

within early Sumerian centers to multiply, and so too did the number of possible interactions between the growing centers themselves, which were commonly located within short distances and easy reach of each other via water transport. By the second half of the fourth millennium, this had set the stage for important organizational innovations to emerge within early Sumerian polities that, by then, had become increasingly diversified and populous. Most salient among these innovations were new, and more efficient, ways of organizing labor, as well as new ways of collecting, processing, and transmitting information. More than any other set of factors, these innovations ultimately explain why complex, regionally organized, and expansive city-states evolved earlier in southern Iraq than elsewhere in southwest Asia or the world.

CHAPTER ONE

The Sumerian Takeoff

Natural and Created Landscapes

Economic geographers seeking to understand how substantial variations in population concentration and economic activity are created across the landscape correctly note that, except in cases of colonial imposition, such variations are always the result of cumulative processes whereby initial natural advantages of particular sites or areas are extended and compounded by socially created technologies and institutions delivering increasing returns to scale. In this manner, they argue, self-reinforcing processes of accumulation, exchange, agglomeration, and innovation are created that ultimately determine the varying developmental trajectories of different regions and the location, number, and rate of growth of cities within them (Krugman 1991, 1995, 1998a; Pred 1966).

The historian William Cronon (1991) vividly illustrates this process in reference to the expansion of Chicago in the nineteenth century, as outlined in his book *Nature's Metropolis: Chicago and the Great West*. Cronon insightfully distinguishes between two settings in which the evolution of the city took place. The first was its "natural landscape," entirely determined by geography and environment. The second was what he terms the "created landscape," which results from human innovations and institutions that substantially alter and reshape a city's natural setting

and significantly expand the advantages of its location for human settlement. Cronon argues that in the modern world the created landscape has become more important than the natural landscape as a determinant of urban location and regional developmental rates. Specifically, he sees Chicago's initial role as a Great Lakes port, a role entirely determined by geography of the Great Lakes area, as eventually overshadowed by its later role as a railroad hub, a secondary but economically more important role that emerged as part of the "created landscape." Chicago became the early economic center of its region because it was a port. Railroads later used Chicago as a hub precisely because it already was the early economic center of its region, and thereby helped make its initial centrality that much greater. In so doing, Chicago surpassed its regional rival, Saint Louis, and became the undisputed commercial and cultural center serving as the "gateway" to the American West (see also Kruman 1996a).

New York City presents us with a similar case, according to the economist Paul Krugman (Fujita and Krugman 2004, 141). Its initial growth stems from its natural location at the juncture of the Hudson River and the Atlantic Ocean, which positioned the city early on as one of several important hubs of transatlantic trade along the Eastern Seaboard (together with Boston, Baltimore, and Philadelphia). Because it already was a hub of maritime trade in the first quarter of the nineteenth century, commercial interests in New York City were in an ideal position to lobby the New York state legislature to construct the Erie Canal, a 363-mile-long series of interlocking artificial waterways built within the relatively short span of eight years that linked the cities of Buffalo on the shores of Lake Erie and Albany on the Upper Hudson River (Cornog 2000). Upon its completion in 1825, the canal allowed unimpeded barge traffic between New York City and the Great Lakes via the Hudson River.

The benefits of the canal to the city were immediate: its barges and boats exponentially lowered transport cost of agricultural and other commodities to the city's merchants (chap. 4) and, in so doing, provided them with important advantages vis-à-vis competing commercial interests in Boston, Baltimore, and Philadelphia. Indeed, within fifteen years of the opening of the canal, New York City had eclipsed all of its competitors on the Eastern Seaboard, becoming the busiest seaport in all of the United States; and within thirty years of the opening of the canal the population of the city had quadrupled, as New York became the largest and most populous urban center in the country—exactly what the canal

builders and financiers had intended.¹ As New York City achieved front-rank status in the mid-nineteenth century, in large part because of its increasingly disproportionate share of the inland and maritime trade at the time, economies of scale resulting from the city's larger size made many of its other related industries (notably finance and communication) more competitive than those of its by then smaller rivals, further accentuating the city's centrality and further accelerating its growth.

A Reversal of Fortune

The insights of Cronon and Krugman about the ways in which natural and created landscapes determine, reinforce, and compound each other in modern cities and their surrounding areas are applicable to earlier cases of urban transformation. A case in point appears to be the crystallization of early Sumerian civilization in the alluvial lowlands of the Tigris-Euphrates rivers of southern Mesopotamia during the Uruk period, which is radiocarbon-dated ca. 3900/3800 to ca. 3200/3100 BC (Wright and Rupley 2001; Rupley 2003). As Tony Wilkinson (2001) and Joan Oates (2001) have recently noted, this emergence took place after centuries, if not millennia, in which the developmental trajectory of polities in the southern Mesopotamian alluvium had hardly differed from that of neighboring societies across the ancient Near East. This becomes clear when we compare data pertinent for the fifth and fourth millennia BC produced by disparate surveys and excavations across northern and southern Mesopotamia, southwestern Iran, and the Levant.

Briefly summarized, these data indicate that during the second half of the fifth millennium, Late Ubaid settlements in southern Mesopotamia (Oates 1983) were entirely comparable in terms of both scale (roughly measured by settlement extent) and level of intrasite differentiation to those of contemporary (Middle Susiana 3–Late Susiana) societies in the Susiana plain of Khuzestan (Delougaz and Kantor 1996; H. Wright 1984; Wright and Johnson 1975) and also appear to have also been similar in scale to contemporary settlements in the Upper Euphrates, Upper Khabur, and Upper Tigris basins of Upper Mesopotamia (Kouchoukos and Hole 2003; Wilkinson 2000b, 2003a). Moreover, the Late Ubaid settlements of southern Iraq are comparable in scale to contemporary Ghas-sulian phase Chalcolithic settlements in the Jordan Valley (Bourke 2001, 111–16).

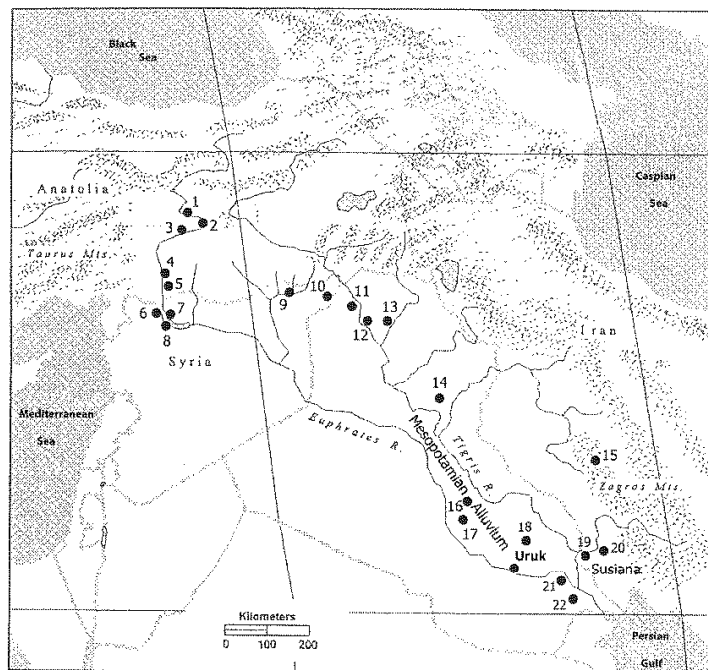


FIGURE 1. Map of the ancient Near East in the fourth millennium BC illustrating the main geographical features, areas, and sites noted throughout the text. Key to sites: 1. Arslan Tepe; 2. Hassek Höyük; 3. Samsat; 4. Hacınebi; 5. Zeytinbahçe; 6. Jebel Aruda; 7. Sheikh Hassan; 8. Habuba Kabira-süd; 9. Tell Brak; 10. Hamoukar; 11. Tell el-Hawa; 12. Nineveh; 13. Tepe Gawra; 14. Rubeidah; 15. Godin Tepe; 16. Abu Salabikh; 17. Nippur; 18. Umma; 19. Susa; 20. Chogha Mish; 21. Ur; 22. Eridu.

A degree of differentiation in regional developmental rates starts to become apparent in some portions of southwest Asia at the transition from the fifth to the fourth millennia but this is mostly due to collapse of the indigenous societies in the Levant at the end of the Chalcolithic period, a process that is still not well understood (Levy 1998, 241–43). Elsewhere in southwest Asia, however, development continued unabated at this time. This is certainly the case in portions of “Greater Mesopotamia,” where “protourban” polities of considerable extent and complexity were beginning to arise, first, in the parts of the Upper Khabur plains of northern Syria and, soon thereafter, within the alluvial lowlands of

the Tigris and Euphrates rivers in southern Iraq, and, to a lesser extent, in Susiana (Adams 1981; Kouchoukos and Hole 2003; Nissen 1993; Oates 2001; Ur, Kaarsgaard, and Oates 2007; Wilkinson 2000b, 2003a; H. Wright 1984, 2001).

Yet, only a few centuries later, by the second half of the fourth millennium, Upper and Lower Mesopotamia were no longer developing largely in tandem or at comparable rates. The available evidence clearly shows that by this time polities in the Tigris-Euphrates alluvial delta had surpassed their immediate neighbors and potential competitors across the Near East (and the world) in terms of scale, degree of internal differentiation, and extent of hierarchy present in surrounding settlement grids (Adams 1981). By the third quarter of the fourth millennium, if not earlier, southern Mesopotamia became a dynamic hub of interaction, where multiple thriving and competing city-states were forged into a politically balkanized but culturally homogeneous and expansive civilization that extended at this point into southwestern Iran and parts of Upper Mesopotamia (Algaze 2005a, 144–45; but see H. Wright 1998 for a contrary opinion).

In contrast, the early indigenous protourban sites of Upper Mesopotamia, such as Tell Brak, were in decline throughout the second half of the fourth millennium (Emberling 2002), just as a number of colonies of Uruk settlers of southern origin were established at strategic locations across the northern plains (Algaze 1993, 2001b; Gibson et al. 2002; G. Schwartz 2001; Stein 1999a, 1999b, 2001). While indigenous societies continued to flourish across the north at this time (Frangipane 2002), including in areas surrounding the intrusive southern settlements, the remaining Late Chalcolithic polities of Upper Mesopotamia as a group were no longer comparable in either scale or complexity to the much more developed polities of southern Mesopotamia, where by then a veritable revolution in human spatial, social, political, and economic organization had taken place.

Early southern Mesopotamian (Sumerian) civilization thus represents a dramatic “takeoff”—a decisive shift in favor of southern Mesopotamia of the balance of urbanization, sociopolitical complexity, and economic differentiation that had existed across the ancient Near East until the onset of the fourth millennium. Why did this shift take place? Could a comparable shift have occurred anywhere in the ancient Near East, or were there factors specific to southern Mesopotamia alone that made it more probable that the shift would occur there rather than elsewhere? If the latter, what processes help account for the emergence of civilization

in the south? And, finally, why did this emergence take place when it did, in the second half of the fourth millennium, and not before?

Forthcoming Discussions

In the chapters that follow I attempt to answer some of these questions by focusing on aspects of how wealth was produced and distributed in the earliest Sumerian city-states. To be sure, as Lamberg-Karlovsky (1995, 2001), Henry Wright (2001), and others (e.g., Collins 2000) have repeatedly warned us, phenomena as complex as the emergence of early cities and the institutionalization of the first despotic governments cannot be fully explained by changes in economic factors alone. This admonition wholly applies to the Sumerian case: unquestionably, the initial growth of early Mesopotamian civilization also entailed equally important, but more difficult to document, concurrent transformations in conceptions of the social order prevalent until then. At a minimum, these must have included new understandings about the nature of rank, the duties owed by the ruled to their rulers, and possibly, new conceptualizations about the nature of property as well (North and Thomas 1973).

In addition, as any student of Max Weber will readily appreciate, social transformations of any consequence are also structured by culturally bound forms of perceiving and comprehending the world, which determine whether individuals and institutions recognize (or not) opportunities for gain in their natural and social environments, and whether they act (or not) on those opportunities. Accordingly, culture helps explain why some societies grow (or not) at an accelerated rate compared to their neighbors, or at their expense. For this reason, cultural factors are often seen, correctly, as having as key a role as economic forces in structuring asymmetrical rates of urban development across the world (Dymski 1996; Martin 1999), and without a doubt culture also plays a central role in structuring the location, form, and layout of early cities wherever they appeared (e.g., Wheatley 1971; Kolata 1983; Marcus 1983; Cowgill 2000), including the ancient Near East.

Finally, if the available ethnohistoric record documenting the transition from chiefdoms to states across the world teaches us anything pertinent about the emergence of early Near Eastern civilizations it is that however crucial economic factors may be in determining the locations where states may (or may not) emerge, in the ultimate analysis what de-

termines whether states actually do arise at those favored locales is the will of particular self-aggrandizing leaders to conquer their neighbors, often while cloaked in the mantle of an expansive religious ideology (Flannery 1999; Wright 2006). Again, early Mesopotamia was no exception to this pattern, as shown by the fact that much of the iconography of the nascent Uruk city-states focuses on a larger-than-life male figure who is repeatedly depicted as a leader in both battle and ritual (Bahrani 2002; Schmandt-Besserat 1993, 2007; Winter 2007).

However, documenting either the political or military strategies taken by individual actors in their quest for power or the weight of ideological and cultural factors in the crystallization of early pristine civilizations is always inherently difficult because of the nature of the evidence at our disposal, which is commonly insufficient to the task (chap. 2 and epilogue). This is indeed the case when we turn to fourth-millennium Mesopotamia, where available evidence allows us to make inferences about broadly defined categories of people and institutions but precludes us from reconstructing in any detail the actions of specific individuals, the historical context of early cities in the area, or even the "weltanschauung" of the first urban populations. Accordingly, the perspective of this book is much narrower: taking advantage of the natural strengths of archaeological data, I focus on economic change in fourth-millennium Sumerian cities as a proxy for the wider set of transformations entailed by the rise of early Mesopotamian civilization. More specifically, I seek to elucidate the economic variables underlying the processes of urban growth and socioeconomic differentiation in southern Mesopotamia of the Middle and Late Uruk periods (ca. 3600–3200/3100 BC) and to shed light on why developmental processes of comparable scale and resilience appear to have been absent in neighboring societies at the time.

Chapter 2 details available evidence that bears on the initial emergence of urban civilization in the Mesopotamian alluvium and outlines important conceptual and methodological problems that, in my opinion, hinder our understanding of the role of economic processes leading to that emergence and that, if left uncorrected, may well limit the kinds of future research that are needed to fully understand the Sumerian take-off. Without a doubt, these limitations will ultimately only be circumvented by a substantial amount of imaginative and carefully designed new research, and some possible avenues of investigation toward this end are suggested in the epilogue. However, it may be possible to look at existing data with new eyes by framing them in the context of pertinent

models of modern urban growth derived from the work of economists and economic geographers. Outlined in chapter 3, these models are intended only as testable propositions, allowing us, at the same time, to speculate about the meaning of current evidence and structure future research designs to better understand the conjuncture of environmental forces, social institutions, and economic mechanisms that made it likely that the earliest urban civilization of southwest Asia would arise first in southern Mesopotamia and not elsewhere.

Chapter 4 focuses on the environmental side of this conjuncture. It explores the unique ecology and geography of the alluvial lowlands of the Tigris-Euphrates rivers during the fifth and fourth millennia BC. The former gave early polities in the area important advantages in agricultural productivity and subsistence resource resilience not possessed by potential rivals on their periphery, while the latter gave them enduring cost advantages in the accumulation and distribution of resources, both local and foreign, as a result of water transport. Derived entirely from what Cronon refers to as the "natural landscape," these advantages created opportunities and incentives that made it both possible and probable that early Mesopotamian elites would see trade as a particularly viable way to legitimize and expand their unequal access to resources and power.

Chapter 5, in turn, presents a speculative scenario to account for how the Sumerian takeoff could have resulted, in part, out of evolving, long-term trade patterns that ultimately favored the development of societies in the alluvial lowlands of Mesopotamia over that of polities in neighboring regions. This trade was, at first, largely internal and took place principally between individual southern polities exploiting rich but localized ecological niches within the Mesopotamian alluvium during the Late Ubaid and Early Uruk periods. By the Middle and Late Uruk periods, however, external trade between growing southern cities and societies at their periphery in control of coveted resources gained more prominence. As the exchange unfolded over time and as its scale and external scope increased, import substitution processes expanded economic activity in growing Uruk centers and fueled large-scale immigration to those centers and their immediate dependencies.

My argument thus far is entirely predicated on the existence of substantial intra- and interregional trade in fourth-millennium southwest Asia and presumes that Uruk polities, in the aggregate, became a key hub for that trade by the second half of the fourth millennium. However,

not all early Mesopotamian specialists agree that trade was a significant factor in the Sumerian takeoff. Chapter 6 addresses these concerns by reviewing what evidence there is for imports and exports to and from southern Mesopotamian cities in the fourth millennium, and discusses existing evidentiary biases that need to be resolved before a true accounting can be made of the role of trade in the emergence of early Sumerian civilization.

Chapter 7 is a comparative review of urban phenomena across Greater Mesopotamia in the fourth millennium. Existing data for protourban settlements in the rolling plains of Upper Mesopotamia are contrasted against comparable evidence from the Mesopotamian alluvium, the two areas of southwest Asia that were further along the developmental path to urbanism at the time. Both areas developed more or less in tandem during the first half of the fourth millennium; however, by the second half of the millennium southern polities had far outstripped their northern competitors in scale and complexity.

Chapter 8 addresses the root causes of the divergence. My main contention is that the environmental and geographical advantages accruing to southern Mesopotamian societies (outlined in chap. 4) and the increases in the density and agglomeration of populations in the alluvium throughout the Uruk period that were selected for by those natural advantages (outlined in chap. 7) represent necessary but not sufficient conditions for the Sumerian takeoff. The sufficient conditions, in my view, were organizational innovations within the nascent city-states of southern Mesopotamia that fall entirely within the realm of Cronon's "created landscape." Most important among these were (1) new forms of organizing labor that delivered economies of scale in the production of subsistence and industrial commodities to southern societies, and (2) new forms of record keeping that were much more capable of conveying information across time and space than the simpler reckoning systems used by contemporary polities elsewhere. These innovations furnished early Sumerian leaders and polities of the fourth millennium with what turned out to be their most important competitive advantages over neighboring societies.

Chapter 9 recapitulates the conjuncture of natural and created landscapes that underpinned the Sumerian takeoff. Additionally, the chapter also briefly addresses two important logical research corollaries of the takeoff not previously dealt with: why did the precocious protourban experiments of early fourth-millennium Upper Mesopotamia eventually

prove unsuccessful? And, why did full-fledged urbanism not arise in the plains of northern Mesopotamia until the middle of the third millennium, eight hundred years or so after comparable phenomena in the southern Mesopotamian alluvium?

The final chapter is presented in the form of an epilogue. It attempts to summarize major evidentiary problems that hinder our comprehension of the full range of factors at play at the time of the emergence of early Mesopotamian civilization, and that will continue to do so in the future until they are resolved. Toward that goal, the epilogue offers suggestions for future research geared to obtaining the missing evidence, when such research becomes possible. This is imperative if a full evaluation is to be made of the main hypothesis advanced in this book, that of the centrality of the ramifications of trade to the evolution of early civilizations in general and to early Mesopotamian urban process in particular. Until the missing evidence can be acquired, however, what we can do is to reassess some conceptual and methodological problems that, in my opinion, still mar our understanding of the evidence bearing on the Sumerian takeoff that we do have at hand. It is to that reassessment that we now turn.

CHAPTER TWO

Factors Hindering Our Understanding of the Sumerian Takeoff

The Material Limits of the Evidence

Existing evidence for the emergence and growth of early cities in the alluvial environment of southern Mesopotamia throughout the various phases of the Uruk period is of varying reliability, resolution, and scope. The formative phases of the process remain shrouded in the mist of the so-called Early Uruk period (ca. 3900–3600 BC), a phase that for all practical purposes is known only through survey evidence (Nissen 1993). The lack of excavation and stratigraphic data for the initial phase of the Uruk period immediately presents us with a significant obstacle to interpretation because by their very nature long-term historical processes can only be studied diachronically.

Later phases of the Uruk period, the Middle and Late Uruk periods (ca. 3600–3200/3100 BC), are better understood, since pertinent data are provided by settlement pattern surveys, excavations at a small number of sites, a fairly extensive corpus of iconographic representations, and by some textual documentation. However, even with this extended evidentiary base there are still substantial problems. Although existing excavations can be hugely informative for individual sites such as the ancient Sumerian city of Uruk (modern Warka, biblical Erech), because of its extraordinary size Warka is certainly not representative of the alluvium as a whole, for which the number of excavated Uruk period sites remains

The Urban Revolution Revisited

Just as there is a connection between increasing population size and the likelihood that a culture will develop formal mechanisms and institutions to ensure efficient communications, increases in the efficiency of communication, once effected, themselves feed the evolving urban process. Economic geographers have implicitly understood this since the time of Adam Smith ([1776] 1976, 13–15 [Li.I–3]), who observed that gains in the efficiency of communication always act as a spur for economic specialization and growth in human societies. At the same time, Smith also noted that equally important gains in economic specialization and differentiation could be obtained from reductions in mobility costs arising from advances in transportation efficiency. It follows logically from Smith's insights that human settlements will naturally tend to grow to the maximum size afforded by the technologies for communication and transportation possessed by their population at any one time and, further, that the introduction or development of new technologies to convey commodities and information will result in additional settlement expansion (Hawley 1986, 7). The reasons for this are explained by Amos Hawley (1986, 65–66), noted above, who observed that social units engaged in specialized functions are necessarily spread over space, which naturally decreases the efficiency of information flow and increases the cost of value-added production and services. Thus, increases in communication efficiency and reductions in mobility costs always result in gains in economic specialization and differentiation—processes that, as noted earlier, are central to the origins and growth of urban societies. It is not difficult to see how the Sumerian takeoff relates to the processes described by Smith and Hawley: it involved both enhanced communication efficiency in the form of new reckoning and writing systems and reductions in mobility costs as population across southern Mesopotamia became increasingly concentrated, production facilities consolidated, and production itself standardized.

A further source of savings in mobility costs must also be considered in any attempt to evaluate why the takeoff happened when it did: improvements in the facility for overland movement in and out of the alluvium in the Middle–Late Uruk periods as a result of the introduction of domesticated donkeys and, possibly, wheeled carts (Bakker et al. 1999). While these new transportational technologies were shared by a wide cross section of contemporary ancient Near Eastern societies (Kohl 2001) in the mid- and late fourth millennium, they must have affected southern Uruk

polities with disproportionate intensity. This is explained by the process of circular and cumulative causation, which implies that the adoption of a new technology, for instance, a new mode of transport, will affect societies with varying developmental trajectories very differently, depending on when exactly the technology is introduced in the cycle of mutual determinations that always exists between population growth, market size, innovation, and increasing returns from new economies of scale.

Against this background, it is easy to understand why the domestication of donkeys, which, when used in caravans, are capable of carrying substantially more cargo overland over much greater distances than unassisted humans, must have had a greater impact on Uruk societies than on neighboring Late Chalcolithic polities. Only in the south did advances in overland travel complement both the natural advantages in ease of transport of the area and the compounding of those advantages by the start of construction of modest manmade canals (fig. 21). Moreover, and more importantly, only in the south were both of these processes reinforced and compounded further by advances in commodity production using task-specialized labor and in the ability to transmit information accurately across time and space. Thus, southern societies would have been better situated than their competitors to profitably exploit the new opportunities for export provided by donkey caravans in the fourth millennium.

Some circumstantial evidence for the role of donkeys in Uruk trade actually exists. In a recent synthesis of available faunal evidence for equid remains in Upper Mesopotamia from the fourth and third millennia BC, Emmanuelle Vila (2006), a paleozoologist, notes that Uruk sites in northern Syria (e.g., El Kowm-2, Sheikh Hassan, Mashnaqa) generally exhibit higher relative frequencies of equid bones in their faunal assemblages than later Early Bronze Age sites in the same area, and this applies not only to immediately post-Uruk levels in small Upper Mesopotamian sites but late third-millennium levels in fully urban centers in the area as well, such as Tell Chuera, for example. She notes further that the majority of those bones can be identified as domestic donkeys (*Equus asinus*). A similar pattern appears to exist in Uruk sites on the Turkish side of the border, for instance, at Zeytinlibahçe Höyük, some 5 kilometers downstream from Hacınebi. Preliminary analysis of the faunal remains from the earliest Uruk level yet found at Zeytinlibahçe (two rooms forming part of a storehouse of Middle Uruk date built using *riemchen* bricks) shows that asses appear to have been unusually common at the time.⁶ The site's excavator, Marcela Frangipane, interprets

this as reflecting “an emphasis on trading or movements of people and/or goods” (Frangipane et al. 2004, 40, figs. 11–12). In my opinion, this explanation is likely correct and is applicable not only to the Zeytin-libahçe data but also to the otherwise difficult-to-explain equid data found by Vila in Uruk outposts in Syria.

Be that as it may, by making it possible for southern traders and colonists to travel northward in large numbers while carrying loads of trade items for the first time, donkey caravans added fuel to a cybernetic process of economic development that had already been underway for centuries in southern Mesopotamia but that had until then been based largely on intraregional trade.

CHAPTER NINE

Conclusions: The Mesopotamian Conjecture

As by means of water-carriage a more extensive market is opened to every sort of industry than what land-carriage alone can afford it, so it is upon the sea coast, and along the banks of navigable rivers, that industry of every kind naturally begins to subdivide and improve itself, and it is frequently not till a long time after that those improvements extend themselves to the inland parts of the country. —Adam Smith, *The Wealth of Nations*

If anything is clear from the foregoing chapters it is that we must acknowledge that processes of social evolution are always the result of both regional and transregional patterns of interaction (Kohl 1987b). A case in point is provided by the roughly parallel development of early state and urban polities in Upper and Southern Mesopotamia during the first half of the fourth millennium BC. Because complex social systems can neither exist nor evolve in isolation, and because there is in fact substantial evidence for contacts between these two areas going as far back as the Neolithic period (H. Wright 1969; Connan 1999), this lockstep development is best explained as the result of processes of competitive emulation fueled by interaction between otherwise independent polities in the two regions. In this, the formative phases of Mesopotamian civilization now appear similar to those of Mesoamerica with its multiple but distinct regional traditions of social complexity (the Maya, Monte Alban, Teotihuacan) developing independently but roughly in tandem as a result

of comparable socioevolutionary processes made widespread by extensive long-distance contacts (Marcus 1998).¹

When seen against this background, the Sumerian takeoff and the intrusion of Middle and Late Uruk settlers into parts of Upper Mesopotamia represent, in fact, a sharp reversal of the preexisting historical trajectory of northern societies. If we are to understand why the balance of urbanization, social complexity, and power in the ancient Near East shifted so decisively to the southern alluvial lowlands of Mesopotamia in the second half of the fourth millennium BC, we must delineate the sequence of mutually reinforcing necessary and sufficient conditions that came together in the south at that time but were absent (in the aggregate) from neighboring contemporary social groups. Only then can we begin to elucidate why the Sumerian takeoff took place at all, why it occurred when it did, and why comparable developments failed to materialize in Upper Mesopotamia, an area that only a few centuries before had appeared as poised for an urban takeoff as the south or elsewhere in southwest Asia.

Early on the stage was set by advantages in productivity, reliability, and ease of transport inherent to the "natural landscape" of southern Mesopotamia. Absent in the aggregate from neighboring regions, these advantages can be considered as the initial set of necessary conditions in the conjuncture. No doubt, the most important of these advantages was ease of transport. As the economist Pierre Desrochers (2001b, 31) insightfully notes, "[T]he overwhelming fact about past trends is that a general reduction in the transportation costs of both goods and information has always tended to encourage geographical concentration rather than discourage it."

The divergent developmental sequences of southern and northern Mesopotamia through the fourth millennium are very much a case in point. The centrality of transport in structuring this divergence becomes clear when we contrast the two areas at the time and the locational circumstances of the main settlements in each area. Those of the south, as already noted, invariably lined the banks of waterways. So, for that matter, did many of the known large Late Chalcolithic settlements across the north. Nineveh, Brak, and Samsat, for instance, are all situated along the principal navigable waterways crisscrossing the area. Each controls a historical fording place where the principal east-west overland routes across Upper Mesopotamia intersect the rivers (Algaze 1993 [2005a]). Paradoxically, however, water transport, the same factor that fostered

interaction between early centers in the closely intertwined fourth-millennium fluvial system of the south, limited interaction in the north, where the major waterways were both quite distant from each other and too deeply incised for multiple channels to exist or to allow for the construction of artificial canals linking the cities to their hinterlands.

The vast intervening plains across the north also impeded both interaction and agglomeration, at least in comparison to the south. The historian Edward Whiting Fox (1971, 25) reminds us quite clearly that geography matters in history, because the units of economic organization cannot be larger than the radius of practical transport prevailing at any one time, and because that economic radius will, more often than not, limit the extent of regular social contact. Thus, even after the introduction of donkeys and carts in the mid-fourth millennium, limitations inherent to overland travel across the Upper Mesopotamian plains imposed enduring natural limits to population agglomeration away from the rivers (Wilkinson 1995). Whereas geography in the south both permitted and encouraged linearly arranged agglomerations based on boat and barge transport, and whereas irrigation agriculture provided the practical means to support such enlarged populations, the geography and rainfall patterns of the northern plains encouraged population dispersal instead so as to maximize the amount of territory under cultivation. Thus, without a way to defeat the friction of overland travel by means of more efficient communication, *in the aggregate*, the geography of the northern plains naturally tended to foster smaller agglomerations than were possible in the south, and significantly more dispersed ones as well.

Under these circumstances, a critical mass of compact and closely interacting peer polities such as existed throughout the Uruk period in alluvial Mesopotamia failed to form across the hinterlands of northern Mesopotamia as a whole in the fourth millennium. Absent this critical mass, processes of intraregional exchange, competition, and emulation would have been less likely to occur in northern Mesopotamia than was the case in contemporary southern Mesopotamian societies. At the same time, however, northern societies would also have had both less need and less ability than their southern counterparts to engage in bulk external trade with its many social ramifications. Less need because Upper Mesopotamian societies were generally situated in areas closer to the principal bulk resources they needed, such as timber for instance, which could therefore be obtained locally without substantial organization. And less ability, because the means of transportation available to

northern societies away from the rivers simply did not lend themselves to the cost-effective movement of anything other than low-bulk, high-value exotics. In contrast, for southern societies, the rivers provided a particularly efficient mode of channeling and distributing both episodic trade in exotics and recurring transfers of bulk commodities.

Accordingly, the initial protourban social systems of the north were not likely to expand significantly in size beyond a certain threshold, because of the "tyranny of friction" or, when they did, as in the thus far unique case of Brak, they were not likely to endure. Nor were the early northern centers likely to significantly enhance their productivity relative to that possible in the south because they lacked the critical mass of closely packed populations to permit much specialization of labor or to encourage the development of new, more complex technologies of communication, such as proved fundamental for the Sumerian takeoff. This left an indelible mark on the historical development of the north because those types of social synergies were in fact precisely what was required in order for northern social systems to successfully circumvent the inherent constraints of their geographical framework.

Indigenous city-states comparable (in complexity, if not always in scale) to those that had thrived in the south since the fourth millennium did emerge across the Upper Mesopotamian plains sometime just before the middle of the third millennium (Weiss 1990; Wilkinson 1994), eight hundred years or so after the Sumerian takeoff. This time lag reflects the operation of processes outlined by Adam Smith in the epigram that introduces this chapter, whereby economic activity and its multipliers first arise in coastal/riverine areas as a result of advantages provided by cheap transport and only at a later time diffuse into inland areas where higher transportation costs prevail. Indeed, it was only by adopting forms of economic production and social organization derived from southern models and, eventually, by embracing full-fledged southern-style writing systems (Postgate 1988), that Upper Mesopotamian polities of the Early Bronze Age were able to marshal the organizational efficiencies needed to overcome the natural friction of overland travel across their hinterlands that had prevented their Late Chalcolithic predecessors from forming enduring regionally organized societies such as emerged in the south.

Stated simply, the initial—and precocious—experiment with urbanism in Upper Mesopotamia represented by sites such as Brak in the first half of the fourth millennium ultimately failed because urbanism in the north was only possible as a created landscape: it became viable only as

a result of innovations in communication and labor control created elsewhere. In southern Mesopotamia, on the contrary, urbanism was a logical outgrowth of natural and socially created synergies that compounded and reinforced each other from the very beginning.

In the end it turns out that the sociologist Karl Wittfogel (1957), who initially noted the close correlation that exists between early Old World civilizations and major river systems, was right but for the wrong reasons. Rivers were indeed central to the development of early Mesopotamian civilization, but not so much as a source of irrigation water, as he argued, but rather because of their role as conduits of transportation for subsistence commodities, building materials, necessary resources, and sumptuary goods. After all, in Mesopotamia as along other old world river basins where pristine civilizations formed, cities emerged not at random along the courses of the rivers but rather in fertile areas downstream, where a minimal threshold of access to local agricultural resources was ensured and where, more importantly, transport costs were lowest and access to diverse resources within the river's watershed and information about them was highest (Bairoch 1988, 12). This is not a particularly new conclusion in the context of ancient Mesopotamia. Forty years ago, in his study of canals and irrigation in Umma at the time of the Ur III Empire, the assyriologist H. Sauren (1966, 36) concluded that the role of canals in allowing for efficient transportation within the empire was as important as their role as conduits of irrigation water. Sauren's conclusion is as valid to discussions of the origins of ancient Mesopotamian cities as it is to the analysis of early Mesopotamian imperial administration. Though there are exceptions (mostly so-called disembedded capitals established *de novo* by political fiat), the importance of rivers and waterborne transport to the emergence and growth of many urban societies is elegantly explained by Felipe Fernández-Armesto (2001, 182), a historian, who notes "civilizations of scale can only be built with concentrated resources. Resources can be concentrated only by means of good communications. And for almost the whole of history, humankind has depended for long-range communications on waterways."

And yet, natural advantages derived from geography and environment do not explain in and of themselves the crystallization of early Mesopotamian civilization—or that of any other pristine civilization for that matter. In the final analysis, environmental and geographical factors are only permissive, not prescriptive. Whether individuals and groups react to environmental changes and take advantage of geographical possibilities,

and how they do so, are always constrained by culturally determined perceptions of opportunities and threats at any one time. These, in turn, are partly shaped by available technologies and capital (both human and material). Moreover, the present is also shaped from the past by inherently unpredictable accidents and innovations that add an element of indeterminacy to any attempt at historical prognostication (or explanation). For these reasons, history displays a wide range of results of the interaction of societies and their environment, and this range can only become greater and more unpredictable as the density and intensity of social interactions grows in increasingly complex societies. Nonetheless, environment and geography do constitute important selective pressures that often impose an important measure of directionality on human affairs, as Edward Fox (1971, 1989) has repeatedly and persuasively warned us. The reason for this is explained by Joel Mokyr (1990), who notes that environmental factors commonly act as "focusing devices" that limit the range of options that are perceived as viable by individual societies at any one time and that powerfully influence the direction that those societies take in their search for technological innovations.

Against this interplay between indeterminacy and directionality, the natural advantages of the southern Mesopotamian landscape merely provided a backdrop wherein some social responses became more likely than others. In light of the diversified but dispersed resources prevalent in southern Mesopotamia throughout the late fifth and fourth millennia BC, and given the naturally reduced cost of mobility in the area, one of the most probable such responses was for pre- and protohistoric elite individuals and groups to specialize in the production of a limited number of commodities for which they had comparative advantage owing to their location within the alluvial environmental mosaic of the late fifth and fourth millennia and to engage in trade with differently specialized local rivals from relatively early on. By the same token, the absence of important necessary resources from the Mesopotamian environment, most notably roofing-grade timber and metals, also made it likely that early southern elites would seek to engage in trade with foreign counterparts in areas where such resources occurred naturally. This, however, had to await, first, the accumulation of surpluses, human capital, and productive capacity accruing from the earlier stage of largely internal exchange, and second, the domestication of the donkey, which both enlarged the geographical horizon of southern elites and physically enabled them to engage in bulk export trade for the first time in their history and

to establish colonies in far away strategic locations of the Mesopotamian periphery.

We can only speculate about the historical consequences of these early patterns of trade, but I would suggest that their self-amplifying social ramifications would have created a situation in which the parallel development of multiple competing independent centers was a likely outcome, which may well help explain why competing city-states continued to be the most characteristic political formation of alluvial Mesopotamia long after the end of the Uruk period. However, while trade may have been a powerful force underlying the emergence of such centers, it was by no means the only form of interaction between them, as is shown by the fact that martial themes, the taking of prisoners, and even scenes depicting sieges of fortified cities are repeatedly depicted in Uruk iconography (e.g., Amiet 1961, pls. 46–47, nos. 659–61; Boehmer 1999, fig. XXVI, pls. 11–27; Brandes 1979, 117–73, pls. 1–13; Delougaz and Kantor 1996, 146–47, pls. 150–51). Indeed, it stands to reason that as external trade grew in importance through the Uruk period, competition over access to trade routes would have increased. In an earlier chapter I argued that competition between the emerging city-states of Uruk Mesopotamia for access to external resources may well explain many aspects of the "Uruk expansion" into southwestern Iran and various parts of Upper Mesopotamia. Here, it may be added that such competition was likely also a prime source of conflict within the alluvium itself, as probably depicted in the glyptic. This matters because, as already noted, political fragmentation, economic competition, and warfare often promote accelerated social change. A case in point is suggested by Patricia Crone (1989, 161), who argues that political fragmentation and interpolity competition were crucial for what she perceives as the unique vitality of developmental rates in European polities of the late medieval and early modern eras as compared with those characteristic of other areas of the world at that time: "Far from being stultified by imperial government, Europe was to be propelled forward by constant competition between its component parts." Such is likely to have been the case in ancient Mesopotamia as well.

In any event, in turning to trade and colonization earlier and more intensively than neighboring societies, elite individuals and institutions in alluvial Mesopotamia surely had no understanding of the long-term developmental consequences of the actions they were undertaking. Rather, trade simply became an efficient way to accomplish in the southern

context what elites naturally want to do in all human societies, namely, sanction existing social inequalities, extend the amounts and varieties of commodities and labor at their disposal, and increase their political power.

In this light, the Sumerian takeoff became, in effect, an unanticipated consequence of long-term trade patterns that differentially favored the development of societies in the alluvial lowlands of Mesopotamia over polities in neighboring regions. This trade was inherently asymmetrical in its impact because, with some exceptions, it involved the import of raw or only partially modified resources from highland areas of the ancient Near East that required further processing before they could be incorporated into the economies of southern cities and the export of multistage value-added manufactured commodities from those cities. At first, the trade was spurred by differences in productivity that favored the south and that were largely the result of geographical and environmental factors—what Cronon refers to as the “natural landscape.” Once a significant measure of exchange was in place, however, further conditions expanding and compounding the competitive advantages of Sumerian societies now arose mostly from the “created landscape” ensuing from the social ramifications of the trade. One such condition was provided by synergies derived from the greater density of population in rapidly urbanizing Uruk polities possessing ever larger markets and ever larger and more diverse pools of skilled and unskilled labor, usable, as needed, for commodity production, or building or agricultural activities, as soldiers engaged in warfare against local rivals, or as colonists and emissaries sent to faraway lands.

In turn, synergies derived from greater density and larger labor pools were compounded and expanded by the only sufficient conditions in the conjuncture: socially created organizational efficiencies delivering ever increasing returns to scale from an ever more specialized labor force and allowing for exponentially more efficient and more accurate ways of conveying information across space and time. More than anything else, these social innovations, which took place, no doubt, within the context of palace and temple “households” controlling substantial resources and labor, explain why complex, regionally organized city-states emerged earlier in southern Iraq than elsewhere in the Near East, or the world.

EPILOGUE

Early Sumerian Societies: A Research Agenda

There is both challenge and opportunity in misfortune. Between the Iranian Revolution, the Iran-Iraq War, and the two Gulf Wars and their aftermath, the extensive regional survey programs in southern Iraq and southwestern Iran came to a premature end, and ongoing archaeological work by both local and foreign teams in Iraq and southwestern Iran has, for all practical purposes, also stopped. This is thus an ideal time to take stock of what already has been done in the core of the Uruk world and, where possible, to rethink the data through new interpretative models. This push has already begun. Central to this effort is the publication of the final reports of early German excavations at Warka, which is proceeding with admirable speed as part of the series *Ausgrabungen in Uruk-Warka Endberichte*. At the same time, a number of Belgian (Gasche and Tanret 1998) and American (Hritz and Wilkinson 2006; Pournelle 2003a, 2003b, 2006; Wilkinson 2000b) researchers are using old but recently available satellite imagery and an array of new remote sensing technologies to squeeze more and different information from southern Mesopotamian survey data that only a few years ago appeared spent.

But if world systemic perspectives have any validity—and I believe they do—we must look beyond the confines of the southern Mesopotamian alluvium and the closely associated southwestern Iranian plains in our quest to understand the fourth-millennium origins of early Mesopotamian civilization. Accordingly, this is also the time to start correlating