodities rather than elite goods, their transport in the hands of pastoral caravaneers.

Yet the basic economy was agricultural, with subsistence largely dependent on wheat, barley, and legumes, and arboriculture focused on olive groves, vineyards, and fig-trees (Liphschitz 1989). Although cattle were prominent, oxen and donkeys were most commonly used for plow yokes (Davis 1988), so that sheep and goats assumed primary importance in supplying both meat and secondary products (Horwitz and Tchernov 1989; Horwitz 1989b). Reduced cortical thickness and bone mass implies that the high ratio of older, female goats and sheep was selected for milking (Smith and Horwitz 1984), suggesting that at least part of the ovicaprines were not engaged in seasonal movements, but stall-fed or grazed directly around the towns. The composite picture speaks for high sedentary, commercialized Mediterranean-style polyculture, with peripheral exploitation constrained by security concerns, and probably limited to the 5 or 6 km perimeter dictated by two hours of walking in the course of daily work rounds. That would have included both valley-floor cultivation

and arboriculture on the adjacent hills formed by Tertiary strata. A mean intersite distance of 10 km supports such an interpretation and, in the absence of smaller sites, speaks more for autonomous economic units than for a functionally-differentiated but integrated settlement hierarchy in the Shephelah.

Agricultural land use upon the tableland topography of the central hill country (southern Samaria and Judea) appears to have been discontinuous, and focused on broad valleys or swales, where soils were thicker and water was near the surface, amid smooth but stony uplands of hard limestone. At least locally, rock-faced terraces were constructed during Early Bronze times (Gibson et al. 1991; Finkelstein and Gophna 1993), another trait of intensified Mediterranean polyculture. But there also is reason to believe that most of the hill country remained forested until the early Iron Age, when terracing became more common and iron tools effective to fell large, live oaks became available (Stager 1985a, Liphschitz et al. 1989; Gibson et al. 1991). Only then is it probable that semi-pastoral groups began to insinuate themselves into the interstices between older, agricultural settlements (Stager 1985a).

The settlement ecologies of the hill country and the Shephelah were starkly different during the period of EBIII decline. In the Shephelah, urbanized towns were tightly nested within an "orchard" landscape that now receives 300-500 mm rainfall and was dependent on large springs or upland catchments for waters that made outfield cultivation possible, presumably through irrigation. In the hill country, widely dispersed villages and scattered towns demarcated patches of arboriculture, embedded within a wooded landscape that received adequate rainfall for crop cultivation. Nonetheless, both areas were depopulated, in stages across some 250 years. How can this be explained?

#### 4.3 Early Bronze Palestine: Environmental and Systemic Factors

Potential explanatory modes must be examined in both local and regional contexts, and in possible conjunction with other variables.

Local climatic anomalies or trends could readily affect the Shephelah, located on the climatic margins of rain-fed agriculture. However cultivation was probably dependent on stream or spring flow, derived in some good part from aquifers recharged by highland precipitation, particularly if the limestone hill country remained largely forested at the time. Wine and olive production would be reduced by drought years, but olive trees are more commonly damaged by frosts than by

droughts, and even if vine stalks are destroyed by persistent drought, they are readily replaced and productive within two or three years.

The floodplains of the Shephelah were very broad during the 4th millennium, channels shallow, and discharge perennial, and much less torrential than today (A. Rosen, 1991). That would have allowed flood agriculture, perhaps complemented by small-scale irrigation, and organic, waterlogged soils suggest that these "wet" floodplain conditions persisted during most of the third millennium probably until EBIV times, when a flush of initially fine, then increasingly coarse sediment accumulated on top of the floodplain near Tell Lachish (A. Rosen, 1986: 57-69). That indicates a more episodic flow, i.e. a different hydrological regime, reflecting either a more arid climate or devegetation, with soil erosion in the upper catchment, rather than on local slopes. This helps explain thriving EBIB to EBIII land use in the area, but offers no direct insight as to EBIII devolution, since A. Rosen's (1995) argument for the collapse of floodwater farming seems to apply to either the EBIV or Middle Bronze.

Quite apart from the inconclusive paleoclimatic proxies (see above), what most excludes climatic change as a significant factor is that the pattern of incremental EBIII settlement abandonment affected all of Palestine, including those areas with over 600 mm precipitation today, i.e. outside the zone of contemporary agricultural stress. Environmental degradation relates to local land-use histories and also would not affect a whole region simultaneously. There simply is no case to attribute collapse of metastable EBII-III sociopolitical structures to a "climatic shift," "desiccation," or other environmental change (contra Esse 1989).

An alternative scenario emphasizes deviation-amplifying feedback loops that lead to system failure without major recourse to external variables (Dever 1989), a sort of system implosion. A number of internal dynamics are suggested: (i) Exponential population growth leads to overcrowding, heightened social inequalities, and increasingly arbitrary efforts to impose control; (ii) Population growth also outstrips the effective carrying capacity of the environment, exacerbating ecological degradation, further curtailing surpluses in agricultural commodities, and increasing shortages to the point of famine; (iii) Subsistence crises would intensify pressures to increase yields, aggravating social tensions and economic chaos; (iv) The end of trade with Egypt, for whatever reason, would isolate Palestine from its closest markets; (v) Local, complex redistributive institutions, operated by a poorly-developed, inept,

and over-centralized bureaucracy would be unable to cope with mounting crisis; and (vi) Increasing social inequality in times of shortage would provoke unrest, ultimately sundering the social fabric through progressive disintegration rather than revolution (Dever 1989). External inputs--a "slight" climatic fluctuation and nomadic incursions--are then invoked as triggering mechanisms for the final breakdown of an already fragile system (Dever 1989: 238).

After castigating proponents of the same external factors, Dever's neo-Marxian scenario seems to want to have its cake and eat it too. Internal systemic collapse is indeed possible, with declining efficiency of energy and information pathways, particularly when several negative trends reinforce a complex crisis in times of ineffective government (Butzer 1980a). But such crises are specific to a particular context; that is, they can effect one integrated system and at a particular time. In the case of EBIII Palestine, "collapse" effected a host of spatially disjunct and politically autonomous units, progressively and at different times over several centuries. Even within the Shephelah, the continuing disappearance of towns can hardly be attributed to internal "systemic collapse," even if efforts to achieve economic autarky were maladaptive and power was abused or misdirected. That would ignore the prominent evidence for insecurity and warfare, and would imply that ruling elites could not learn from one social implosion how to adapt and quell further disruptions before they in turn became disastrous.

#### 4.4. Early Bronze Palestine: Warfare and Urban Destruction

The elaborate town walls or defensive sites in EBII-III Palestine must be seen against the settlement history of the coastal plain. First there was extensive abandonment in the north, then in the center; eventually almost three quarters of the population was crowded together in the southern Shephelah. All smaller sites were abandoned, some medium centers disappeared, but few new ones were formed. Finally, the remaining towns disappear one by one in a grim "until there were none" scenario. Within 200 years or less, the Shephelah lost all but one twentieth of its sedentary population, a catastrophic ratio. Although the majority of EBIII towns appear to have been simply abandoned, there also is substantial evidence for fire and destruction, e.g., two horizons at Erani, one at Hesi, and three at Halif (Seger 1989, 1995), or two at Ai in Samaria and one at Numeira, on the slopes above the Dead Sea (Callaway 1980; Stager 1992: II, 50-52). The Early Bronze towns will have been

intensely competitive, but a convincing case for internecine warfare--with abandonment as a result of forced dislocation or destruction--has to confront the virtual certainty that Egyptian campaigns ravaged the Shephelah. Finally, there is always the lingering question why the very last Shephelah town was eventually abandoned.

Apart from perfunctory Old Kingdom references to successful hostilities with the Asiatics ("sand-dwellers") of Palestine, at least two specific records leave no doubt about serious Egyptian campaigns (Kemp 1983: 142-143). The tomb reliefs of Inti (early Dynasty 6) shows a standard, oval town-wall with rounded bastions under siege. The second is an inscription of Uni, an officer of Pepi I (c. 2340 B.C.E.), who boasts of live land and one seaborne campaign against the rebellious Asiatics, one of which involved conscripts from every district of Egypt, together with Nubian mercenaries, i.e. a large army. Uni threw down the Asiatics' walls, set fire to their settlements, killed immense numbers in battle ("many ten-thousands"), cut down their fig-trees and vines, and brought back countless captives (Drower and Bottéro, 1971: 351-362; J.A. Wilson, in Pritchard, 1969: 227-228). Fig-trees may be a misnomer for olive groves--unknown in Egypt, but in any event the reference to Palestinian polyculture is unambiguous. The attack by sea may relate to an area just beyond the Carmel promontory. These facts imply considerable, direct engagement by Egypt along the coastal plain, and possibly a strongly-disputed claim to hegemony.

In the absence of archaeological evidence to the contrary, the towns of the Shephelah will not have been under Egyptian control, but some sort of commercial dependency is plausible. The presence of moderately large EBIII towns at Paran and Gerisa, where wadis cut through the cordon of coastal dunes and kurkar ridges to the sea, suggests anchorages from which olive oil and wine could have been exported by boat to Egypt. Their townspeople may have thrived as Egyptian allies. Allowing for typical exaggeration in Uni's account, the sort of campaign described still suggests that Egyptian intrusion for whatever cause, could have disastrous demographic and ecological implications, sufficient to wipe one or more towns of several thousand inhabitants off the map. Some sort of Egyptian involvement in Ai, located on a trade route from Gerisa to Jericho, also cannot be dismissed (see Callaway 1980).

Whatever the logic of Egyptian aggression, this scenario helps illuminate several aspects of the Palestinian EBII-III. The peaceable role that Egypt enjoyed in the Shephelah, be it commercial or administrative, ended early in Dynasty I. This marked

the onset of the EBII, with most larger settlements throughout Palestine being walled, beginning a process of "urban" nucleation that also served defensive purposes. Coastal sites from Meghanim to Lod were abandoned, the Plain of Sharon partly depopulated, and large agglomerations began to assemble in a tightly -nested cluster in the Shephelah, while smaller settlements disappeared. Then even the largest towns were knocked off, one by one. When Dynasty 6 went under, only the small foothill-town of Beit Mirsim and a squatter (?) settlement at Halif remained. Projecting Egyptian warfare as a prime, but not exclusive agency, this archaeological progression of settlement regression makes good sense. It would, however, cast a very different light on the roots of militarization, centralization, and greater sociopolitical complexity. Contrary to the shopworn, Marxist model of emerging elites grasping for greater wealth and power, at the expense of common people, local "urbanization" would be reinterpreted as an increasingly desperate effort by a beleaguered people to survive with some level of group dignity. The emerging elites and priestly caste then become heroes instead of villains.

Military campaigns may also have led to the destruction of other towns in Syria. The cuneiform library of Palace G in Ebla (Mardikh IIB1) was destroyed during or just after the first 30 years of the reign of Pepi II (i.e., c. 2330-2300 B.C.E.), and at the time of the same king, Byblos suffered massive destruction, as did Hama and towns in the Amuq Plain (Table 1) (Matthiae 1982; Matthiae et al. 1985; Schwartz and Weiss, 1992: I, 236-240; Drower, 1971: 335-340, 345-351; Posener et al., 1971: 587-589; Kühne 1976). That seems to place these events in the reign of Sargon of Akkad (2293-2237 B.C.E., according to the "middle chronology"), who campaigned far to the northwest, to Mari, Ebla, the Cedar Mountain, and a place called Iarmuti, probably on the Mediterranean coast, perhaps in his 11th regnal year (Gadd, 1971: 424-426; Schwartz and Weiss, 1992: 238-240; but see also Cooper 1986 for alternative possibilities). Allowing for the uncertainties in correlating the Mesopotamian and Egyptian chronologies, the Mesopotamian dynast who destroyed Ebla, also appears to have burned down Byblos--the richest city on the coast--which switched from Egyptian to Mesopotamian hegemony at this time (level JI, Saghih 1983). Roughly a century later Ebla was reconquered by Sargon's grandson Naram-Sin (c. 2291-2255 B.C.E.), as was Mari, an Armanum (? Aleppo), and a coastal town called Ulusum (Drower and Bottéro, 1971: 325-327; Gadd, 1971: 441-442). Destruction horizons are found at Ebla (end of level IIB2) and Ras Shamra (Ugarit), on the coast (end of level

IIIA3) (Table 1); although their regional or absolute dating is not firmly fixed (Oates 1985; Schwartz and Weiss, 1992: 240; Posener et al., 1971: 340; de Contenson 1989), this and similar problems of correlation or linkage should ultimately be amenable to pottery seriation, AMS dating, or dendrochronology.

Large scale, organized warfare is currently not popular as an explanatory factor among anthropologists enamored with internal, evolutionary dynamics in what are, in effect, closed-system models. But the historical record leaves no doubt as to its recurrent role and impacts.

#### 4.5. Early Bronze Palestine: EBIV Disintensification

It is now common for archaeologists to attribute the Palestinian EBIV to a process of "ruralization." Indeed, the hallmark of the EBIV is a changing settlement archaeology: disappearance of EBII-III towns, with total abandonment of some areas, and new, small settlements in others. Some sites were compact and defensive (Richard 1986), whereas in the north larger sites sprawled across earlier sites with little nucleation (Prag 1974; Esse 1991). Although EBIV settlements were substantially smaller than those of the EBI, EBII or MBII, rank-size analyses show a modest level of integration that did not change appreciably over time (Falconer 1994; Fall et al. 1996). That argues for "ruralization" rather than "pastoralization."

Although the Shephelah remain thinly populated, small villages reappeared along the coastal plain for the first time since EBI times; but, including Beit Mirsim, there were only three towns with 1000 inhabitants or more (Gophna and Portugali 1988). There is a string of small, isolated cemeteries in the Judean Hills, but only a handful of occupation sites, mainly small; further north in Samaria, there is an approximately equal number of cemeteries and sites, several of them large, and most located east of the watershed (Finkelstein 1991). Settlement density was highest in the Beth Shan Valley and Lower Galilee, where site number and size suggest little decline of population, when prorated per century (Esse 1991: Table 6 and Site List). East of the Jordan, population size along some tributaries was greater than at any time since the EBI (Helms 1992).

The geography of settlement begs ecological interpretation, because the densest patterns are found in drier parts of the country, by itself an argument against desiccation. (For an exemplary study relating Early Bronze occupation to landscape geoecology in Lebanon, see Marfoe, 1979). Although EBIV sites remained

concentrated near springs or running water, they were commonly located above deeply incised valleys or channels but rarely found on floodplains or alluvial surfaces, liable to floodwater farming or simple irrigation (e.g., Mabry and Palumbo, 1992). Yet there appears to be little change in the proportions of different domestic animals from the increasing number of zoo-archaeological studies for EBIV (e.g., Prag, 1974; Horwitz 1989a, 1989b), with pig and cattle remaining prominent, implying household animals and plow-oxen, with at least some use of secondary products (e.g., milk) from the dominant herds of sheep and goat. This implies the diversified stockraising of sedentary communities. Only at Bir Rassisim in the Negev do EBIV livestock take on a distinctive pastoralist cast (see Dever 1983). Similarly, at sites east of the Jordan River, percentages of cattle, sheep and goat remained almost unchanged between the EBIV and renewed, Middle Bronze agglomeration; olives, grapes, and figs were prominent in EBIV flotation samples, with a decline in grapes and an increase in olives during the Middle Bronze (Fall et al. 1996), i.e. greater investment in commercial crops that require a longer start-up time and imply a greater sense of security or long-term stability. Mediterranean polyculture was by no means extinct, although the Lake Kinnereth pollen core suggests that olive cultivation declined overall (Baruch 1990).

The archaeological data do not support settlement by a new group of people. The pottery and, to a degree, the metalwork show: (a) basic continuity from EBII-III traditions; (b) a trend to regional diversification, running against the earlier tide of regional standardization and suggesting greater isolation or local reaggregation according to kin-group relationships; and (c) limited innovations derived from northern Syria and the middle Euphrates, perhaps via refugee groups fleeing Akkadian military destruction (e.g., Prag 1974, 1991; Helms 1989; Dever 1991; Esse 1991; Palumbo and Peterman 1993). The depopulation of the Shephelah and the western, central hill country stands out, and it seems reasonable to suggest that the last Egyptian campaigns, with the ruthlessness of that of Uni, destroyed that urban network and almost emptied the area. People may have fled to the east and north, with only lagging resettlement of the coastal plain during the EBIV, after Old Kingdom devolution.

Site excavations, that might support the persistent hypothesis of an expansion of pastoralism at the expense of sedentary agriculture (Dever 1991; Finkelstein 1991), are lacking. The case now hinges largely on hill cemeteries away from any local



settlements, as in the central hill country. The idea is that these were sacred sites of itinerant pastoral groups, possibly shared by unrelated pastoral groups across centuries or even millennia. Most of the skeletal remains are disarticulated, suggesting ritual reburial. But disarticulation was already common in EBI times, and extended transport of human remains required months of prior deputation and seems impractical for mobile groups (Hanbury-Tenison 1986: 245-250). The isolated hill cemeteries may well represent a cultural tradition with ideological overtones, rather than socioeconomic implications.

The matter of ideology needs considerably more attention. Joffe (1993) makes the important point that the strong trend to urbanization during the Early Bronze may have created a dialectic between two competing social forms, between the older, non-urban way of life and its more recent urban counterpart. These would entail different social structures and ideological visions, representing deep-seated contradictions and tensions within society. By extension, "urban collapse" would have discredited the new way, thus favoring the return to a more rural way of life and its values, symbols, and ideology. It would therefore be interesting to examine more closely the possible links of the hill cemeteries with the "megalithic" tombs found on convex topographies along both flanks of the Ghor, northwards to the Orontes Basin (Zohar 1991). Near Jerash, such tombs cluster near a string of EBI settlements (Sapin 1992: 171), but elsewhere they may continue into the Middle Bronze. In addition to real dolmens, built of large rock slabs placed horizontally over smaller, vertical ones, such cemeteries include tumuli and rectangular, built cists, such as are found in EBIV burial complexes (Prag 1974).

Where were the sedentary sites related to the hill cemeteries? First and foremost it requires reemphasis that small EBIV sedentary sites have been identified in the central hill country, as in the Refaim Valley near Jerusalem (Horowitz 1989a, 1989b). But a fresh angle is put on the issue by Dahr Mirzbaneh, a steep-sided hilltop located 17 km northwest of Jericho and explored by Finkelstein (1991). Walls enclose an area of 70 by 140m, dominated by a prominent rectangular tumulus at the highest end, and enclosing some stone foundations. This is a classic refuge site, analogous to Monte Mollet in eastern Spain (Bazzana and Guichard 1978), where the coastal plain was abandoned because of insecurity c. 400-1000 C.E. (Butzer et al. 1983). A more recent, Greek analog can be suggested to infer the function of Monte Mollet. In the Ottoman Peloponnese, the villages of the coastal plain were abandoned in favor of

adjacent defensive mountain sites; although some cultivation continued in the lowlands, using temporary housing, or on terraced hillsides near permanent villages, much of the population moved up and down the mountains with their livestock on a seasonal schedule (Beuermann 1967: 92-119). Mediterranean polyculture continued, but the people became mobile and switched their emphasis to herding. These examples illuminate the likely mechanisms of depopulation, de-urbanization, and disintensification of agriculture in late Roman--Visigothic Spain (Butzer et al. 1985). Similar processes are apparent in Italy, where lowland settlements were abandoned c. 500-700 C.E. in favor of hilltop towns (Potter 1979). Mediterranean polyculture was resilient and could be maintained even when villagers were forced to shift their livelihood to mobile pastoralism. Obligated to adopt a new sociocultural role, they experimented with a different combination of familiar economic strategies. But this disintensification did not involve "retribalization," because traditional, sedentary lifeways were promptly resumed when conditions changed, as they did during Middle Bronze "re-urbanization" in Palestine.

Dahr Mirzbaneh appears to be an important anomaly, that contrasts with settlement continuity at most sites in the north of Palestine and east of the Jordan, and in at least some central locations such as the Refaim Valley. If the interpretation offered-- a defensive refuge site -- proves to be tenable, it would imply that for part of the EBIV time span, security was a fundamental problem in some areas. Just who represented the major threat remains obscure, but the apparently drastic nature of the solution suggests something far more serious than sporadic, pastoralist raids. More likely is the presence of strong hostile forces, within some proximity, for at least some decades. The small size of the walled enclosure suggests a community of only modest size which -- in its specific archaeological context -- implies a crisis situation not at the very beginning of the EBIV, but after the larger towns had already disappeared and population levels had been downsized.

#### 4.6. Early Bronze Palestine: The Nature of Sociopolitical Devolution

That the EBIV of Palestine represented troubled times, with ruralization and partial or local depopulation is not disputed. But the tide of evidence has begun to turn strongly against the assumption that there was an increase of mobility and herding. The bioarchaeological evidence in particular has failed to support either a shift from agriculture to pastoralism, or from household pigs and plow-oxen to potentially

mobile sheep or goat herds. Furthermore, even though the markets for commercial products had evaporated and the commercial network was decentralized, arboriculture – always a multi-year investment in the future – continued to be practiced. But did pastoral groups infiltrate the area, and eventually become sedentary? That would imply displacement and discontinuity. Here the archaeological record becomes paramount, to trace family and kin organization, through excavation within dwellings and by uncovering spatial relationships between adjacent houses and among house clusters. Ideally, both multicomponent and smaller, single-component sites should be tested in future excavations, to look for synchronic variability and to compare with “domestic” archaeology of earlier phases of the Early Bronze.

The much broader issue is whether EBIII breakdown represented *sociopolitical devolution*, that is, structural simplification of hierarchical institutions, or *socioeconomic collapse*. The latter implies a reduction of social complexity, from a stratified to a segmentary society, according to Esse (1989: 92-93; 1991: Fig. 33). Esse equates degrees of social complexity with settlement size and level of urbanization; from this he ascribes a ranked society (“chiefdoms”) to the proto-urban EBIIb, a stratified society (“state”) to the “urban” EBII-III, and a segmentary society (roughly, “clan/tribe”) to the “hamlets” of the EBIV. Since the late Chalcolithic Beersheva culture (Levy, 1992) may have been a ranked society, Esse’s demotion of the EBIV to a segmentary/tribal society would represent a 2000 year retrogression on the local evolutionary time scale! Yet Esse’s argument simply explicates what is implicit in Dever (1991), who uses “retribalization,” or in those authors who infer that much of Palestine was given over to “nomadic pastoralists.”

Anthropological typologies such as “tribe,” “chiefdom,” or “stratified society” should not be applied in lieu of explanation. They are heuristic devices to illustrate evolutionary theory, that cannot be applied in the real world where societies shift across a spectrum of available economic strategies and sociocultural roles (Marfoe, 1979). For a nuanced and more appropriate assessment of social systems in Early Bronze Greece, see Renfrew (1972: chap. 18).

Early Bronze urbanism in Palestine began with population growth during EBIIb, as reflected in both settlement number and size, at a time of active trade with Egypt. That trade gradually shifted from raw materials to agricultural products, presumably stimulating surplus production, market exchange at several levels, and some form of

managing agricultural credits. By creating incentives and buffering subsistence-risk, that might lead to population growth, especially in centers where market functions would encourage a degree of specialization in craft products. That may have allowed the formation of a small elite group, whose multiple roles included not only the maintenance of order and regulation of markets, but also redistribution of part of the crop yield in times of subsistence crisis, or as credits to underwrite investments in the expansion of staple production, vineyards, or olive groves. On modern risk and rural credits, see Marfoe (1979: 5-8). Sooner or later, military leadership would be required, presumably strengthening the role of a community-anchored cult that legitimized the existing social order and served to rally social solidarity in times of crisis. From these hypothetical processes some sort of amalgam would emerge that combined bureaucratic, military, and cult roles. The functional details and the intertwining of powers among administrative elites, privileged lineages, and priestly castes remain poorly understood, because the distinction of secular vs. religious or of public vs. private are cultural anachronisms. They cannot be deciphered with the perceptions and preconceptions of Western cultural traditions.

In historical times, population growth has generally been linked to market integration, urban nucleation, and agricultural expansion or intensification. The multiple and overlapping jurisdictions of the High Middle Ages in Europe suggest that political centralization was not indispensable. Far more difficult to comprehend are the social arrangements (the subsistence ethic or “moral economy”) and ideological underpinnings that facilitated these processes. The goals, justification, degree, and rigidity of social stratification must therefore remain conjectural, despite the self-assurance of current investigative paradigms.

As the relationship between Egypt and Palestine became more contentious, the palace-temple elites of the Palestinian towns adopted strong defensive measures, compressing their populations within elaborate walls and clustering their settlements in the Shephelah. Although Egypt’s major trade artery was anchored in Byblos, there were periodic attempts to exert hegemony in Palestine, resulting in destructive military campaigns that may have culminated in early Dynasty 6, with the eradication of almost all the towns in the southern Shephelah. Whether these clustered, large towns of the Early Bronze represented city-states with stratified socioeconomic classes is open to dispute. Compared with the evidence of concentrated wealth and structural specialization at Ebla, or the planned Middle Kingdom towns of Egypt, the

towns of the Shephelah were proto-urban and their societies more probably ranked than stratified, judging by the modest architectural differentiation. Nonetheless, centuries of cramped living and enforced cooperation within the walled confines of a defensive site implies adherence to a social contract diverging from that upheld by the inhabitants of dispersed villages or by mobile peoples who moved with their herds.

In the wake of EBIII demise and ruin, the social contract that bound town-dwellers in Palestine became discredited, presumably reaffirming older ideological systems. In that sense, the EBIV may have represented an incisive, sociocultural break with the past, provoking deliberate institutional simplification, with perhaps unexpected, negative repercussions for market exchange, economic integration, and agricultural intensification. Subsequently, the collapse of Egypt and Akkad, two bastions of the regional exchange system, will have deepened and prolonged the economic recession for as much as two centuries. But regardless of how EBIV society was organized, many of the key institutional concepts will have been preserved in skeletal form. Indeed, in the context of renewed, Middle Bronze market integration, agricultural expansion, and urbanization, they were rapidly re-implemented.

Sociopolitical devolution, as so defined, helps to elucidate the processes of change without categorizing the attributes of a flexible social system, in constant flux, by deductive typologies that obscure rather than illuminate the issues.

##### 5. Political Devolution and the Near Eastern Economic Network

In studying sociopolitical devolution, understanding connections may be more productive than trying to establish causes. The key elements of a societal system are energy flows (primary production, redistribution, trade) and information pathways (technology, structural nodes, institutions) that explicitly function in response to human cognition and decisions. As these flows and pathways expand, the system grows in complexity, when they retract, it declines and simplifies.

Specific events, trends, or changes are only intelligible in their particular context. Local or minor inputs, whether cognitive or not, can spiral into systemic perturbations through unanticipated, "positive" feedback loops. Such a chain of events or repercussions is likely to be unique. Similarly, major inputs may be absorbed by the system through buffering, "negative" feedbacks, resulting in little or no change. Possible outcomes depend on the rate and efficiency of energy flows and information

pathways--at a particular moment in time--that are imperfectly regulated or steered by human institutions and decisions, that may falter or turn maladaptive. Actual events or sustained trends are therefore not only unpredictable but also to some degree stochastic.

In a larger perspective, the cyclic expansion and retraction of societal systems can be compared with steady-state readjustments, possibly superimposed on long-term, net growth. Whatever kind of proxy data category is used--demography, area of political control, economic statistics--such cyclic behavior is characteristic of systems of all kinds, which are, contrary to common assumption, not homeostatic.

Different societies within a complex region function as "open" subsystems, within a much larger, interdependent whole. For instance, shifts or changes in Early Bronze Palestine depended to some degree on trends or events in Egypt, Syria, and Mesopotamia, and may well be affected by what was going on in the more distant Aegean world or even in the copper-producing areas of Spain. Such connectivities should stimulate comparative studies of interlinked subsystems, individually as well as in conjunction. That is why this study has dealt with both Egypt and Palestine. Examining their devolution, in isolation as well as together, offers complementary insights into what were complex processes, ultimately intelligible in an interactive context that includes Syria, Mesopotamia, and areas even further afield.

The Egyptian pharaohs apparently consolidated and expanded their power through their monopolistic control over the foreign import trade, which probably stimulated redistribution and surplus productivity in Egypt, in turn placing a premium on internal security and risk limitation, thus also favoring population growth. Power became highly concentrated and was predicated on centralized authority. Palestine responded to the economic demands of its neighbor by increasing production of the desired commodities, not only in the Shephelah but also by expansion of settlement and intensification of agriculture in the highlands. As market centers grew at strategic points, administrative structures had to be created to handle intraregional exchange, local redistribution, and extraregional commerce. That favored population growth and nucleation around the best networked market centers. Similar processes presumably affected western Syria, and indirectly stimulated trade in the Aegean world, with repercussions as far afield as Spain. The presumed Akkadian thrust into Syria and the Persian Gulf region would imply that the new dynasts in Mesopotamia wanted a larger stake in this network.

Collapse of the Near Eastern commercial network and the ensuing political devolution appear to have been a consequence of militarism. Based on circumstantial evidence, Egypt seems to have decided to enforce its hegemony over Palestine at all costs, leading to catastrophic destruction of its trade, its towns, and its essential productivity. Depopulated and devoid of export "capital," that region ceased to be productive, weakening the system, regardless of whether Palestinian oil and wine had mainly flowed to Egypt, Syria, or Mesopotamia. Sargon's strategy--to extend Mesopotamian hegemony to Syria and the Mediterranean coast--anticipated that of the New Assyrian Empire, and was based on "windfall" profit-taking: the destruction and looting of towns of their accumulated capital, leaving behind precariously weakened market centers that remained dependent, but were not administered directly, thus short in terms of "re-investment. That would have left the Akkadian economy incapable of growth and therefore fragile. For Egypt, the destruction of Byblos probably proved fatal cutting Egypt off from the Near Eastern exchange network.

With Palestine reduced to a subsistence economy, Egypt spiralling into decentralized chaos, and Akkad unable to generate capital, the Near Eastern politico-economic system collapsed. How this affected the Aegean world is obscure. Even a speculative scenario is precluded by the chronological confusion in the Aegean world, where the abandonment or destruction of towns on the Greek mainland can only be dated with respect to a relative archaeological stratigraphy, that is not supported by overlapping clusters of  $^{14}\text{C}$  dates, and that cannot be correlated to the destruction of Troy II (compare Coleman 1992; Forsén 1992; Mellink 1992). Despite some similarities of settlement patterns with Palestine, "towns" in Greece and western Anatolia were, with notable exceptions, modest and little more than villages (see Renfrew 1972: Fig. 14.7). A survey in Thessaly shows that half the Early Bronze sites were still occupied in Middle Bronze times, and there is no change in ecological preference (Halstead 1977; see also Renfrew 1972: 245). That appears to support the ceramic evidence of both continuity and discontinuity in the Peloponnese, arguing against the invasion theory (Forsén 1992). At least in these two regions, disjunction towards the end of the Early Bronze appears limited compared with that in Palestine.

It is now appropriate to examine the Near Eastern exchange network of the third millennium as a possible "world-economy" (as distinct from a global, world economy). That concept, due originally to Wallerstein (1974), is elaborated by

Braudel (1979: 21-22) to describe an economic "theater"--a world unto itself, so to speak. At one level, this appears to describe the Near East of the third millennium, but its pre-capitalist structures operated without coinage or a formal banking system, and it did not have a logistic center, let alone a single "core." Instead there were multiple nuclei, representing subsystems with different degrees of "openness" and sociopolitical complexity: (1) Egypt and, at times, Mesopotamia were archaic states, in which external trade essentially was a government monopoly focused mainly on the importing of raw materials or luxury items destined for elite consumption. (2) The Aegean region, and possibly western Anatolia, included a mix of polities with variable levels of independence and social complexity, ranging from micro-states (Minoan Crete) to autonomous towns, probably linked in shifting confederacies or alliances, with none holding a monopoly on trade; although there will have been elite imports and some trans-shipment across the region, most exchange probably was internal. (3) Syria and Palestine were internally as variegated as the Aegean world, but the region also was a hub, a nexus of many interconnecting threads; external trade with Egypt and Mesopotamia, and to a lesser extent, Anatolia and the Aegean, was critical, while transshipment undoubtedly was an important component. The coastal and island entrepôts of the Persian Gulf present a similar case in point, between Mesopotamia and the Harappan towns of western India. As defined by different forms of sociopolitical organization, monopolistic control over exchange, and ratios of internal to external trade, these three categories can provisionally be ascribed by value-neutral descriptors as a (1) major nucleus, (2) minor nucleus, or (3) nexus.

The advantage of such distinctions is not to create artificial boundaries in what was a territorially fluid and sociopolitically changing matrix, but to propose a sliding scale of complementary, functional roles. That in turn allows an emphasis on the multiplicity of long-distance interchanges representing energy and information exchange, predicated on heterogeneous natural and human resources. The "world economy" conceptualized here is a network model (Fig. 1), that is more explicitly dynamic and practicable than the core-periphery premise underlying the Wallersteinian world system model. It has closer analogs to the loosely organized "circuits" interlinked within the 13th century C.E. "world system," ably described but imperfectly articulated by Abu-Lughod (1989: Fig. 1) Each nucleus or nexus to some measure exploited the raw materials of its own "periphery," sometimes in a dependent relationship (e.g., Egypt in Nubia), more often perhaps via intermediaries

or direct but sporadic contacts (e.g., Egyptian expeditions to Punt). But such "peripheries" were not necessarily dependent nor disadvantaged, although there is no pragmatic and generally acceptable measure for what might be considered advantageous, since most external interactions eventually have social or economic repercussions.

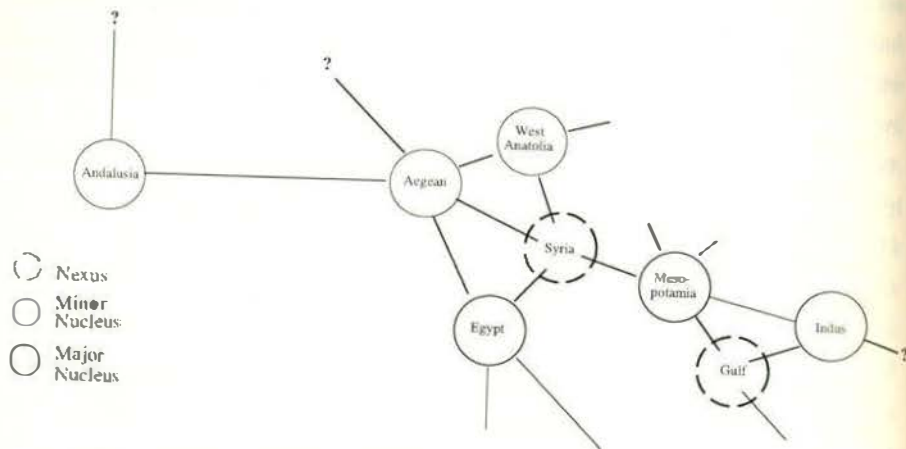


Figure 1. A Network Model for the Early Bronze World-Economy

Whatever we agree to call it, the Near Eastern commercial network and its unequal participants as far afield as Andalusia and the Indus Valley had empirical reality. As a heuristic device it can illuminate the vital role of exchange networks in generating "capital," by virtue of the interdependence of productivity and demand across a diversified spatial matrix. The details of that exchange vary widely from one context to another, but two common threads deserve emphasis: (1) the insatiable demand for copper and, eventually tin-- the indispensable alloy for bronze; and (2) the inevitable need for foodstuffs of symbolic importance (such as wine and olive oil) or in periodic or perennial short supply (grain).

Even in its initial application to elite objects, copper was processed by the ton during the EBA (Edens 1992), placing great strategic importance on commercial, diplomatic, client, or even military relationships not only with respect to sources such as Cypress and Sinai, but also distant areas such as India, Oman, Armenia, the Balkans or Andalusia. For example, Andalusian arsenic copper has been identified in Greek sites of the Chalcolithic and EBA (Sangmeister 1975), and feedbacks are presumed in the changing, sociopolitical organization of southern Spain. The search for tin lead even further afield (Muhly 1973), to places as distant as Cornwall.

As a bulk commodity, the mobilization of grain has been underappreciated, especially in overland transport (e.g., Wilkinson 1994). It bears noting that maize in prehispanic Mexico was transported considerable distances on human backs, making carriage by donkey appear efficient. Maritime shipment was more economical by a factor of ten, and grain exports from Mesopotamia to the Persian Gulf may have been a key commodity by the late third millennium (Edens 1992). It would be an error to simply assume that natural disasters such as a string of famine years could only be buffered by redistribution from the stored, grain surplus of a local sustaining area, even in the case of interior towns. Droughts tend to be localized and, given a profitable reciprocal relationship, customary prohibitions to the export of food staples in a time of crisis might well be waived. Although it is a later example, long distance food relief from Egypt to the Hittite kingdom is actually documented c. 1210 B.C.E. (Faulkner 1975:234). Without minimizing the cost of famine in human terms, it is a fact that such disasters -- even if not mitigated by external assistance -- are usually followed by a rapid return to normal productivity. Critical for recovery is a presumption of continuing "credits." Military disasters are a different matter, because much of the infrastructure is destroyed, fields and orchards ravaged, a substantial part of the population killed or enslaved, and intraregional "credits" likely to be suspended indefinitely. Recovery from such a calamity might lag for generations.

The functioning of such a networked world-economy seems to have been predicated on sustained productivity, conflict resolution, and continuing market exchange with minimal friction. Violence and destruction are not only counterproductive, but threaten the integrity of such a world-economy. The early Near Eastern prototype expanded and dissipated through three cycles, culminating in the Early, Middle, and Late Bronze. Various examples can be cited of conciliatory, trade-oriented policies, e.g., the political restraint of Middle Kingdom Egypt in Asia, the remarkable commercial orientation of the Early Assyrian state (unlike its successors), the international diplomacy of Amarna-age Egypt, or the lasting peace treaty and mutual assistance between Ramessid Egypt and the New Hittite kingdom. There was warfare, of course, but it remained directed to specific goals. Both the Middle and Late Bronze versions of the Near Eastern world-economy (c. 2000-1200 B.C.E.) were brought down not by military adventures of the key powers, but those of emerging peripheral nations or mobile marauders. Throughout the period, Syria, as a non-core region, remained at the intersection of commercial networks steered from

politico-economic centers located near the perimeter: as in Medieval times, the role of entrepot cities was mainly a profitable one and their lack of real military power may have been advantageous in the long run.

As a systemic analog, this network model for an early world-economy is neither mechanistic nor anonymous. It presumes a strong cognitive component, and accords a central role to "prime movers" such as imperial ambition, war, invasion or pandemics that figure prominently in the historical record and will have been no less important in proto-historic times. Equally so it can accommodate the range of sociocultural components so splendidly identified by Edens (1992) for the Early Bronze Persian Gulf trade, such as diplomacy, cultural hegemony, and the social contexts of production and composition. But its primary advantage is that it draws the necessary attention to the interconnective strands and feedbacks that make politico-economic units functional components of a much larger whole. Then as now, power cannot be sustained indefinitely without a healthy economic base. Periodic collapse of the Near Eastern world-economy rendered its political structure latently unstable, even without any direct military crisis. Not surprisingly, political collapse tended to sweep the region in domino fashion. Such devolution compounded the problem of economic disintegration, through a set of feedback loops. That in turn greatly retarded the restructuring, without which stable political institutions were unlikely to reemerge.

The scenario proposed here is then based on two hypotheses: First, a cyclical integration and dissipation of the politico-economic network, to a large extent controlled by (i) the rate of commodity exchange and intraregional balancing of key resource or product deficiencies ("energy flows"), and (ii) the functioning of what might be called international "banking" arrangements (see Halstead 1992 for the later Bronze), whereby short and long-term credits and obligations could be managed on a fairly routine basis, to the satisfaction of second and third parties ("information pathways"). Second, a cyclical centralization and decentralization of power within local polities, primarily in response to the changing health of the larger system, but also impacted by various internal processes, trends and problems, as well as external inputs such as military events, attempted migration by force, or natural disasters. More often than not, the political cycles within a particular area would lag behind economic cycles affecting the entire region.

There is room for an impact by climatic perturbations or longer-term trends in such a model, but only as one potential variable within a multi-dimensional, interactive system. Phrased differently, climatic change cannot be treated in isolation; it must be examined in its historical, structural, and regional context.

#### Acknowledgments.

This paper benefited from discussions with Carlos Córdova (University of Texas), and I am grateful to my former students, Arlene Miller Rosen and Steven Rosen (Beer Sheva University) for information and advice. The manuscript profited from suggestions by Joe D. Seger (Cobb Institute of Archaeology) and Lawrence E. Stager (Harvard University); their encouragement was much appreciated. Charles Rosenfeld (Oregon State University) kindly provided references. The graphic was drafted by Kieke Butzer. Finally, I owe a major debt to that superb historian of Egypt, the late Klaus Baer.

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