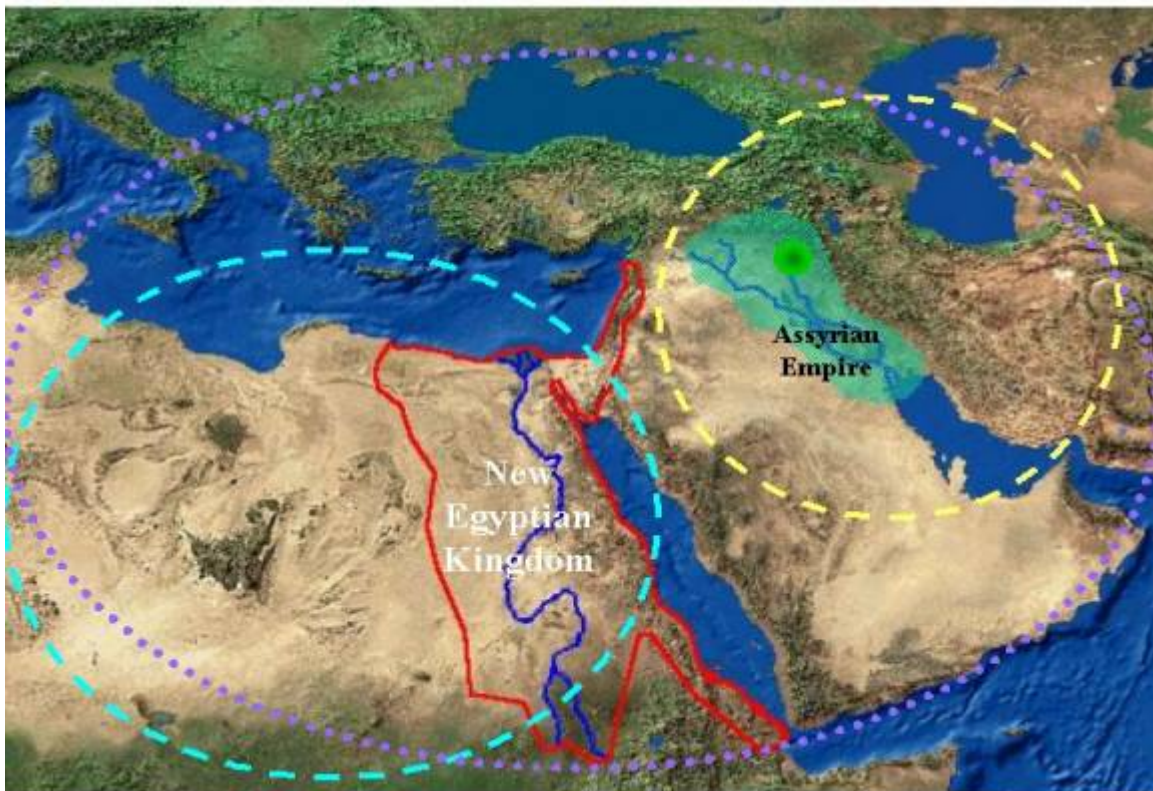


# THE ANCIENT MESOPOTAMIAN AND EGYPTIAN WORLD-SYSTEMS

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Northeast African and West Asian PMNs

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## Introduction

This paper presents an overview of the development of complex and hierarchical societies in ancient Southwestern Asia from a comparative world-systems perspective, and presents an analysis of the timing of urban and empire growth/decline cycles in Mesopotamia and Egypt to test the hypotheses that these two regions may have experienced waves of development synchronously. We also discuss how climate change may have influenced the patterns of development. In a nutshell our argument is that there have been systemic relations among different peoples since at least the first human settlements by the Natufians some twelve thousand years ago (Chase-Dunn and Hall 1997). The developmental logic of these intersocietal systems have changed over time as new techniques of power and institutions have emerged but there are also broad continuities and similar patterns over millennia as world-systems became larger. This paper utilizes the conceptual apparatus of the comparative world-systems perspective to examine the patterns of development in prehistoric and ancient Western Asia. Thus we speak of strong core polities and weaker and dependent peripheral societies, as well as societies in the middle, which we call semiperipheral. And we bound systems by using interaction networks in which important, two-way and regular interaction links peoples with different cultures. This network approach to bounding world-system is explicated in Chase-Dunn and Jorgenson (2003).

We contend that some of the peoples who were semiperipheral in the ancient world-systems were the main agents that brought about the transformations of developmental logics. We also contend that the formation, differentiation, and development of nomadic peoples in tandem with sedentary states and empires played a crucial role. Nomads were often the catalysts of systemic change in these early state-based world-systems. This research paper builds on studies by David Wilkinson (2000), William R. Thompson (2000. n.d.), and Guillermo Algaze (1993, 2000a, 2000b).

Karl Butzer (1997) contends, with respect to Levantine development processes, that the existence of cycles is *prima facie* evidence of some sort of system. We have noted that all world-systems large and small exhibit cycles of expansion and contraction of trade networks, which we call **pulsation**. Furthermore, once chiefdoms emerge there is another cycle appears, the **rise and fall** of large polities.

Following the work of David Wilkinson, we note that the Mesopotamian and Egyptian interstate systems merged around 1500 BCE to become a single larger system of states that we call the Central System. And about 1500 years earlier, around 3000 BCE, long-distance prestige good trade connected these two regions. As these mergers occurred it might be expected that growth/decline phases in the two regions would become synchronous. Indeed we have found an important instance of this kind of synchrony between East and West Asia that emerged around 500 BCE and lasted until around 1500 CE (Chase-Dunn, Manning, and Hall 2000; Chase-Dunn and Manning).

One area worthy of further examination is the effects of climate change on patterns of social development. Brian Fagan (1999) contends that it was sudden climate changes and

natural disasters that provoked humans to invent new forms of social organization. Bill Thompson has argued (n.d.: Figure 1) that climate change may affect social systems in complex, and at times contradictory, ways.

### Pulsation, Rise and Fall and Semiperipheral Development in the Southwestern Asian System

In this paper we mainly focus on Southwestern Asia and the Mediterranean Levant. The time period under consideration is from the emergence of mesolithic sedentism (about 10,000 BCE) to the point at which the growing Southwestern Asian political/military network (PMN) became linked with the Egyptian PMN by the Hyksos conquest of Egypt (about 1500 BCE). We will examine the hypothesis of semiperipheral transformative action in the context of a discussion of the processes of polity-formation, technological change, the rise and fall of larger polities, the pulsation of interaction networks and the transformation of the very logic of social integration from kin-based normative regulation to state-based institutionalized coercion. The hypothesis of semiperipheral development asserts that *semiperipheral regions in core-periphery hierarchies are fertile sites for innovation and the implementation of new institutions that sometimes allow societies in these regions to be upwardly mobile and/or to transform the scale (and sometimes the qualitative nature) of institutional structures*. This is not simply the notion that core traits diffuse toward the periphery. It is rather the idea that semiperipheral innovation enables upward mobility and occasionally transforms whole systems. Semiperipheral actors have taken different forms in different systems. Semiperipheral marcher chiefdoms and semiperipheral marcher states conquer older core states to form a new core-wide polity. Semiperipheral capitalist city-states exploit an opportunity to accumulate wealth based on trade and the production of commodities. And in the modern world-system it is semiperipheral nation states that have risen to become the hegemonic within still multicentric cores. This notion is further explicated in Chase-Dunn and Hall (1997: Chapter 5).

The hypothesis of semiperipheral development presumes a cross-cultural conceptualization of core/periphery hierarchies in which more powerful societies importantly interact with less powerful ones. The idea of core/periphery hierarchy was originally developed to describe and account for the stratified relations of power and dependency among societies in the modern world-system. The comparative world-systems approach developed by Chase-Dunn and Hall (1997) distinguishes between **core/periphery differentiation**, in which there is important interaction among societies that have different degrees of population density, and **core/periphery hierarchy** in which some societies are exercising domination or exploitation of other societies. It is not assumed that all world-systems have core/periphery relations. Rather this is turned into a research question to be determined in each case.

The 8500 year period from 10,000 BCE to 1500 BCE in Western Asia witnessed a series of fundamental pristine transformations in the nature of human societies: the original Mesolithic emergence sedentary diversified foraging (the first dwellers in permanent villages), the Neolithic invention and application of farming, the emergence of the first hierar-

chical chiefdoms, the first multi-tier settlement systems, and eventually the first cities and states. The Southwest Asian world-system developed the first relatively stable core/ periphery hierarchy in which imperial core states exploited and dominated peripheral peoples. This region also witnessed the first instance of a core-wide empire resulting from the conquest of a set of older core states – the Akkadian Empire. As will be seen, our earlier characterization of this as an instance of a semiperipheral marcher state erecting a pristine empire (Chase-Dunn and Hall 1997: 84-89) needs to be modified in some important respects.

What follows is an analytic narrative about the development of social complexity and hierarchy in prehistoric and ancient Southwestern Asia and the Levant. The rapid and dramatic emergence of states, cities and writing in the West Asian system in the fourth millennium BCE was built upon a set of prior developments that spread from the adjacent Levant over the previous five thousand years. The metaphor of ecological succession is relevant for understand the evolution of world-systems. Small plants breaking down rocks create soil. This produces what is necessary for larger plants and trees to grow. The analogue of soil is socially produced surplus and the institutional structures that allow human societies to become larger and more hierarchical. But as with ecological succession, this is not a smooth upward accession from small to large. Regressions and collapses were frequent, and the areas in which the first break-throughs occurred are most usually not the same locations in which later, larger-scale developments emerged. It was a process of temporally and spatially **uneven social development**. The institutional soil first formed in the prehistoric Levant and then spread to ancient Southwestern Asia.

## The Hilly Flanks

The Mesolithic invention of relatively permanent village life was made possible by a diversified foraging strategy that mixed the gathering of vegetable resources, fishing and hunting of small game. This developed in a context in which the villagers continued to cooperate and compete with more nomadic hunter-gatherers. The Natufian culture of the Levant is the earliest known example of Mesolithic sedentism based on diversified foraging – this around 9000 BCE (Bar-Yosef and Belfer-Cohen 1991; Moore 1982). [1] Sedentary foragers probably invented territorial boundaries as well as a more active intervention in the productive cycles of nature. In other regions diversified foragers are known to have used fire to increase the growth of food-producing plants and grazing areas attractive to game. These activities have been termed "protoagriculture" (Bean and Lawton 1976). A similar Mesolithic culture, dated to around 8650 BCE, has been found at Shanidar Cave and village sites in the Zagros Mountains on a tributary of the Tigris (Solecki and Solecki 1982).

In the smaller valleys in the hills adjacent to the prime gathering regions of the Natufian peoples naturally occurring stands of grain were less productive. It is plausible that when the nomads in these neighboring regions tried to emulate the sedentary life-style of the mesolithic villagers, they found those natural stands were quickly eaten up, and so they experimented with planting the seeds that they had gathered. The proto-horticulture of the diversified foragers may have been transformed into true horticulture and the domestication of useful plants by the adjacent neighbors of the original sedentary foragers (Hayden

1981). The further archaeological study of the spread of diversified foraging and gardening will enable us to test this hypothesis. It may be that the first instance of semiperipheral development was the emergence of a new productive technology (planting) in a region adjacent to one in which an earlier new departure had occurred (sedentism).

The techniques of gardening spread both west into the valley of the Nile and east toward Mesopotamia. Gardening increased the number of people that could be supported by a given area of land making greater population density possible. Community sizes grew in rain-watered regions and population growth led to the migration of farmers away from the original heartland of gardening. Horticultural techniques also diffused from group to group and were combined with the domestication of pigs, sheep and goats. This was the Neolithic “revolution.” Still-nomadic hunter-gatherers traded with the Neolithic towns, and a new form of pastoral nomadism developed based on the herding of domesticated animals

The simple model here is that technological development increased population density and this facilitated the emergence of social hierarchies. There is evidence from the Chesapeake region of indigenous North America that migration of planters or *in situ* adoption of planting does not always immediately lead to greater complexity and hierarchy (Chase-Dunn and Hall 1999). It appears that the arrival of corn planting in the Chesapeake allowed the “mesolithic” diversified foragers living in rather large villages to redisperse into widely spread farmlets and to reduce the intensity of their trading and ritual symbolization of group identity and social hierarchy. So technological change can, under some conditions, lead to deconcentration and less social hierarchy. This possibility needs to be kept in mind as we examine the spread of gardening across Southwestern Asia.

As villages eventually grew larger, trade networks did as well and craft specialists began producing for export and importing raw materials. Trade networks probably expanded and contracted along different spatial dimensions, as was the case in other small-scale world-systems (Chase-Dunn and Mann 1998). It is known that obsidian (volcanic glass) was an important lithic material for the production of cutting tools and weapons in regions adjacent to the Levant and Southwestern Asia (Torrence 1986). Obsidian tools and debitage (waste materials that are by-products of tool making) can be chemically fingerprinted so that the original quarries can be identified. And obsidian hydration rinds can be used as an indicator of the period in which the tool was formed. These techniques can be used to indicate the patterns of obsidian trade and procurement networks and how they changed over time. Similar methods are also available for some other lithic materials. These techniques have not been fully exploited for studying the emergence and pulsation of trading networks in the prehistoric Levant and Southwestern Asia.

Some regions began displaying mortuary practices that indicated the emergence of social stratification. In Northern Mesopotamia a degree of hierarchy is evident in the Hassuna/Samarra archaeological tradition from 6000 BCE to 5500 BCE. Precious minerals were traded over larger and larger regions, and regionally defined pottery styles developed. The Halafian archaeological tradition in Northern Mesopotamia (5500 BCE-5000 BCE) had quite large villages and some have argued that these were chiefdoms.

## To the Flood Plain

According to Nissen (1988: Chapter 3) the first three-tiered settlement system in Southwest Asia emerged on the Susiana Plain (in what is now Iran adjacent to the Mesopotamian flood plain) in the Ubaid period (5500-4000 BCE). This would indicate the presence of complex chiefdoms, and Wright (1986) points to the importance of the existence of complex chiefdoms in a region as the necessary organizational prerequisite for the emergence of pristine states. In other words, first states do not emerge directly from egalitarian societies. Evidence from Uqair, Eridu and Oueli shows that there were also Ubaid sites on the Lower Mesopotamian flood plain that were as large as the sites on the Susiana Plain at this time. The Early Ubaid phase at Tell Oueli shows remarkably complex architecture as early as anything on the Susiana Plain. Thus there was an interregional interaction system of chiefdoms based on a mix of rain-watered and small-scale irrigated agriculture.

In the next period (Uruk or Late Chalcolithic from 4000-3100 BCE) the first true city (Uruk) grew up on the floodplain of lower Mesopotamia, and other cities of similar large size soon emerged in adjacent locations. Surrounding these unprecedented large cities were smaller towns and villages that formed the first four-tiered settlement systems (Adams 1981). This was the original birth of “civilization” understood as the combination of irrigated agriculture, writing, cities and states. [2] States also emerged somewhat later in the Uruk period on the Susiana Plain (Wright 1998 and these also developed four-tiered settlement systems (Flannery 1998:17). This was an instance of uneven development -- the transition from an inter-regional interchiefdom system to an inter-city-state system that emerged first in Mesopotamia and then spread to the adjacent Susiana plain.

## A System of States: the Temple and the Palace

The main architectural feature of these new cities was the temple and this structure has long been considered the primary institution of a theocratically organized political economy. Later evidence about Sumerian civilization shows that each city was represented by a god in the Sumerian pantheon and the priests and populace were defined as the slaves of the city god – this justifying the accumulation of surplus product (Postgate 1992). Flannery (1998) claims that even the earliest archaic states often also had palaces – residential buildings for the war-leader king. But in Mesopotamia most scholars think that palaces were a later development that emerged when competitive warfare among the city-states for the control of land and trade routes became more frequent. Congruent with this is the evidence that shows an implosion of population from surrounding towns and villages to live within the protected confines of walled cities (Adams 1981). Thus was the early “peer polity” or “early state module” (Renfrew 1986) of co-evolving archaic states transformed into an intercity-state system of warring and allying states.

This transition from theocracy to the primacy of a warrior king was an important development in the emergence of state-based modes of accumulation. The Sumerian cities erected their states –specialized institutions of regional control – over the tops of kin-based normative institutions (Zagarell 1986). Assemblies of lineage heads long continued to play

an important role in the politics of Mesopotamia. But the structures of institutional coercion became ever more important for maintaining power and accumulating wealth. One interesting apparent difference between the emergences of archaic states in Mesopotamia from other instances of pristine state formation is the apparent absence of ritual human sacrifice. A powerful way to dramatize the power of a king is to bury a lot of other people with him when he dies. Except for the EDIII period in the royal cemetery at Ur, there is little evidence of human sacrifice in Mesopotamia. The temple economy required contributions of goods and labor time, including animal sacrifices that were consumed in religious feasts. But the sacrifice of humans in Mesopotamia was, as with modern states, mainly confined to killing in battle.

The story of the Uruk expansion is well known, though its exact nature remains controversial (Algaze 1993, 2000; Stein 1999). The emerging cities of Mesopotamia founded colonies and colonial enclaves within existing towns across a vast region in order to gain access to desired goods and to control trade routes (Algaze 1993; 2000). There is some disagreement as to the degree of direct control that these core city-states [3] were able to exercise over distant peripheral regions.

Archaeologist Gil Stein's (1999) confrontation of world-systems ideas with evidence was inspired by the work of Phil Kohl (1987a, 1992). What Stein has done is to go beyond Kohl to formulate testable alternative models of core/periphery relationships. His "distance-parity" model is a major conceptual improvement over earlier work. And Stein's careful research at Hacinebe (on the Tigris in Turkey) has gone far to enlighten us about the true nature of Uruk trading stations in that part of the world.

Despite Stein's critical appraisal of the comparative world-systems approach, his work confirms what Chase-Dunn and Hall (1997) have argued, that core/periphery hierarchies in early state-based world-systems were limited in spatial scale and relatively unstable. Early states were not able to extract resources from distant peripheries because they were unable to project military power very far and they did not have elaborated capitalistic mechanisms for facilitating unequal exchange.

Joyce Marcus's (1998) study of early states points out that the interstate system of Mesopotamia exhibited a cycle of "rise and fall" in which the largest polities increase and then decrease in size, and that this phenomenon is also known in other cases of ancient state systems in the Andes and Mesoamerica. Indeed, all hierarchical world-systems exhibit a structurally similar cycle -- from the "cycling" of chiefdoms (Anderson 1994) to the rise and fall of great empires, and the rise and fall of hegemonic core states in the modern world-system.

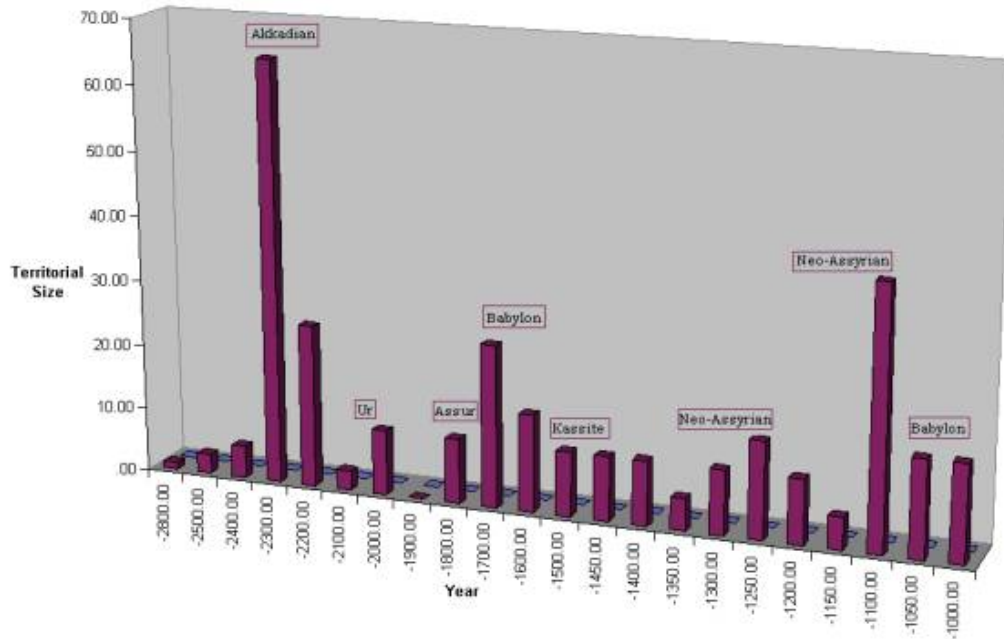


Figure 1 : Territorial sizes of Mesopotamian States and Empires (Source: Taagepera 1978a;1978b)

Figure 1 graphs the territorial sizes of the largest states and empires in Mesopotamia from 3000 BCE to 1000 BCE as estimated by Taagepera (1978a, 1978b). The rise and fall phenomenon can clearly be seen. Also the great size of Akkadian empire (6.5 square megametres) was not equaled again until 800 BCE by the Neo-Assyrians, who then went on to create a state that ruled 14 square megametres in 650 BCE. This was a new level of political integration of territory more than twice the size of the Akkadian empire. We also have data on the sizes of many of the largest cities in Mesopotamia. The Pearson's  $r$  correlation coefficient for the relationship between Mesopotamian largest city and empire sizes based on 13 time points from 2800 to 650 BCE is .59. This indicates that, as would be expected, large empires build large cities and the processes that cause growth and decline phases affect both urbanization and empire formation. [4]

David Wilkinson (2000) has coded the power configuration sequence of the ancient Southwest Asian state system from Early Dynastic II through the Kassite-Hurrian period. Wilkinson conceptualizes state systems in terms of a sequence of power configurations and we have recoded these in terms of degrees of centralization of power:

6: universal state (one superpower, no great powers, no more than two local powers)



5 : hegemony (either one superpower, no great powers, three or more local powers; or no superpowers, one great power, no more than one local power)

4: unipolar (all other configurations with one superpower)

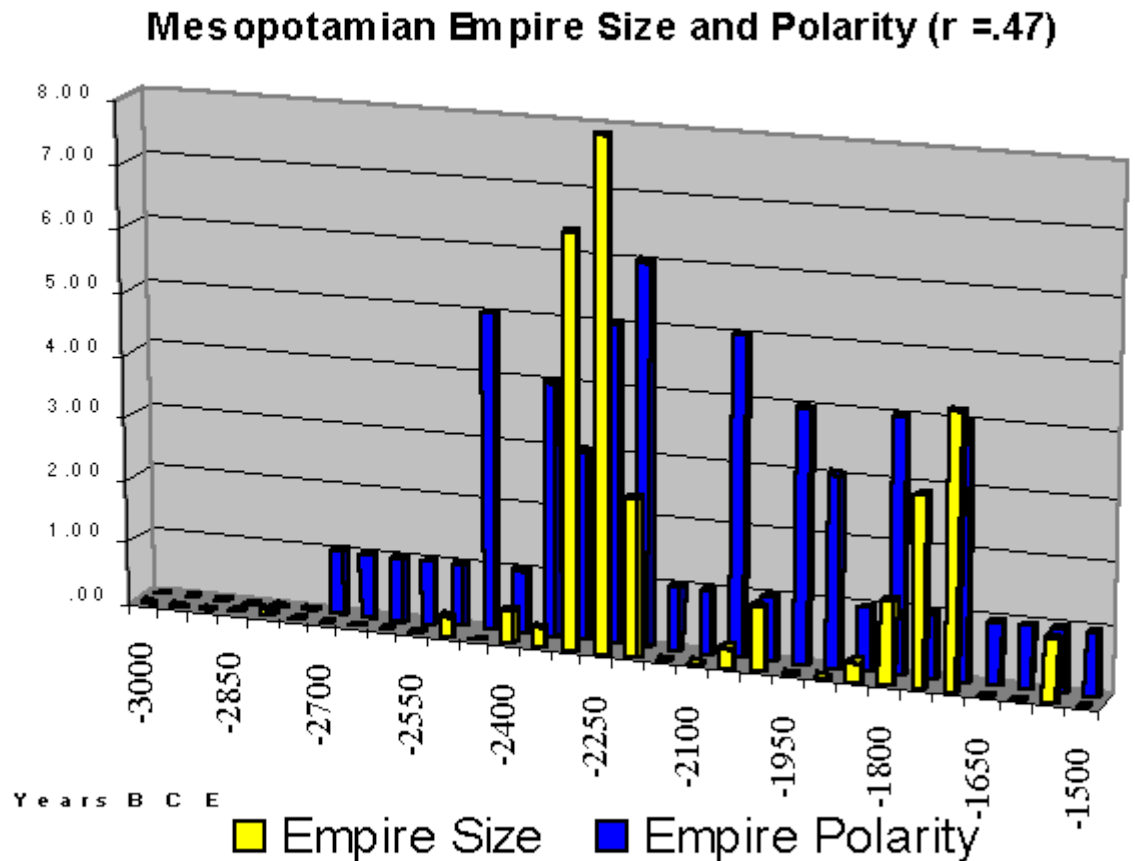
3: bipolar (two great powers)

2 : tripolar (three great powers)

1: multipolar (more than three great powers)

0 : nonpolar (no great powers)

It is reasonable to suppose that power configurations should be positively correlated over time with the territorial size of the largest empire. Figure 2 confirms this correlation for ancient Southwest Asian system. [5]



**Figure 2: Power Configurations and the Territorial Size of the Largest Empire**

The Jemdet Nasr and Early Dynastic periods saw the further growth of cities in Mesopotamia and seven centuries of an intercity-state system with the rise and fall of hegemonic core states but no successful formation of a core-wide empire. This sequence is quite different from what happened in Egypt, where the emergence of monumental cities and large-scale agriculture led to much larger territorial states, and very soon to a core-wide empire (see Figure 4 below). [6] The explanations for these differences have long been alleged to be ecological, having to do with the differences in the communications and transportation possibilities in the two regions. Whereas the Nile is a single and quite navigable river both upstream and downstream, the Tigris and the Euphrates are much less navigable, and so communications and trade routes are more complex in Mesopotamia. In Egypt a state can easily get effective control of the entire agricultural heartland by controlling movement on the Nile, while in Mesopotamia central control of flows of information and goods is much more difficult to gain (Mann 1986). Thus the process of empire building took much longer in Southwest Asia than it did in Egypt (See Figure 4 below).

This ecological explanation is now often disparaged by those who compare Mesopotamia and Egypt (e.g. Baines and Yoffee 1998) in favor of cultural differences that may have led to the differences in political organization. But it is equally plausible that the cultural differences were themselves consequences of ecological and political structures. In Egypt the temple economy last far longer before it was transformed into state led by a warrior-king because early empire formation along the Nile was not challenged by adjacent strong states. In Mesopotamia each of the city-states needed to constantly defend its sovereignty from competing adjacent states. Many of the cultural differences between the two regions are due to these ecological and geopolitical differences.

## Sargon

Though there were several efforts by powerful states to conquer the whole core region of Mesopotamia, this goal was not reached until the emergence of the Akkadian Empire in 2350 BCE. Chase-Dunn and Hall (1997: 84-89) presented a case for this first core-wide empire as an instance of a semiperipheral marcher state conquest. This was based on the notion that the Akkadian-speaking conquerors were recently settled nomadic pastoralists in Northern Mesopotamia who used elements of political organization and military technology stemming from their formerly peripheral origins to conquer the old core city-states and erect a larger empire. This portrayal is challenged by evidence that the Akkadian language had long been present in both Northern and Southern Mesopotamia and that Agade, the capital of the Akkadian Empire was probably established **after** the Sargonic conquest rather than being a city populated by recently settled ex-nomads (Postgate 1992:36). Though archaeologists have not yet firmly identified the location of Agade among the thousands of mud-heaps (tells) in Iraq, it is thought that Agade was built in the northern part of the Mesopotamian region.

By the time of the Sargonic conquest the characterization of Northern Mesopotamia as semiperipheral is problematic. The northern part of the alluvium was more heavily urbanized than the south (Adams 1981) in the Early Uruk period, but the situation reversed toward the end of the Uruk period with the exponential growth of Warka. The north may have had a greater concentration of Akkadian speakers (Postgate 1992:38), but some of the northern cities, (e.g. Kish) had long been among the contenders for hegemony in the inter-city-state system of the Early Dynastic period. These particulars favor an interpretation of the Akkadian conquest that is more based on class and ethnic cleavages in Mesopotamia than on the core/periphery dimension (Yoffee 1991).

The Akkadian regime, called an "upstart dynasty" by Postgate (1992), made the Akkadian language the official language of the state and, under Sargon's son Naram-sin (2291 BCE), imposed a standardized system of weights and measures across the Mesopotamian core. After the fall of the Akkadian dynasty there was a period of disorder in which the Gutians (nomadic people from the Zagros Mountains) infiltrated the Mesopotamian core region and contended for power. The north-south dimension of conflict continued to be a cultural and geopolitical fault-line. The Third Dynasty of Ur (2113 BCE) reasserted southern dominance and Sumerian culture. David Wilkinson (1991) notes a pattern that he calls

"shuttling" in which centralized power shifted back and forth between two adjacent regions. This pattern of shuttling rise and fall, now increasingly composed of multi-city states, characterizes what happened in Southwestern Asia throughout the rest of the period until the Babylonian Empire and the end of the period we are studying in this paper. Subsequent Mesopotamian Empires until 1500 BCE were not larger than the Akkadian Empire had been (see Figure 1), and the location of the most powerful states shuttled back and forth between Northern and Southern Mesopotamia.

## Core and Periphery

The most serious incursions of peripheral tribes occurred during periods of political disorder in the core regions. There were probably both "push" and "pull" factors involved in this pattern of recurrent incursions. Disorder amongst the "civilized" states made them vulnerable and encouraged interlopers. And nomadic pastoralists and hill tribes probably had their own organizational dynamics (Hall 1991; 2000). We know from other areas that nomadic pastoralists have their own cycles of centralization and decentralization (Barfield 1989). And climate changes affected both the abilities of the agrarian states to produce food and the abilities of the nomads to raise herds. Thompson (2000: Figure 3) indicates that there is a fairly good correspondence over time between the size of the largest Mesopotamian state and the Tigris/Euphrates river levels. This is encouraging for the hypothesis that climate change is related to rise and fall, and it may be an important factor in peripheral incursions.

The Amorite tribes were nomadic pastoralists coming from the deserts of the northwest. In order to prevent their incursions the Ur III dynasty constructed a Great Wall of Mesopotamia clear across the northern edge of the core region (Postgate 1992:43). But there were also new invasions from the east by Elamites and it was a combination of Amorite and Elamite incursions that led to the fall of the Third Dynasty of Ur. There followed the Isin-Larsa period in which small independent states each had an Amorite ruling house, and the Old Babylonian period that followed was a system of rather larger multicity states. The Amorite kings of Babylon, including the famous Hammurapi, expanded their empire until Babylon was itself conquered in 1595 BCE by a new group of nomadic invaders, the Hittites, led by Murcilis.

## Merchant Capitalism

During these developments trade networks continued to expand, albeit unevenly. Periods of peace and empire allow trade to become more intense and goods to travel farther. The commodification of goods and wealth had long been emerging within and between the states of Mesopotamia. Contracts of sale of lands and interest-bearing loans were known from the Early Dynastic period, and prices were clearly reflecting shortages in the Ur III period. In the Old Babylonian period we find a clear instance of a phenomenon that became more frequent and widespread in the later commercializing tributary empire systems -- the **semiperipheral capitalist city-state** (Chase-Dunn and Hall 1997:90-93). [7] This was the Old Assyrian merchant dynasty based in Assur on the upper Tigris, with its

colonial enclaves of Assyrian merchants located in distant cities far up into Anatolia and beyond (Larsen 1987, 1992). Assur was a merchant capitalist city-state with a far-flung set of colonies in the midst of an interstate system in which most states were still pursuing a strategy of territorial expansion.

The capitalist city-state phenomenon is clearly a different kind of semiperipheral development from that of the semiperipheral marcher state. These states pursued a policy of profit making rather than the acquisition of territory and the use of state power to tax and extract tribute. They emerged in the interstices between the territorial states in world-economies in which wealth could be had by buying cheap and selling dear (merchant capitalism). One of their consequences was the expansion of trade networks because their commercial activities provided incentives for distant producers and accumulators to use surpluses for trade and to produce surpluses beyond local needs for this purpose. Thus the capitalist city-states were agents of commodification and the expansion and intensification of a regional division of labor.

The Old Assyrian merchants, unlike most capitalist city-states, were not maritime specialists (as were e.g. the Phoenicians, Venice, Genoa, Malacca, etc.). But they did occupy a key transportation site that enabled them to tap into profit streams created by the exchange of eastern tin and Mesopotamian textiles for silver. Bronze was being produced in Anatolia using copper from the north and tin imported from the east, probably from regions that are now part of Afghanistan. The demand for tin was great and the worshippers of Assur were able to profitably insert themselves into this trade by negotiating treaties with the other states in the region that allowed them access to markets at agreed upon taxation rates. They also organized and carried out the transportation of goods over long distances by means of donkey caravans, and they produced an effective structure of self-governance. This is an early instance of what Philip Curtin (1984) has called a "trade diaspora," in which a single cultural group specializes in cross-cultural trade. [8]

Most of the evidence that we have about the Old Assyrian city-state and its colonies comes from the Kultepe tablets at Kanesh, an archive of business records and letters that show how the Old Assyrians organized and governed their business activities (Veenhof 1995). The records show that these were merchants trading on their own accounts for profit, not agents of states carrying out "administered trade" akin to tribute exchanges. Though Karl Polanyi (1957) was wrong about the Old Assyrians in this regard, his larger perspective on the evolution of institutional modes of exchange remains an important contribution to our understanding of the qualitative differences between kin-based, state-based and market forms of integration. The conquest empire of the Hittites was certainly a case of the semiperipheral marcher state strategy in which recently settled nomads overwhelmed an interstate system and created a new and larger empire.

The later history of Assur is also an interesting case that is relevant for our understanding of semiperipheral development. The Old Assyrians were conquered by an Amorite sheik. Their later re-emergence as the Neo-Assyrian empire was a fascinating instance of a semiperipheral capitalist city-state switching to the marcher state strategy of conquest, [9]

and their success in this venture created an empire that was larger than any other that had been before it in Southwestern Asia (see Figure 1).

## **From Peripherality to Semiperipherality**

In the hinterlands, "beyond the pale" dwelt those labeled "barbarians," which might be glossed "the not like us" peoples. What were their relations to sedentary peoples and how did they change? Much of this will be forever shrouded by the paucity of hard evidence. Hence we are forced to use much later sedentary - nomad relations to gain insights into the first relations. Such ethnographic "upstreaming" is always hazardous, the more so when origins are the subject of investigation. Still, we can posit trading and raiding two ways in which nomadic peoples can interact with sedentary peoples. Even when the nomadism is bipedal, nomads have immense advantages over sedentary peoples: they are fewer, they are mobile, more importantly, their resources are also mobile, they know their territory intimately, and their sedentary foes are, literally, sitting ducks. In fact, the only way raiding nomads can be subdued is to sedentarize them -- something seldom if ever possible until last few centuries.

On the other hand, we learn from Barfield's account that the popular image of nomads as destroyers is a gross exaggeration. Here one must distinguish between a city or village that is destroyed in a raid, versus an entire empire which readily outlasts all such raids. Nomads cannot profit from **either** raiding or trading with a failing state because there will be little or nothing to raid or trade for! This is fundamentally what is behind Barfield's seemingly surprising finding that steppe confederacies were strong only when China was strong, and weak when it was weak. He does note, however, that things were often different in West Asia where states were smaller and weaker than China. While Bronze Age states were assuredly weaker, so were the various surrounding nomads.

Owen Lattimore (1968) cites a Chinese proverb to the effect that while one can conquer from horseback, one cannot rule from there. Whether we are discussing mounted pastoralists, or prehorse nomads, the principle is the same: To maintain a conquest over sedentary peoples, nomads must cease being nomads. One of the major problems with ancient accounts of nomadic incursions is that it is often difficult to tell any particular instance was a relatively gradual process of in-migration with new language coming into dominance, or a military conquest that transformed the nomadic conquerors into a new dynasty.

The conventional approach, that nomads conquer weak states, may hold when nomads essentially overplay their hand of raiding to gain better terms of trade and then end up running the place, and ceasing to be nomads. This, of course, would be highly remarked in written records. Whereas, centuries of intermittent raids, which alternate with trade, would go unremarked.

But other than accidentally overplaying their raiding, why would nomads conquer sedentary peoples? There may have been variants in Western Asia of what William McNeill

(1987) has called the Steppe gradient. There was a tendency for steppe pastoralists in Central Asia to move westward because the grasses are better toward the east, so strong nomadic confederations tended to emerge in the east, near China, displacing losing groups toward the west. There were probably localized versions of this phenomenon in Western Asia.

This is one of the ways in which climate change, even relatively small climate change, can have strong effects. Slight shifts in rainfall patterns can change considerably the limits of useful rangeland for pastoralists. If any one group moves, all their neighbors, sedentary and nomadic, are affected. Here it is important to keep in mind the volatility of pastoral strategies. An abundance of grass in just a few seasons can lead to an explosion of herd sizes, unleashing quest for more pastures. The quest will intensify if the climate turns dryer and grasses become scarce. This, too, can unleash migrations and conquests, in which nomads seek to take over farmland for pastureland.

Here it is vital to see this as part of a larger system. Farmers and herders utilize different resources and different ecologies. Typically, but not always, land that is very suitable for pastoralism is not suitable for farming. This produces differentiation between farming and herding. Yet neither adaptation is wholly self-sufficient and this produces incentives for trade. But this type of differentiation readily turns into hierarchy, since sedentary populations far outnumber pastoral populations. By trading assorted "surplus" goods, sedentary peoples encourage nomads to produce a surplus of meat and animal by-products on land that is often not suitable for cultivation.

Most important for our argument about systemness and the entraining of processes across regions, nomads are often a key link that transmit changes in one region to distant regions. This, of course, was the argument of Frederick Teggart (1939) in *Rome and China*. For instance, one can imagine a state becoming weakened by a dynastic succession struggle. This could undercut the amount of surplus available for trade, especially with pesky barbarians. Those barbarians then could either step up raids to acquire what could no longer be obtained by trade, further weakening the state and undermining the legitimacy of the ruling elite. If this led to a collapse of the agrarian state nomads might take over and run the state themselves. But unless they had sufficient numbers, knowledge, and organization this outcome would be rare. [10] If nomadic peoples are frustrated in their interactions with existing states they seek elsewhere for necessary goods, and to sell off their surplus. This could start a gradient of clashes that would ramify far across intervening territories. If no alternatives were available, the nomadic society might itself experience a secondary collapse in reaction to the agrarian state collapse. This could actually open new territory to nomads from elsewhere looking for new pastures. Nomads can also facilitate or hinder long distance trade between agrarian states. Small nomadic groups that raid trade caravans make long-distance trade risky and expensive. But a large nomadic confederation can agree to supply security to merchant caravan for a fee, making the risks and returns from trade venture much more calculable. Thus, we can expect some correlation of events between distant sedentary states and empires due to the transmission belts that nomadic groups constitute.

## Egyptian and Mesopotamian Synchrony?

As the Mesopotamian and Egyptian cores and their trade networks expanded they came to have more and more direct and consequential connections with one another. Writing developed in Mesopotamia and Egypt at about the same time and there may have been a diffusion of the idea of two-dimensional systems of symbolic codes (writing) in one direction or both. This would indicate that the information networks and the prestige goods networks were already connected. This raises the possibility that the cycles of rise and fall and the growth of cities may have become synchronized in the two core regions.

Research has demonstrated this phenomenon for the later cases of East and West Asia between 600 BCE and 1500 CE (Chase-Dunn, Manning and Hall 2000; Chase-Dunn and Manning 2002). These were two distant core regions linked by a prestige goods network, but they had no direct political/military interaction. This synchronization of East and West Asian city growth/decline phases and the rise and fall of large states has been tested and retested and now begins to assume the status of a fact. It was a similar situation in some ways to the relationship between Mesopotamia and Egypt before 1500 BCE. Two separate agrarian core regions were trading prestige goods with one another, and much of the intervening territory was inhabited by nomadic pastoralists.

Regarding the hypothesis of Mesopotamian/Egyptian synchrony, Chase-Dunn and Hall (2000: 105) examined estimates of the population sizes of cities in Mesopotamia and Egypt based on data from Chandler (1987) and the territorial sizes of empires from Taagepera (1978a, 1978b). They found little support for the synchronization hypothesis. Table 1 below replicates that earlier effort by supplementing the Chandler (1987) data with estimates from Modelski (2003) and with an improved method of detrending. The empire size data are from Taagepera.

Although these data still contain the same reliability limitations as previous estimates of urban populations, Modelski's compendium represents the most complete and current compilation of urban populations. Modelski began with Chandler's compendium of urban populations and then expanded and improved the coverage using newer and more recent historical information. Using Modelski's data set we have enlarged our data set for Egyptian and Mesopotamian cities from 7 to 23 time points in the Egyptian PMN and from 16 time points to 25 time points in Mesopotamia.

### *City-to-city correlations across PMNs*

<b>Region</b>	<b>Pearson's r</b>	<b>Sig. Lev.</b>	<b>N</b>	<b>Years</b>
<b>Egypt-Mesop</b>	0.073	0.370	23	2800 B.C.E. - 400 B.C.E.
<b>Egypt-Mesop</b>	0.152	0.348	9	2800 B.C.E. - 1500 B.C.E.
<b>Egypt-Mesop</b>	0.177	0.264	15	1500 B.C.E. - 400 B.C.E.

### *Empire-to-empire correlations across PMNs*



<b>Region</b>	<b>Pearson's r</b>	<b>Sig. Lev.</b>	<b>N</b>	<b>Years</b>
<b>Egypt-Mesop</b>	-0.086	0.344	24	2800 B.C.E. - 400 B.C.E.
<b>Egypt-Mesop</b>	-0.140	0.350	10	2800 B.C.E. - 1500 B.C.E.
<b>Egypt-Mesop</b>	-0.049	0.432	15	1500 B.C.E. - 400 B.C.E.

\*Pearson's r significant at the 0.05 level.

\*\*Pearson's r significant at the 0.01 level.

Table 1: Mesopotamian and Egyptian City and Empire Correlations based on Percentage Change Scores For Different Time Periods

We tested the hypothesis of synchrony of growth and decline between Egyptian and Mesopotamian city sizes and empires sizes using the percentage change score. The change score methodology was used to rule out the long-term secular increase in city and empire sizes. The synchrony hypothesis is about the phase relationships among medium-run growth/decline phases. A simple bivariate correlation between regions would necessarily be positive in part due to the long-run secular upward trend. In our earlier work we detrended by calculating a partial correlation that controls for time. But this presumes that the long-term trend is linear, while observations of city and empire growth suggest a long-term accelerating increase. Detrending with percentage change scores does not presume the shape of the long-term trend. The percentage change score is calculated as follows:  $\% \Delta = (T_2 - T_1 / T_1) / N$  where N is the number of decades comprising interval T. The latter term is necessary because the intervals between measurement time points are not always of equal lengths.

None of the correlation coefficients in Table 1 are statistically significant, confirming our earlier finding of no support for the hypothesis of synchrony between Mesopotamia and Egypt. We examine three different time periods, and find no synchrony for any of them.

Figures 3 and 4 display the raw size data for the largest cities and the largest empires in Egypt and Mesopotamia.

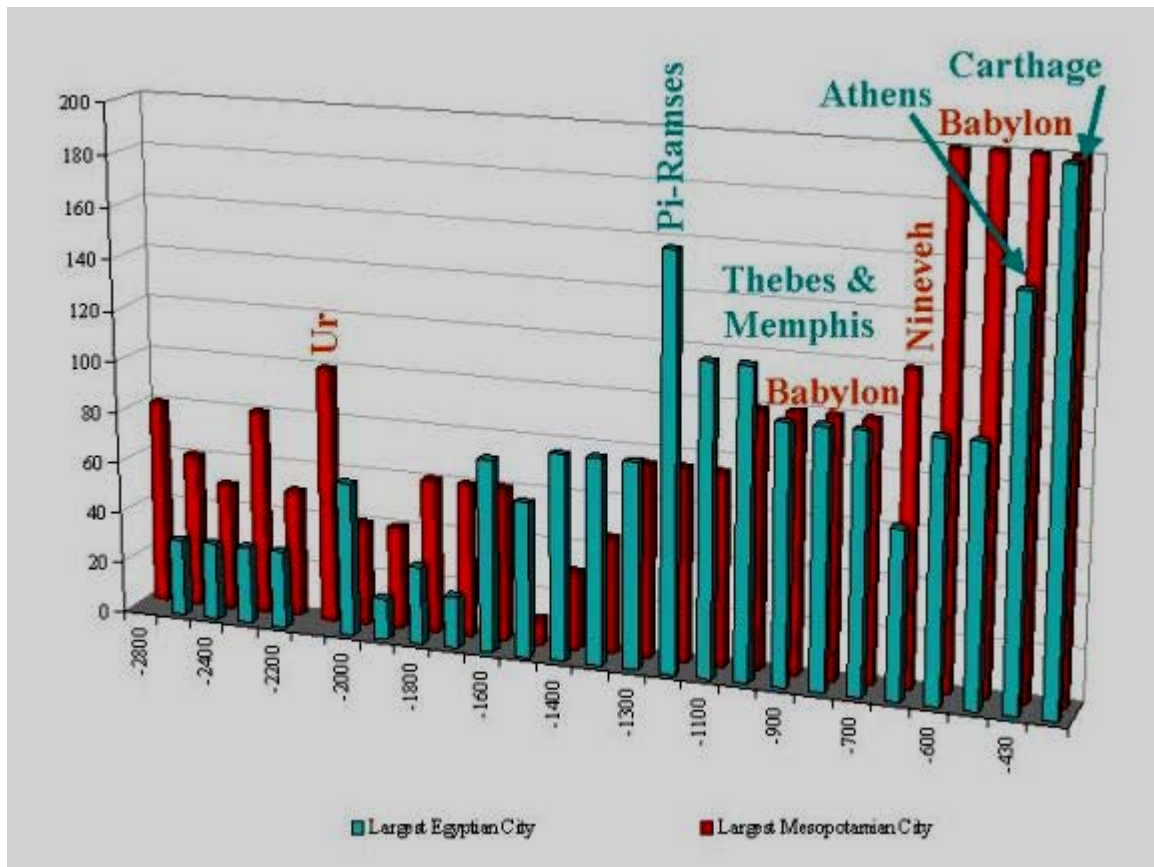


Figure 3: Largest Cities in Egypt and Mesopotamia from 2800 BCE to 430 BCE

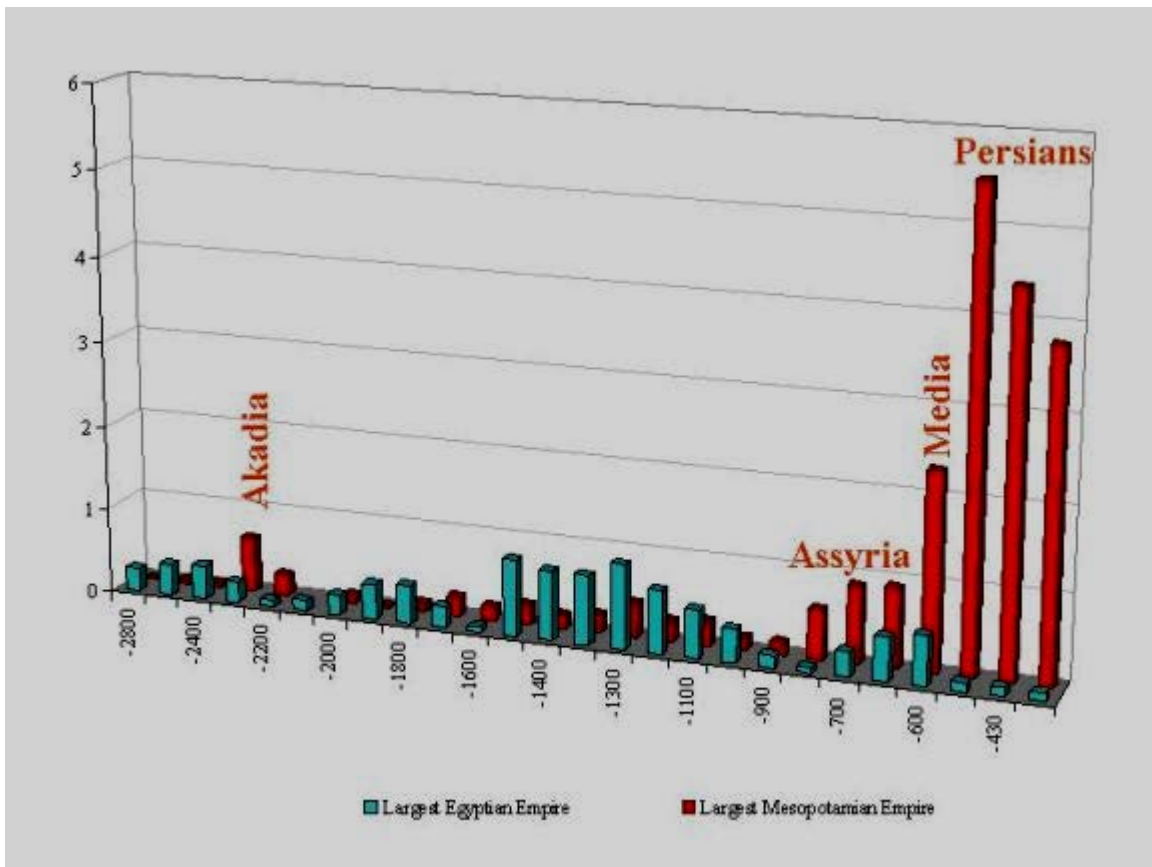


Figure 4: Largest Empires in Egypt and Mesopotamia from 2800 BCE to 430 BCE

The question of synchrony and the causes of rise and fall and urban growth/decline phases in early state systems will require further empirical examination. Both the city and territorial size data sets need to be improved by correcting mistakes and adding data from recently published studies. Even though there is little indication of Mesopotamian/Egyptian inter-regional synchrony, it remains possible that climate change and interactions with peripheral nomads can explain the cyclical patterns in each that are revealed in Figures 3 and 4.

There is considerable support for cycles of rise and fall and sequences of trade expansion and contraction in the Bronze Age and early Iron Age world-systems. The hypotheses of semiperipheral development are confirmed for some instances of transformation, but not for others. We have presented a strong case for the importance of interactions with nomads and the likelihood that climate change has played an important role in the processes of uneven development in the prehistoric and early state-based world-systems.

## Bibliography

- Adams, Robert McCormick 1965 *Land Behind Baghdad: A History of Settlement on the Diyala Plains*. Chicago: University of Chicago Press.
- \_\_\_\_\_ 1966 *The Evolution of Urban Society: Early Mesopotamia and Prehispanic Mexico*. Chicago: Aldine.
- \_\_\_\_\_ 1981 *Heartland of Cities: Surveys of Ancient Settlement and Land Use on the Central Floodplain of the Euphrates*. Chicago: University of Chicago Press.
- \_\_\_\_\_ 1984 "Mesopotamian social evolution: old outlooks, new goals." Pp. 79-129 in Timothy Earle (ed.) *On the Evolution of Complex Societies: Essays in Honor of Harry Hoijer*. Malibu, CA.: Undena Publications.
- Adams, Robert McCormick and Hans Nissen 1972 *The Uruk Countryside*. Chicago: University of Chicago Press.
- Algaze, Guillermo 1993 *The Uruk World System: The Dynamics of Expansion of Early Mesopotamian Civilization* Chicago: University of Chicago Press.
- \_\_\_\_\_ 2000 "The prehistory of imperialism: the case of Uruk period Mesopotamia" in M. Rothman. (ed.) *Uruk Mesopotamia and its Neighbors: Cross-cultural Interactions and their Consequences in the Era of State Formation*. Santa Fe: School of the Americas
- Al Khalifa, Shaikha Haya and Michael Rice (eds.) 1986 *Bahrain through the ages: the archaeology*. London: Routledge.
- Allen, Mitchell. 1992. "The Mechanisms of Underdevelopment: An Ancient Mesopotamian Example." *Review* 15:3(Summer)453-476.
- Anderson, David G. 1994 *The Savannah River Chiefdoms: Political Change in the Late Prehistoric Southeast*. Tuscaloosa: University of Alabama Press.
- Baines, John and Norman Yoffee 1998 "Order, legitimacy and wealth in ancient Egypt and Mesopotamia," Pp. 199-260 in Gary M. Feinman and Joyce Marcus (eds.) *Archaic States*. Santa Fe: School of American Research.
- Bar-Josef, Ofer and Anna Belfer-Cohen 1991 "From sedentary hunter-gatherers to territorial farmers in the Levant." Pp. 181-202 in Susan A. Gregg (ed.) *Between Bands and States*. Carbondale, IL.: Center for Archaeological Investigations, Occasional Papers #9.
- Barfield, Thomas J. 1989 *The Perilous Frontier*. Cambridge, MA.: Blackwell.
- Bean, Lowell John and Harry Lawton 1976 "Some explanations for the rise of cultural complexity in Native California with comments on proto-agriculture and agriculture." Pp. 19-48 in *Native Californians: A Theoretical Retrospective*. L. J. Bean and Thomas C. Blackburn (eds.) Socorro, NM: Ballena Press.
- Bosworth, Andrew 1995 "World cities and world economic cycles" Pp. 206-228 in Stephen Sanderson (ed.) *Civilizations and World Systems*. Walnut Creek, CA.: Altamira.
- Butzer, Karl 1995 "Environmental change in the Near East and human impact on the land," Pp. 123-151 in Jack M. Sasson et al *Civilizations of the Ancient Near East* Vol. 1. New York: Scribners
- Butzer Karl.W. 1997 "Sociopolitical Discontinuity in the Near East C. 2200 BCE: Scenarios from Palestine and Egypt," in H.N. Dalfes, G. Kulka, and H. Wiess, eds., *Third Millennium BC CLimate Change and Old World Collapse*. Berlin: Springer
- Chandler, Tertius 1987 *Four Thousand Years of Urban Growth* Lewiston, NY: Edwin Mellen Press.

- Chase-Dunn, Christopher and Kelly M. Mann 1998 *The Wintu and Their Neighbors: A Very Small World-System in Northern California*. Tucson, AZ.: University of Arizona Press.
- Chase-Dunn, Christopher and Thomas D. Hall 1997 *Rise and Demise: Comparing World-Systems*. Boulder, CO.: Westview.
- Chase-Dunn, C. and Thomas D. Hall 1999 "The Chesapeake world-system"  
<http://wsarch.ucr.edu/archive/papers/c-d&hall/asa99b/asa99b.htm>
- Chase-Dunn, C. and Thomas D. Hall 2000 "Comparing world-systems to explain social evolution." Pp. 85-111 in Robert Denemark, Jonathan Friedman, Barry Gills and George Modelski (eds.) *World System History*. London: Routledge
- Chase-Dunn, Christopher, Susan Manning and Thomas D. Hall, 2000  
**"Rise and Fall: East-West Synchronicity and Indic Exceptionalism Reexamined"**  
*Social Science History* 24,4: 721-48(Winter) .  
<http://csf.colorado.edu/wsystems/archive/papers/c-d&hall/isa98/isa98.htm>
- Chase-Dunn, Christopher and Susan Manning, 2002 "[City systems and world-systems: four millennia of city growth and decline](#)," *Cross-Cultural Research* 36, 4: 379-398 (November). <http://www.irows.ucr.edu/papers/isq01/isq01.htm>
- Chase-Dunn, Christopher and Andrew K. Jorgenson, "[Regions and Interaction Networks: an institutional materialist perspective](#)," 2003 *International Journal of Comparative Sociology* 44,1:433-450. <http://www.irows.ucr.edu/papers/irows13/irows13.htm>
- Chase-Dunn, Christopher, Alexis Alvarez and Daniel Pasciuti Forthcoming. "Size and power: urbanization and empire formation in world-systems" In C. Chase-Dunn and E.N. Anderson (eds.) *The Evolution of World-Systems*. London: Palgrave.  
<http://www.irows.ucr.edu/research/citemp/isa02/isa02.htm>
- Cioffi-Revilla, Claudio 1991 "The long-range analysis of war," *Journal of Interdisciplinary History* 21:603-29.
- \_\_\_\_\_ 1995 "War and politics in ancient Mesopotamia, 2900-539 BC: measurement and comparative analysis." LORANOW Project. Political Science, University of Colorado.
- Collins, Randall 1992 "The geographical and economic world-systems of kinship-based and agrarian-coercive societies." *Review* 15,3:373-88 (Summer). Westport, CT.: Greenwood Press.
- Cooper, J.S. 1973 "Sumerian and Akkadian in Sumer and Akkad." Pp. 239-246 in G. Buccellati (ed.) *Approaches to the Study of the Ancient Near East: A Volume of Studies Offered to Ignace J. Gelb*. Orientalia 42.
- Cooper, Jerrold S. 1983a *The Curse of Agade*. Baltimore: The Johns Hopkins University Press.
- \_\_\_\_\_ 1983b "Reconstructing History of Ancient Inscriptions: The Lagash-Umma Border Conflict." *Sources from the Ancient Near East* 2,1. Malibu, CA. Undena
- \_\_\_\_\_ 1989 "Writing." *International Encyclopedia of Communications* 4:321-31.
- \_\_\_\_\_ 1993 "Paradigm and propaganda: the dynasty of Akkad in the 21st century." Pp. 11-23 in M. Liverani (ed.) *Akkad: The First World Empire*. Padua: Sargon.
- Curtin, Philip D. 1984 *Cross-cultural Trade in World History*. Cambridge: Cambridge University Press.
- Diakonoff, Igor M. 1954 "Sale of land in pre-Sargonic Sumer." Papers presented by the Soviet delegation at the Twenty-third International Congress of

- Orientalists, Assyriology Section. Moscow: USSR Academy of Sciences.
- \_\_\_\_\_ 1969 "Main features of the economy in the monarchies of ancient Western Asia." *Ecole Pratique des Hautes Etudes-Sorbonne, Congres at Colloques* 10, 3: 13-32. Paris and The Hague: Mouton.
- \_\_\_\_\_ 1973 "The rise of the despotic state in ancient Mesopotamia." Pp. 173-203 in I. M. Diakonoff (ed.) *Ancient Mesopotamia*. G. M. Sergheyev (transl.) Walluf bei Wiesbaden: Dr. Martin Sandig.
- \_\_\_\_\_ 1974 *Structure of Society and State in Early Dynastic Sumer*. Monographs on The Ancient Near East 1, 3. Los Angeles: Udena Publications.
- \_\_\_\_\_ 1982 "The structure of Near Eastern society before the middle of the 2nd millenium B.C." *Oikumene* 3: 7-100, Publishing House of the Hungarian Academy of Sciences.
- Eckhardt, William 1992 *Civilizations, Empires and Wars: A quantitative history of war* Jefferson, NC: McFarland.
- Eckholm, K. and J. Friedman 1982 "Capital" Imperialism and Exploitation in Ancient World-Systems, *Review* 6 (1): 87-110.
- Fagan, Brian 1999 *Floods, Famines and Emperors: El Nino and the Fate of Civilizations*. New York: Basic Books.
- Falkenstein, Adam 1974 *The Sumerian Temple City*. Monographs on the Ancient Near East 1, 1 Los Angeles: Udena Publications.
- Farber, Howard 1978 "A price and wage study for Northern Babylonia during the Old Babylonian period," *Journal of the Economic and Social History of the Orient* 21, 1:1-51.
- Feinman, Gary M. and J. Marcus (eds.) 1998 *Archaic States*. Santa Fe: School of American Research.
- Flannery, Kent V. 1999a "Process and agency in early state formation." *Cambridge Archaeological Journal* 9,1: 3-21.
- \_\_\_\_\_ 1999b "The ground plans of archaic states." Pp. 15-57 in G. Feinman and J. Marcus (eds.) *Archaic States*. Santa Fe, NM: School of American Research
- Frank, Andre Gunder 1993 "The bronze age world system and its cycles." *Current Anthropology* 34:383-413.
- Friedman, Jonathan and Michael J. Rowlands 1977 "Notes towards an epigenetic model of the evolution of 'civilization'." Pp. 201-278 in J. Friedman and M. J. Rowlands (eds.) *The Evolution of Social Systems*. London: Duckworth.
- Galvin, Kathleen F. 1987 "Forms of finance and forms of production: the evolution of specialized livestock production in the ancient Near East." Pp. 119-129 in Elizabeth Brumfiel and Timothy K. Earle (eds.) *Specialization, Exchange and Complex Societies*. Cambridge: Cambridge University Press.
- Gibson, McGuire 1972 *The City and Area of Kish*. Miami: Field Research Projects.
- Gills, Barry K. 1995 "Capital and power in the processes of world history," Pp. 136-162 in Stephen Sanderson (ed.) *Civilizations and World Systems*. Walnut Creek, CA.: Altamira Press.
- Hall, Thomas D. 1991 "The role of nomads in core/periphery relations." Pp. 212-239 in C. Chase-Dunn and T.D. Hall (eds.) *Core/Periphery Relations in Precapitalist Worlds*. Boulder, CO.: Westview.
- \_\_\_\_\_ 2000 "Sedentary-nomad relations in prehistoric and ancient Western Asia:

- questions and speculations.” Paper presented at the annual meeting of the International Studies Association, Los Angeles.
- Hayden, Brian 1981 “Research and development in the Stone Age: technological transition among hunter-gatherers.” *Current Anthropology* 22,5:519-548.
- Helms, Mary W. 1988. *Ulysses' Sail: An Ethnographic Odyssey of Power, Knowledge, and Geographical Distance*. Princeton: Princeton University Press.
- \_\_\_\_\_. 1992. "Long-distance Contacts, Elite Aspirations, and the Age of Discovery in Cosmological Context." Pp. 157-174 in *Resources, Power, and Interregional Interaction*, edited by Edward Schortman and Patricia Urban. New York: Plenum Press.
- Kardulias, P. Nick 1999 “Multiple levels in the Aegean Bronze Age World-System.” Pp. 179-202 in P. Nick Kardulias (ed.) *World-Systems Theory in Practice*. Lanham, MD.: Rowman and Littlefield.
- Kenoyer, Jonathan M. (ed.) 1994 *From Sumer to Melubba: Contributions to the archaeology of South and West Asia in memory of George F. Dales, Jr.* Wisconsin Archaeological Reports, Vol. 3. Madison, WI.: Department of Anthropology, University of Wisconsin
- Kenoyer, Jonathan M. 1998 *Ancient Cities of the Indus Valley Civilization*. Karachi: Oxford University Press.
- Kohl, Phillip L. 1978. "The Balance of Trade in Southwestern Asia in the Mid-Third Millennium B.C." *Current Anthropology* 19:3(Sept.):463-492.
- \_\_\_\_\_. 1979. "The 'World Economy' in West Asia in the Third Millennium B.C." Pp. 55-85 in *South Asian Archaeology 1977*, edited by M. Toddei. Instituto Universitario Orientale, Naples.
- \_\_\_\_\_. 1981. "Materialist Approaches in Prehistory." *Annual Review of Anthropology* 10:89-118.
- \_\_\_\_\_. 1985. "Symbolic Cognitive Archaeology: A New Loss of Innocence." *Dialectical Anthropology* 9:105-117.
- \_\_\_\_\_. 1987a. "The Use and Abuse of World Systems Theory: the Case of the 'Pristine' West Asian State." Pp. 1-35 in *Archeological Advances in Method and Theory* 11:1-35. New York: Academic Press.
- \_\_\_\_\_. 1987b. "The Ancient Economy, Transferable Technologies and the Bronze Age World-system: A View from the Northeastern Frontier of the Ancient Near East." Pp. 13-24 in *Centre and Periphery in the Ancient World*, edited by Michael Rowlands, Mogens Larsen and Kristian Kristiansen. Cambridge: Cambridge University Press.
- \_\_\_\_\_. 1988. "State Formation: Useful Concept or Idée Fixe?" Pp. 27-34 in *Power Relations and State Formation*, edited by Christine W. Gailey and Thomas C. Patterson, pp. 27-34. Washington, D. C.: American Anthropological Association.
- \_\_\_\_\_. 1992. "The Transcaucasian "Periphery" in the Bronze Age: A Preliminary Formulation." Pp. 117-137 in *Resources, Power, and Interregional Interaction*, edited by Edward Schortman and Patricia Urban. New York: Plenum Press.
- Kohl, Philip L. and Rita P. Wright. 1977. "Stateless Cities: The Differentiation of Societies in the Near Eastern Neolithic." *Dialectical Anthropology* 2:271-283.
- Lamberg-Karlovsky, C. C. 1975. "Third Millennium Modes of Exchange and Modes of Production." Pp. 341-368 in *Ancient Civilization and Trade*, edited by J. A. Sabloff and C. C. Lamberg-Karlovsky. Albuquerque: University of New Mexico Press.
- Larsen, Mogens Trolle 1976 *The Old Assyrian City-State and Its Colonies*. Copenhagen: Akadmisk Forlag.

- Larsen, Mogens Trolle. 1987. "Commercial Networks in the Ancient Near East." Pp. 47-56 in *Centre and Periphery in the Ancient World*, edited by Michael Rowlands, Mogens Larsen, and Kristian Kristiansen. Cambridge: Cambridge University Press.
- \_\_\_\_\_. 1992. "Commercial Capitalism in a World System of the Early Second Millennium B.C." Paper presented at International Studies Association, Atlanta, GA.
- Lerro, Bruce 2000 *From Earth-Spirits to Sky-Gods*. Lexington Press.
- Mann, Michael. 1986. *The Sources of Social Power: A History of Power from the Beginning to A.D. 1760*. Cambridge: Cambridge University Press.
- Marcus, Joyce 1999 "The peaks and valleys of ancient states." Pp. 59-94 in G. Feinman and J. Marcus (eds.) *Archaic States*. Santa Fe, NM: School of American Research.
- Marfoe, Leon 1987 "Cedar forest and silver mountain: social change and the development of long-distance trade in early Near Eastern societies," Pp. 25-35 in M. Rowlands et al *Centre and Periphery in the Ancient World*. Cambridge: Cambridge University Press.
- McNeill, William H. 1963 *The Rise of the West*. Chicago: University of Chicago Press.
- Modelski, George 2003 *World Cities: -3000 to 2000*. Washington, DC: Faros 2000
- Moore, Andrew M.T. 1982 "The first farmers in the Levant." Pp. 91-112 in Young, Smith and Mortenson, *The Hilly Flanks*.
- McNeill, William H. 1963 *The Rise of the West*. Chicago: University of Chicago Press.
- Midlarski, Manus I. 2000 "The rise and decline of ancient civilizations: the case of Egypt." Paper presented at the meetings of the International Studies Association, Los Angeles, March 18.
- Modelski, George 1997 "Early world cities: extending the census to the fourth millennium," Prepared for the annual meeting of the International Studies Association, Toronto, March 21
- \_\_\_\_\_. 1999 "Ancient world cities 4000-1000 BC: centre/hinterland in the world system." *Global Society* 13,4:383-392.
- Morner, N.-A. and W. Karlen (eds.) 1984 *Climatic Changes on a Yearly to Millennial Basis* Boston: D. Reidel
- Neumann, J. and S. Parpola 1987 "Climatic change and the eleventh-tenth century eclipse of Assyria and Babylonia," *Journal of Near Eastern Studies* 46:161-182.
- Nissen, Hans J. 1988. *The Early History of the Ancient Near East, 9000-2000 B.C.* Chicago: University of Chicago Press.
- Oppenheim, A. L. 1957 "A bird's-eye view of Mesopotamian economic history." Pp. 27-37 in K. Polanyi, C. M. Arensberg and H. E. Pearson (eds.) *Trade and Market in the Early Empires*. Chicago: Regnery.
- \_\_\_\_\_. 1969 "Comment on Diakonoff's 'Main features of the economy...'" *Ecole Pratique des Hautes Etudes--Sorbonne, Congres et Colloque* 10, 3:33-40.
- Polanyi, Karl 1957 "Marketless trading in Hammarabi's time." Pp. 12-26 in K. Polanyi, C. M. Arensberg and H. E. Pearson (eds.) *Trade and Market in the Early Empires*. Chicago: Regnery.
- Polanyi, Karl, Conrad M. Arensberg and Harry W. Pearson (eds.) 1957 *Trade and Market in the Early Empires*. Chicago: Regnery.
- Postgate, J. N. 1992 *Early Mesopotamia : society and economy at the dawn of history* London ; New York : Routledge.
- Redman, Charles L. 1978 *The rise of civilization : from early farmers to urban society in*



- the ancient Near East* San Francisco : W. H. Freeman, c1978.
- Renfrew, Colin R. (ed.) 1971 *The Explanation of Culture Change: Models in Prehistory*. Pittsburgh: University of Pittsburgh Press.
- Renfrew, Colin R. 1975. "Trade as Action at a Distance: Questions of Integration and Communication." Pp. 3-59 in *Ancient Civilization and Trade*, edited by J. A. Sabloff and C. C. Lamborg-Karlovsky. Albuquerque, NM: University of New Mexico Press.
- \_\_\_\_\_. 1977. "Alternative Models for Exchange and Spatial Distribution." Pp. 71-90 in *Exchange Systems in Prehistory*, edited by T. J. Earle and T. Ericson. New York: Academic Press.
- \_\_\_\_\_. 1986. "Introduction: Peer Polity Interaction and Socio-political Change," Pp. 1-18 in *Peer Polity Interaction and Socio-political Change*, edited by C. Renfrew and John F. Cherry. Cambridge: Cambridge University Press.
- Renfrew, Colin R. and John F. Cherry, eds. 1986. *Peer Polity Interaction and Socio-political Change*. Cambridge: Cambridge University Press.
- Rice, Michael 1985 *Search for Paradise: an introduction to the archaeology of Babreïn and the Arabian Gulf, from earliest times to the death of Alexander the Great*. London: Longman.
- Rowlands, Michael, Mogens Larsen, and Kristian Kristiansen, eds. 1987. *Centre and Periphery in the Ancient World*. Cambridge: Cambridge University Press.
- Runnels, Curtis and Tjeerd H. van Andel 1988 "Trade and the origins of agriculture in the Eastern Mediterranean." *Journal of Mediterranean Archaeology* 1,1:83-109.
- Sahlins, Marshall 1972 *Stone Age Economics*. New York: Aldine.
- Schwartz, Glenn 1988 "Excavations at Karatut Mevkii and perspectives on the Uruk/Jemdet Nasr expansion." *Akkadica* 56:1-41.
- Seaman, Gary (ed.) 1989 *Ecology and Empire: Nomads in the Cultural Evolution of the Old World* Los Angeles: Ethnographics/USC, Center for Visual Anthropology, University of Southern California
- Schmandt-Besserat, Denise 1992 *Before Writing: From Counting to Cuneiform*. Austin: University of Texas Press.
- Solecki, Rose L. and Ralph S. Solecki 1982 "Late pleistocene/ early holocene cultural traditions in the Zagros." Pp. 123-140 in Young, Smith and Mortenson. *The Hilly Flanks*.
- Snell, Daniel C. 1982 *Ledgers and Prices: Early Mesopotamian Merchant Accounts*. New Haven: Yale University Press.
- Stein, Gil J. 1999 *Rethinking World-Systems: Diasporas, Colonies and Interaction in Uruk Mesopotamia*. Tucson: University of Arizona Press.
- Struve, V. V. 1973 [1933] "The problem of the genesis, development and disintegration of the slave societies in the ancient orient" Inna Levit (Transl.) Pp. 17-69 in I. M. Diakonoff (ed.) *Ancient Mesopotamia*. Walluf bei Wiesbaden: Dr. Martin Sandig.
- Taagepera, Rein 1978a "Size and duration of empires: systematics of size," *Social Science Research* 7, 108-127.
- \_\_\_\_\_. 1978b "Size and duration of empires: growth-decline curves, 3000 to 600 B.C.," *Social Science Research* 7, 180-196.
- Thomas, H. L. 1982 "Archaeological evidence for the migrations of the Indo-europeans." Pp. In E.C. Polome (ed.) *The Indo-europeans in the Fourth and Third*

- Millennia*. Ann Arbor: Karoma.
- Thompson, William R. 2000 "Climate, water, and center-hinterland conflict in the ancient world-system." Paper presented at the meetings of the International Studies Association, Los Angeles, March 18.
- Torrence, Robin 1986 *Production and Exchange of Stone Tools: Prehistoric Obsidian in the Aegean*. Cambridge: Cambridge University Press.
- Van de Mierop, Marc 1999 *The Ancient Mesopotamian City*. New York: Oxford University Press.
- Veenhof, Klass R. 1995 "Kanesh: an Assyrian colony in Anatolia." Pp. 859-871 in *Civilizations of the Ancient Near East*, Vol. 2. New York: Simon and Schuster MacMillan.
- Weiss, Harvey; M.-A Courty, W. Wetterstron, F. Guichard, L. Senior and A. Curnow 1993 "The genesis and collapse of third millenium North Mesopotamian Civilization," *Science* 261:995-1004 (August 20).
- \_\_\_\_\_ and Marie-Agnes Courty 1993 "The genesis and collapse of the Akkadian Empire: the accidental refraction of historical law," Pp. 131-155 in Mario Liverani (ed.) *Akkad: the First World Empire* Padua: Sargon.
- Wilkinson, David 1987 "Central Civilization." *Comparative Civilizations Review* 17:31-59 (Fall).
- \_\_\_\_\_ 1991 "Cores, peripheries and civilizations" Pp. 113-166 in C. Chase-Dunn and T.D. Hall (eds.) *Core/Periphery Relations in Precapitalist Worlds* Boulder,CO.: Westview.
- \_\_\_\_\_ 1992 "Cities, civilizations and oikumenes," *Comparative Civilizations Review* Fall 1992, 51-87 and Spring 1993, 41-72.
- \_\_\_\_\_ 2000 "Problems in power configuration sequences: the Southwest Asian Macrosystems to 1500 BC" Presented at the meeting of the International Studies Association, Los Angeles, CA. February.
- Wright, Henry T. 1986. "The Evolution of Civilization." Pp. 323-365 in *American Archaeology, Past and Future: A Celebration of the Society for American Archaeology, 1935-1985*, edited by David J. Meltzer. Washington, D. C.: Smithsonian Institutional Press.
- \_\_\_\_\_ 1998 "Uruk states in Southwestern Iran." Pp. 173-197 in Gary Feinman and Joyce Marcus (eds.) *Archaic States*. Santa Fe, NM: School of American Research.
- Yoffee, Norman 1991 "The collapse of ancient Mesopotamian states and civilization." Pp. 44-68 in Norman Yoffee and George Cowgill (eds.) *The Collapse of Ancient States and Civilizations*. Tucson: University of Arizona Press.
- Young, T.Cuyler, Jr., Philip E. L. Smith and Peder Mortensen (eds.) 1982 *The Hilly Flanks and Beyond: Essays in the Prehistory of Southwestern Asia Presented to Robert J. Braidwood*. Studies in Ancient Oriental Civilization, Number 36. Chicago: Oriental Institute of the University of Chicago
- Zaccagnini, Carlo. 1987. "Aspects of Ceremonial Exchange in the Near East During the Late Second Millennium BC." Pp. 57-65 in *Centre and Periphery in the Ancient World*, edited by Michael Rowlands, Mogens Larsen and Kristian Kristiansen. Cambridge: Cambridge University Press.
- Zagarell, Allen. 1986. "Trade, Women, Class and Society in Ancient Western Asia." *Current Anthropology* 27:5(Dec.):415-430.

[1] An apparently somewhat similar world-system of sedentary foragers existed in Northern California until the gold rush of CE 1849 (Chase-Dunn and Mann 1998).

[2] A state is here understood as a specialized administrative apparatus of regional control that is at least partially independent of kinship organization.

[3] Flannery (1998:18) makes a big point that Lagash, one of the Mesopotamian states has three cities as well as 20 towns and 40 villages, and so he contests the characterization of Mesopotamian states as city-states. Van de Mieroop (199x) makes the point that these states were city states because political organization was physically and institutionally structured around the main city.

[4] But this relationship does not hold in some other regional systems, including Egypt. See Chase-Dunn, Alvarez and Pasciuti (forthcoming).

[5] Our study of the Indic interstate system (Chase-Dunn, Manning and Hall 2000) found no correlation between power configurations and empire sizes in that region.

[6] Though Egypt formed a core-wide empire early on, it continued to experience cycles of political centralization and decentralization just as other state systems do.

[7] Dilmun, a maritime trading center somewhere in the Persian Gulf (probably Bahrein or Oman) that engaged in the carrying trade between Mesopotamia and the Indus valley civilization, may have been an earlier example.

[8] Gil Stein applies the concept of “trade diaspora” in a somewhat different way to apply to trading enclaves set up by the Uruk core state to supply itself with certain goods from a distant region. Curtin’s original idea applied to culturally specialized trading ethnicities rather than to trade outposts of urbanized core societies.

[9] Another instance of this kind of niche switching is the case of Hannibal. The Phoenicians had for centuries pursued the maritime capitalist city state strategy in which they combined merchant capitalism with production capitalism by manufacturing profitable products for the carrying trade. Hannibal abandoned the trading strategy for the marcher state approach and he nearly succeeded in conquering Rome. The reticence of the Carthaginians, not fully convinced of the wisdom of territorial conquest, to support his venture in a crucial period was a main cause of its failure.

[10] This is why nomadic conquests are short-lived and more last empires are erected by nomadic peoples who have settled down on the edges of core regions and acquired some of the organizational and cultural attributes of core power.