

The Earliest Bronze Age in Southwest Asia (3100-2700 BC)

... Henry Wright

I. Introduction: 5000 years ago in the Middle East

A. "The First Internationalism" or the "First Dark Age"?

Half a century ago, Chicago Egyptologist Helene Kantor (1952) assembled some surprising observations on items traded into Egypt just as the first pharaohs were uniting the Nile Valley and the Delta into a single state at the end of the fourth millennium BC. Not only were some items, such as the cylinder seals being used by government officials, inspired by forms developed in the distant Tigris-Euphrates Valley, but some items of elite display were made of materials, in particular the semi-precious blue stone lapis lazuli, which came from 4500 kilometers away in the northern Hindu Kush. Subsequent studies of ancient lapis occurrences (cf. Hermann 1968) have revealed no Eurasian sources east of what is today Afghanistan. What kind of human processes linked this vast area together? Robert Braidwood (1960) assembled evidence of other exchanges and contrasted this phenomenon with a better known later period of international contact during the Late Bronze Age during the later second millennium BC and termed this the time of the "real First Internationalism". This paper assembles evidence of this early "interaction sphere" (Caldwell 1968) available today with the intention of modeling the operation of this early network of political-economic formations. It is intended to document certain key phenomena: where possible the age, geographical extent, settlement structure, basic social units, political organization, subsistence production, and long-range trade involvements of every region. Thanks to new excavations, new methods of absolute dating, quantitative information on archaeologically documented settlement networks and traded items, improved understandings of the first written administrative archives and political traditions, and many new publications, we can define this network more precisely than was possible two decades ago, in the last major synthesis of the period (Finkbeiner and Röflig eds. 1986).

One important datum point that was only becoming clear two decades ago, is the extraordinary expansion of Late Uruk communities from Lower Mesopotamia documented by the pioneering work of Guillermo Algaze (1993). First about 3600 BC southern Iran is drawn into close relations with Mesopotamia, then about 3400 B.C. Upper Mesopotamia is similarly occupied or dominated. Algaze's work has generated much research and discussion (Stein 1999, Rothman ed. 2001, and Butterlin 2003). In fact, the Uruk archaeological record is variable in quality, and under the best of circumstances it is difficult for archaeologists to differentiate 'migration', 'trade', 'diffusion', and other processes. Whatever the specific interpretation of the Uruk phenomena, there is general agreement that by 3200 BC there was a zone of materially similar communities, many of them organized into regional states, stretching for 1200 kilometers from southeast to northwest across the Mesopotamia and the Zagros-Taurus front ranges in the heart of the Middle East. Out of this, a larger, less homogenous, but in some ways more interactive, kind of network – the focus of this overview-- emerged.

What were the elements in this new network? In Lower Mesopotamia, settlements of the first part of the period in question is commonly termed 'Jemdet Nasr', after a small town of that name excavated in 1926-28 and discussed below, and the second part of the period is termed 'Early Dynastic I' (abbreviated 'EDI'). The material remains of local communities are so different elsewhere that these terms cannot be applied. To the east in southern Iran settlements have distinctive material remains often termed 'Proto-Elamite', but to keep a clear separation between writing systems and cultures, however, we will use the term 'Banesh'. Southeast, in copper-rich Oman and south of the Gulf, small oasis settlements and their cemeteries are termed 'Hafit.' To the northwest in Upper Mesopotamia, local variants of Uruk culture continue until about 2800 BC, when a distinctive local settlement networks with unusual material remains termed 'Ninevite V' and 'Early Bronze I' appear. In eastern Anatolia and Western Iran to the north, there is a scatter of local communities with yet another distinctive series of ceramics, bronze weapons closely related to earlier forms from the Caucasus, and thus termed 'Trans-Caucasian'. In the Levant local cultures termed 'Early Bronze I' (abbreviated 'EBI'), and 'Early Bronze II' (abbreviated 'EBII'), developed in interaction with emerging Late Predynastic and earliest Dynastic states in the Nile Valley. The appearance of these very different regional traditions have suggested that rather than the connectivity suggested by the evidence of long-distance movement of goods, we may be dealing with ethnogenesis (the differentiation and self-definition of new ethnic groups), migration (the movement of peoples and communities), and conflict (whether raiding or mass warfare). In other words, rather than an early 'world system', this period represents a 'dark age'. But are these two characterizations necessarily contradictory? After defining the spatial and temporal dimensions of the network, we will turn to the evidence of the component regional systems, and the evidence for

contacts and transport connecting them. Briefly, at the end of the overview, we turn to the issues of modeling these complex historical moments.

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B.Space

The portion of the planet which this phenomena links together is the broader Middle East, stretching from the lower Nile Valley on the west to the Indus Valley on the East, from the Caucasus on the north to the lands along the Persian Gulf to the south (Figure 1). At this time, Central Asia to the North beyond the ramparts of the Caucasus, the Elborz, the Kopet Dagh and the Hindu Kush, is a land of nomads and local oasis cultures. Most of South Asia is a land of small foraging communities. The bulk of Arabia, the Sudanic Belt and North Africa is inhabited by a thin scatter of local herding communities. The Balkans and Europe beyond is the home of a diversity of local farming communities. Most of the Middle East is arid to semi-arid, the lowlands having the Sindo-Arabian flora of acacia, jujube, and sparse grasses. The high Anatolian and Iranian Plateaus had the Turanian flora dominated by sage and grasses. Only the high massifs such as the Lebanons, Taurus, the Zagros, the Caucasus, the Alburz, and the Hindu Kush capture enough winter rain and snow to sustain forests of oak, walnut, ash, cedar, pine, juniper and other trees. These mountainous regions give rise to the major rivers -- the Jordan, the Euphrates, the Tigris, the Kur-Araxes, the Atrek, and the Amu Darya -- and to many minor ones which sustain life in the deserts. The Nile, in contrast, is fed by monsoon rains falling in tropical and subtropical Africa, and has a different but very useful regime (Butzer 1976). As an arid to semi-arid region, however, severe and year-to-year variation in precipitation is unpredictable and dry years can have disastrous consequences for farmers and herders. Paleocological evidence of changes in these environments is surprisingly sparse outside of Anatolia, but the tree-chronologies mentioned in the next section will give us year-by-year measures of local variation in precipitation.

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C.Time

The time span considered here extends from about 3100 BC to 2700 BC. This is a time before written historical texts and dynastic chronologies but archaeologists have increasingly precise methods of dating past cultural phenomena. Radiocarbon age determinations, calibrated to account for fluctuations in ^{14}C as a result of both cosmic ray fluctuations and planetary temperature, can date burnt wood, burnt seeds, or pieces of bone to within ± 60 years. Direct measurement of trapped thermoluminescent energy in ceramics can provide dates at a similar level of precision. Study of tree rings in burned beams of certain species of wood can now be used to date the construction of a building to the year (Kuniholm 1996). Treatment of various dated items in known stratigraphic contexts with Bayesian statistical approaches (Bronk-Ramsey 1995) can further reduce margins of doubt. For the period of time we are considering, there is as yet no comprehensive assessment of all available dates, and the following discussion is framed in terms of two broad time divisions: an earlier portion from c. 3100-2900 BC and a later portion from c. 2900-2700 BC.

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II. The Sources

A. Paleocology

Natural environments are rarely predictable, and the arid environments faced by most early Mesopotamians were particularly difficult. Rains and river floods could vary markedly from year to year, and families and heads of institutions had to be prepared for crop failures two or more years in a row. Unfortunately, the traditional means of monitoring past environments, the study of sequences of sediments changes and changes in plant pollen, have two deficits. First, they usually document broad trends rather than year-to-year variation. Second, in these sequences, it is difficult to sort the effect of natural variation from the effects of cultural impacts on the environment, for example burning, cultivation, and overgrazing. We are fortunate to have an excellent new overview of these issues (Wilkinson 2003). A more precise record of natural changes can be obtained from the record of living organisms that lay down tissue every year. Tree-ring sequences attest to year-to-year changes in available moisture (Dean 1988, Van West 199X) and it is possible that similar annual proxies can be developed with freshwater mollusks. Unfortunately, though the data are available, few if any studies of the climatic implications of dendrochronological evidence specifically of the period from 3100-2700 BC have been undertaken.

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B. Human paleobiology

The human skeleton does not have a durable annually-accumulating tissue, but it does manifest evidence of the age, sex, stature, diet and health crises of each individual. Early archaeologists in the Middle East often reported that when they excavated graves “the bones turned to dust”. However, biological anthropologists are now able to conserve skeletal remains and elicit demographic and life history information important in evaluating the results of regional and transregional models of the operation of past cultural systems in their natural contexts.

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C. Settlement Archaeology

Archaeological excavation has developed from a search for visually striking objects to a set of precise techniques for recovering and recording representative samples of the debris of human activity. Ancient Middle Eastern settlements were usually built with sun-dried mud. The buildings deteriorate rapidly and must be repaired and rebuilt frequently, forming a large visible mound, variously called a ‘tell’ in Arabic, a ‘tepe’ in Persian or a ‘höyük’ in Turkish. Careful excavation of mud brick or packed mud walls can reveal the changing “footprints” of families and other organizations. We can often attribute layers of trash in and around such building remains to seasonal, annual, or decadal spans of time. The study by specialists of animal bones, carbonized seeds, stone tools, pottery fragments, ornaments, and inscribed items from such deposits can document the details of production, consumption, social interaction, symbolism, and many other aspects of life. From a few deeply stratified excavated sites, we can derive quantitative estimates of the changing quantities and relative economic values of some durable goods (Wright ed. 1981: 262-279), important data for testing any modeling of interregional interaction.

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D. Landscape Archaeology

The Middle East has been a center in innovation for archaeological survey techniques (Adams 1965, 1981, Adams and Nissen 1972), our most effective method for assessing changing regional organization. The basic method involves systematic coverage of the land surface locating and mapping all the mounds of cultural debris, the dating of cultural sites with study of potsherds, the preparation of data banks and maps of settlement for each period, and the comparison of these data to infer social and economic changes through time. In the past decade this basic method has been transformed through the use of archival imagery from more than three decades ago before modern agriculture damaged many features, and multi-channel satellite imagery that often shows archaeological and geological features otherwise difficult to see (Ur 2001). Geological techniques are now routinely combined with archaeological survey (Wilkinson 2003). We also have promising new methods for the inference of demographic (Dewar 1991) and other information from these data.

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E. Written sources

Centers in both Lower Mesopotamia and southern Iran kept administrative records. The strength of these records is that, though we are not certain of the language used by the scribes and thus cannot literally “read” them, we can understand the meaning of the number systems, the names of goods, the names of institutions and people, and some signs indicating actions. They provide quantitative information about some activities of identifiable individuals. The weaknesses of these records are that they cover a limited range of activities, largely economic and primarily expenditures but not receipts, that they focus on local households and not interregional interactions, and that (unlike later texts) they do not have dates written on them, so it is difficult to make a time series. We are fortunate to have a recent comprehensive overview of the earliest “Proto-cuneiform” texts in Lower Mesopotamia (Englund 1998) plus intensive studies of key Proto-cuneiform (Englund and Grégoire 1991) and Proto-Elamite (Damerow and Englund 1989) archives.

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III. Middle Eastern Landscapes

A. Lower Mesopotamia: Jemdet Nasr and Early Dynastic I

Much of this region is a flat alluvial plain with few resources other than silt and reeds. Life here was a constant struggle, in the face of droughts, floods, locusts, and human enemies. It is important to remember, however, Jemdet Nasr and EDI communities also occupied the foothill valleys of the northern Zagros (Neely and Wright 1992, Wright ed. 1981) that had better rainfall and some access to stone resources and montane forests.

Archaeologists recognize these communities based on the occurrence of ceramics predominantly made of a sandy ware thrown on fast wheels and highly-fired in enclosed kilns. Conical drinking cups, bowls, and bottles and jars, the last sometimes decorated with geometric incised or multi-colored painted designs, are a distinctive development from earlier Uruk ceramics. In all areas of the region, the large centers and complex settlement patterns of the Middle and Late Uruk periods continued to be occupied in the succeeding Jemdet Nasr Period. Survey evidence indicates large cities, large and small towns, and a range of hamlets and villages were strung out along the river and canal channels, separated by areas of grain fields, gardens, and date orchards during both the earlier Jemdet Nasr part of this time span (Figure 2) and the later EDI part of this time span (Figure 3.) Much of Lower Mesopotamia, however, would have been dunes, salinized desert (useful primarily for winter grazing) and marshes (rich in reeds, fish, and other aquatic resources.) We know from both texts and some archaeo-zoological and archaeo-botanical samples (Pollock 1990) that barley and wheat were cultivated; sheep, goats, and cows were herded; and marsh and river resources were harvested as well. Some crafts, for example pottery production, was localized in larger workshops using mass production techniques. We have no solid evidence that other important crafts -- for example stone working, weaving, wood working, and metal working -- were similarly organized in larger workshops (as they were later in the IIIrd millennium), rather than pursued in homes by one or a few specialists.

During the earlier portion of this time, the Jemdet Nasr Period, *Uruk* probably remained the largest and most important city. However Jemdet Nasr layers in most parts of the city excavated to date are disturbed, and there is little *in situ* evidence. Some of our best evidence of this time comes from the site of Jemdet Nasr itself. This small town was, for its time, relatively well excavated and reported (MacKay 1931) and reanalyzed (Moorey 1976); new excavations, begun just before the first Gulf War (Matthews 1989, 2002), remain unfinished, but they do clarify ambiguous points in the early excavations. The visible mound covers 5 hectares, enough to house about 750 people, but it is in an area of deep recent alluviation, and may well have been larger, and may have had more than the two nearby subsidiary villages visible today (Adams 1981). It has both smaller domestic residences and a large administrative building with courtyards surrounded by storerooms, some with large jars and some with groups of unbaked tablets containing records of the giving out of land, grains, and consumer goods. There seems to have been a single central figure, the '*En*' or lord, and five subsidiary officials with various titles, who have households with a number of retainers and who receive large grants of land. Given the agro-ecology of the area early in the 20th century and before, some of the land texts probably recorded periodic distribution of land as old canals are closed to allow land to fallow, and other canals are re-opened to permit cultivation. The total amount of land recorded is enough to support about 3000 people (Englund 1998: 27).

During the later portion of this time, the Early Dynastic I period, we have evidence from a number of sites. As before, *Uruk* probably remained the largest important city in lower Mesopotamia. Indeed, its walls seem to have been built or rebuilt in this period and there is striking growth in its subsidiary settlements (Adams and Nissen 1972). *Ur* of the Chaldees on the southernmost branch of the Euphrates can be taken as an example of a small town of the period (Wright 1969). At this time, the town covered only about 20 ha, and had a subsidiary town of eight hectares seven km up the Euphrates, and at least six subsidiary villages, two rural cemeteries, and a rural temple. The one excavated village had evidence of fishing, reed gathering, barley cultivation, sheep and goat herding and cattle herding. *Ur* itself had a large central temple platform with surrounding court and storerooms, and there is evidence of domestic structures lacking cooking facilities, which may indicate institutional preparation of meals. The *Ur* Archaic texts of this period (Burrows 1935) record the distribution of items such food, animals, and cloth and document in detail elaborate periodic redistribution of land among farmers.

The occurrence of lists of Lower Mesopotamian city names on cylinder seals indicates some level of formal relation between these cities (Matthews 1993). Beyond the lower alluvium, we know from the archaeology that Jemdet Nasr and EDI peoples received marine shell from the gulf, semi-precious stones such as lapis lazuli from as far away as the Hindu Kush, copper from Oman and Iran, flint from gravel terraces and bitumen from the surface seeps along the middle Euphrates and in southwest Iran. The use of place names in their texts indicate that people in lower Mesopotamia were aware of places on Bahrain (ancient *Dilmun*) in the Gulf, in southern Iran both lowland, (ancient *Shushan* or Susa) and highland (ancient *Anshan*; see below) (Nissen 1985). Knowledge of more distant places has no contemporary documentation, but mytho-historic tales known in

late copies describe trips by a ruler of *Uruk* far to the east to a place called *Aratta* to obtain lapis and other precious material for the temple of *Uruk's* goddess, *Inanna*, may date to this period.

In sum, in Lower Mesopotamia and immediately adjacent areas, were a dense nucleus of large settlements, economically a concentration of both skilled labor and strong demand for materials and products and politically a concentration of polities varying in size and complexity, prepared to make demands upon each other each other and upon polities in more distant regions.

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B.Southern Iran: Banesh and related developments

The foothill valleys and intermountain plains of the southern Zagros had resources lacking in lower Mesopotamia, such as stone, bitumen, and hard woods, and had access to the resources of the arid inner Iranian plateau such as metal ores, particularly the rich copper sources around Anarak. These lands also had relatively reliable rainfall, springs and streams. Many of its component areas, however, lacked much level, easily cultivable soils. It is not surprising that these regions have long been the home of transhumant herders, moving between high summer pastures and low winter pastures (Abdi 2003). Archaeologists recognize settlements of this period based on its distinctive ceramics, which have a mixture of fabrics and manufacturing techniques, but with cups, cups and large jars, the latter sometimes with painted designs similar to those on Jemdet Nasr jars. The "Proto-Elamite" writing system (which shares numbers but few signs with the Proto-cuneiform system used in Lower Mesopotamia) and a distinctly decorated series of cylinder seals (Pittman 1994) also characterize this cultural region (Figure 4). The larger valleys and plains had small centers, either fourth millennium centers still occupied or newly founded settlements, with a few subsidiary villages. The Marv Dasht, the largest of these areas, actually a complex of several interconnected valleys and plains, contains the highland city of *Anshan*, which during the mid-late Banesh Period (3100-2800 BC) had a walled area of 200 hectares as well as a number of subsidiary villages and campsites (Alden 1982, Sumner 1986). Comprehensive studies of Banesh plant (Miller 1990) and animal (Zeder 1988, 1991) remains show that Banesh people focused on intensive cultivation of wheat and herding of sheep. Some craft activity, particularly ceramic and some stone vessel manufacture, was concentrated in specialized villages, at least earlier in the period (Alden 1982). In the main center, however, other craft activity, specifically copper processing, is attested only as small production areas in domestic contexts (Nicholas 1990).

We know about two Banesh period quarters of Anshan. One quarter (Nicholas 1990) has a succession of somewhat different complexes of buildings,, the lower layers with a moderately elaborate buildings with evidence of food serving and record keeping, including a text concerned with number of low status workers (Stolper 1985: M1155) and the upper with more modest rooms and corridors in a large walled complex with some domestic debris and some craft debris including much from copper working. This suggests relatively large economically differentiated social units with the city. The other quarter (Sumner 2003) is dominated by a large palatial building centered on large chambers with painted walls and surrounded by large corridors and storage rooms. This area also had groups of Proto-Elamite administrative tablets, one example recording large quantities of grain (Stolper 1985: M632).

Eastward of Anshan 400 kilometers on the fringes of the hyper-arid Dasht-I Lut, is the site of of Shadad, a large and long-lived urban center best know from its cemetery, but also with large residential areas and evidence of the working of metals and semi-precious stone (Kabuli 19XX, Salvatori 19XX). A further 700 kilometers northeast is the rich Helmand delta where the large urban center of *Shahr-I Sokhteh*, is beginning to develop during this period (Tosi 19XX).

A smaller and perhaps more typical center contemporary with Anshan has been studied in the small high Soghun valley 450 kilometers to the southeast at Tepe Yahya (Lamberg-Karlovsky, ed. 2000.) During the Yahya IVC2 period, this was a small settlement with a large building on a high central mound carefully constructed with bricks and units of measure similar to those elsewhere in Southern Iran and Lower Mesopotamia (Beale and Carter 1975). Final reports on the agricultural evidence are pending. The site is close to sources of chlorite schist and steatite, and though it is not yet the center of stone vessel manufacture it will become in a few centuries, there is already some crafting of this material. Proto-Elamite tablets from this building deal with such local activities as small quantities of grain, up to several hundred liters, as either seed or food rations, and up to 32 sheep associated

with small groups of workers (Damerow and Englund 1989). There were few other settlements on the previously densely occupied plains around Yahya, suggesting that this was an outpost perhaps concerned with border maintenance or with herders.

A similar distance to the west of Anshan, the long occupied Uruk center of *Susa* was abandoned, then reoccupied on a reduced scale, no more than ten hectares, by people using Banesh architecture and ceramics and Proto-Elamite seals and tablets (LeBrun 1971). There are indications that the spread of Banesh-related communities into lowland southwestern Iran was not peaceful (Wright 1986). *Susa* was the westernmost community of this type and may have been in direct contact with Jemdet Nasr communities. The many Proto-Elamite tablets from *Susa* deal with large amounts of many different items -- tens of thousands of liters of grain and thousands of animals are mentioned -- which is surprising in such a small and peripheral settlement, but which may be appropriate for a "gateway community". The surrounding plain, formerly densely occupied, has a few villages stung out on a route eastward into the Zagros, and a number of possible campsites (Alden 1987).

How is this large cultural sphere extending some 900 kilometers across the rugged mountains and arid basins of the southern Zagros to be understood? The density of settlements seems low in every surveyed area. However, the buildings, ceramics, seals, and writing systems are remarkably similar across this entire area. It seems likely that this was a very different series of social and political formations from the urban centered states of Lower Mesopotamia, perhaps one with a strong nomad component, and one in which kin connections between local elites were strong (Sumner 199X). The stylistic distinctiveness of every area of material display argues for a distinctive group created by processes of ethnogenesis, perhaps in opposition to the earlier Uruk expansion. The "Proto-Elamite" script may indicate a distinctive language among the elite, but the arguments for language based on what is an administrative code composed primarily of numbers and names, must necessarily be indirect and weak.

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C. The Gulf: Hafit

During the IVth millennium the south shore and islands of the Persian Gulf appears to have been inhabited by local communities of marine foragers who fished and collected mollusks and had little contact with Uruk peoples in Mesopotamia (Potts 1990). However, contemporary with Jemdet Nasr and Early Dynastic I communities in lower Mesopotamia, there is a fundamental addition to the range of human activities in the region, best known from fieldwork around the inland oasis of al-'Ain and Buraimi (Figure 4). At the site of Hafit are hundreds of tombs without associated habitation sites, each tomb with a dome of dry-laid stone. This covers the remains of several individuals with associated ornaments, copper tools, and small jars of Jemdet Nasr and EDI types, made in Mesopotamia (Mynors 1982, Potts 1990). In al-'Ain, the beginnings of oasis horticulture are evident during EDI times at the site of Hilli 8 where a single large circular structure protects a large well (Cleuziou 1989, 2002). Dates, barley and millet were cultivated and sheep and goats were herded. The tombs and architecture suggest a society organized into small kin groups with little evidence of social differences. It seems likely that these oasis horticulturists were a smaller element in a network of pastoral peoples whose campsites have not yet been found. Since al-'Ain is between the rich copper sources of Oman and anchorages on the Gulf Coast, it is reasonable to propose that these communities were exchanging copper for Mesopotamian consumer goods, but there is in fact little direct evidence of Omani copper production or of occupation at the coastal anchorages, until a few centuries later (Weeks 2004).

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D. Upper Mesopotamia: Post-Uruk, EBI, and Ninevite V

The middle and upper reaches of the Tigris, the Euphrates and their tributaries include several related regions variously composed of areas of open plains, foothill valleys, inter-montane valleys and mountainous areas useful for pasturage. These regions usually receive adequate rainfall for grain cultivation, however the southern plains are subject to drought years even under the best of climatic regimes. Though various streams and rivers could have been used for irrigation, we have no actual evidence of this before the Ist millennium B.C. The lowland plains had substantial sources of materials such as flint, basalt, and bitumen. The mountains yielded forest products and obsidian, and the Anti-Taurus, Taurus, and Amanus were rich in metal ores. It is not surprising that these well-endowed regions have long traditions of complex social development, nor that they were periodically drawn into close interaction with the peoples of lower Mesopotamia. After 3400 BC. communities with largely Lower Mesopotamian Uruk architecture, crafts, domestic technology and styles, and

technologies of control were ubiquitous on the plains of Upper Mesopotamia as far northwest as the bend of the Euphrates and as far northeast as the foothills. Within the foothill valleys, the situation was more complex with varied architectural traditions, and syncretic craft technologies and styles, some emulating Uruk styles and some of local affinity.

During the period between 3100 BC and 2700 BC, we can distinguish several successive phases in this area. In the earlier portion, many communities both large and small were abandoned, while in others many features of Uruk-related material patterns continued and developed, and have been termed “Post-Uruk” developments (Figure 2). After 2900 BC two distinct local developments occur in Upper Mesopotamia, to the east the Ninevite V assemblages and to the west the Early Bronze I assemblages. (Figure 3). For none of these Upper Mesopotamian cultural phenomena does our knowledge approach that of the previous discussed regions. Only a few smaller sites have been extensively excavated and recent crises have made large-scale survey difficult.

During the earlier ‘Post-Uruk’ part of our time span, we know of a number of smaller communities where the sand-tempered Uruk wares continued to be made, albeit with a smaller range of wheel thrown forms, with incised decorations less precise but more elaborated (Trentin 199X,) and some painted designs patterned after earlier incised designs (Roaf 1984) and with only a few sealings witnessing the technology of control found in Late Uruk sites. Only Tell Brak in the Khabur basin at the southernmost limit of reliable rainfall cultivation, serving as a gateway between Lower and Upper Mesopotamia, has a range of definite Jemdet Nasr pottery forms and bichrome decorations (Oates and Oates 1991, 1993). Interestingly, these are from what seems to have become a poor area of the town. The most extraordinary of the known Post-Uruk communities, however is that at Arslantepe, far to the north in an inter-montane valley of the Anti-Taurus. Long-occupied and the site of a thriving small center close to sources of wood, copper and silver and interacting with Uruk communities on the plain, prosperity continued until c. 3000 BC. The outstanding Italian excavations have revealed a large part of a citadel with elaborate non-domestic buildings in a local style (Frangipane and Palmieri 1983, Frangipane 1993). Though some domestic ceramics are similar in form and decoration to Uruk pottery, the manufacturing technology seems to be a continuation of earlier Upper Mesopotamian traditions. The motifs on the technology for sealing containers and doors are similarly syncretic. The metal weapons, on the other hand appear to be made of Caucasian copper and with a Caucasian technology. We will return to this point, and the transregional implications of the fiery end of the Post-Uruk community at Arslantepe in the next section.

In the eastern part of Upper Mesopotamia, Post-Uruk communities give rise to local assemblages termed, for better or worse, “Ninevite V”. A number of small, Ninevite V communities were excavated during the twentieth century and this evidence has been the subject of a number of thoughtful essays (Roaf and Killick 1986, Schwartz 1985, 1987, Hole 1991, Rova and Weiss eds. 2003) most focusing in the idea that these were small communities of diminished complexity. Recently, new regional surveys (cf. Wilkinson and Tucker 1995) and some excavations on major Ninevite V centers (cf. Matthews ed. 2003) are changing our views of Ninevite V. Archaeologists recognize these communities when they find ceramics of two wares, a hand-made coarsely tempered ware used for large round jars with lugs, probably for cooking large meals, and a very fine ware thrown on fast wheels and fired in enclosed kilns, probably used for serving. This pottery was long thought to be completely unrelated to earlier Uruk and post-Uruk assemblages, but antecedent forms and techniques can be documented in earlier local ceramics, with only the earlier Ninevite V painted designs and later Ninevite V incised and excised designs being unprecedented. The precedents for the sudden emergence of the Ninevite V style indicates it results from ethnogenesis with new styles of display and new cuisines, rather than the migration of a new group into the region. The settlement pattern appears to be one of a few large towns of about 40 ha. and some small towns of about 10 ha. surrounded by a regularly spaced small high mounded settlements and small low settlements. The large town of Brak on the Upper Khabur Plain had both modest and elaborate rectangular domestic structures, and at least one small temple (Matthews ed. 2003), but similar buildings are found on small towns and villages as well. A few of the high mounds on middle Khabur valley, the south periphery of the Ninevite V area, have massive storage facilities, apparently for grain (Hole 1991, Schwartz 1994). The dominant grain in carbonized samples is barley, but wheat is important and it is difficult to evaluate the balance of the two in human nutrition (McCorriston 1998). Lentils were also common. The dominant domestic animals were sheep with some goats, with evidence of increasing focus on wool production. Some cow, pig, and equids were also kept (Zeder 1998). Ninevite V tombs tend to be individual rather than collective, with limited wealth differences. A rich control technology of seals and sealings with predominantly local animal motifs and others with geometric

patterns similar to those found in Banesh sites (Pittman 1994) has been found. Some complex seals were used primarily on storehouse doors, while others were used primarily on containers. There are, however, no known written administrative records such as those in use at the same time from Lower Mesopotamia and southern Iran.

In the western part of Upper Mesopotamia, Post-Uruk communities give rise to poorly known local assemblages which are broadly termed 'Early Bronze I'. The layers of EBI sites are usually buried under many meters of later Early and Middle Bronze Age deposits, and for a long time we have known these assemblages primarily from small stratigraphic excavations and tombs. Very recently the evidence of some modern surveys (Özdoğan 1977, Algaze et al. 1994) and a few extensive excavations (Morandi 1998) have become available. We also recognize these communities based on the presence of two wares, a hand-made vegetally tempered ware used for large round jars with lugs and a fine sand tempered ware carefully thrown on a fast wheel in the form of sinuous sided cups and small jars often on pedestal feet. In contrast to Ninevite V, decoration is rare. The settlement pattern had a few large towns, for example Carchemish and Samsat on the Euphrates, about which we know little, but seems predominantly one of small villages. One well excavated village site near Carchemish, Shiukh Fawaqani, seems carefully planned with an axial street lined by multiroom domestic complexes, one of which was notably large and decorated with buttresses (Morandi 1998). Some tombs are collective, suggesting local corporate groups, and have rich ceramic inventories and weapons of cuprous metal in local styles. These sites also have no known administrative technology other than a few seals and sealings.

In sum, after the Uruk collapse, the dry farming regions of upper Mesopotamia recovered and developed varying but relatively low densities of towns and surrounding villages. Little is known about the towns, but the small settlements seem quite differently organized in different areas and use domestic goods with contrasting styles of decoration.

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E. The High Plateaus: The Early Trans-Caucasian Bronze Age

The eastern Anatolian Plateau and the western Iranian Plateau are high relatively arid regions with easy communication with the valleys of the Caucasus. These regions are rich in stone and metal resources. During the fourth millennium, a thin scattering of communities had stylistic relations with the local cultures of Upper Mesopotamia, but around 3100 BC this changed suddenly.

To the east around Lake Urmia and in the valleys of the northern Zagros mountains, communities using burnished handmade gray-ware ceramics, often decorated with imprints and incised elements filled with white pigment, appear (Summers 1982:45-118, Young 1969). These ceramics have no local prototypes, but have deep roots in the ceramic traditions of the Caucasus. These communities, composed of uniform densely packed round houses (Burney 1961, 1962, 1964) and often walled, have no evident palaces, shrines, or temples. Limited botanical evidence indicates cultivation of bread wheat and club wheat and six row barley, the last being suited to the wet salinized soils around the lake (Summers 1982:156-187.) Survey evidence (Pecorella and Biscione 1984) indicates relatively high densities of these villages from 0.5 to 8 hectares in area around Urmia, but they are rare in the valleys of the Zagros. The proposition that these settlements represent a southeastward movement of peoples with segmentary organization out of the eastern Caucasian toward Mesopotamia seems concordant with the evidence.

To the west in the area of Lake Van and in the valleys to the southeast and east and on the plains of the Halys Bend, communities with striking burnished handmade red and black ceramics develop. These however may have their origin in Vth and IVth millennium communities in central Anatolia (Gorny et al. 1994, 1999). Survey evidence (Rothman and Kozbe 1997, Whallon 1979) indicates pockets of high density with both small centers and villages. Architecture in both towns and villages is composed of rectangular stone-footed buildings. The excavation of an exemplary centers such at Norsuntepe in the Upper Euphrates (Hauptmann 1976, 1982) has revealed elaborate residences with extensive storage features. From one of these centers in the Halys Bend, Alaca Höyük, an elite cemetery with rich and distinctive metal paraphernalia taken to indicate development of a local dynasty, was recovered (Kosay 1937, Kosay and Akok 1973). Clearly these settlements present a complex situation ripe for rigorous analysis. Whatever the origin and level of organization of these Anatolian Early Bronze Age communities, their impact on Post-Uruk Arslantepe VIA is an index of their aggressive thrust south into Upper Mesopotamia. The small citadel there, which had exchange relations with peoples to the north bringing in weapons and some examples of Anatolian burnished pottery, was burned about 2950 BC. In the ruins is the tomb of a single older male with Caucasian weapons, surrounded by the bodies of at least four young men

and women with sets of contrasting post-Uruk and Anatolian burnished vessels (Frangipane et al. 2002). Continuing paleopathological and genetic studies will indicate more about the circumstances of these deaths, but it is reasonable to infer that this is the grave of an Anatolian war leader who died after successfully attacking this long-established Uruk and Post-Uruk center. Succeeding Arlantepe VIB was a small herding camp with purely Anatolian material goods.

In sum, the high plateaus had communities very different from the established hierarchical political formations of the Uruk and post-Uruk world. They differ in settlement, and therefore in their social organization, but were often able to move effectively against other communities in the mountain valleys. In addition to conflict, however, there were also less bellicose exchanges, bringing metals and other materials to other parts of the Middle East (Yener 2000).

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F. The Levant and Egypt: Early Bronze Age Ib-II and Naqada III

The Early Bronze Ib communities of the Levant, a zone of Mediterranean climate and vegetation along the coast and in the highlands on either side of the Jordan and Orontes valleys (Figure 5) represent a local development, but one whose ceramics show some relation to those of EBI in upper Mesopotamia. As elsewhere the cultivation of barley, wheat, and many pulses was dominant, but such Mediterranean crops as olives, figs and grapes were also important. The herding of cows, sheep, and goats was widespread, and donkeys were a common means of transport (Grigson 1995). Many settlements have been excavated, particularly in the Southern Levant, ranging from large towns up to 60 hectares such as Megiddo (Gophna 1995) to small towns such as Arad (Amiran and Ilan 1996) to small villages. During the EB Ib period, prior to 3000 BC towns were large, and often lacked walls. Given the scale of the towns, it is interesting to note that there is limited variation in housing on these towns, and little mortuary variability. This suggests limited social differentiation. After a period of abandonment and instability, EBII towns emerge as smaller, ranging up to 25 hectares, more densely settled and usually walled (Amiran and Gophna 1997, Miroschedji 1989).

These settlements were contemporary with the emergence of the pharaonic state in the Nile Valley during the Naqada III period (Figure 5). A surprising research development of the past two decades has been the recovery of evidence of systematic control of the far south of the Levant by Narmer, the Upper Egyptian ruler who unified Egypt by conquering the Nile delta, and his immediate successors, probably dating to the transition from EB Ib to EBII. Small rural sites and garrisons or outposts on the coastal plain and in the foothills have Egyptian pottery, (some vessels having Egyptian royal names inscribed on them), stone tools, and status-related personal ornaments (Van den Brink and Levy eds. 2002). In addition, a major fortified center at Tell es-Sakan on the coast has massive walls within which were mud-brick rectangular buildings and oval silos built according to Egyptian canons (Miroschedji et al. 2001). It is abandoned about 3000 BC and replaced five centuries later by a Levantine EBIII center with little evidence of Egyptian relations. Since Nile valley people had been placing large jars and other items made in southern Levant styles in their tombs for several centuries, and since the Wadi Feynan copper sources in the Wada Araba were heavily exploited (Levy et al. 2002), one can propose that this brief early phase of Egyptian imperialism was motivated by a desire to control Levantine resources and products. Dynasts have other motivations however and Narmer's propaganda glorified his role as a conqueror of people with little mention of mundane goods. This early experiment in imperialism was followed by period of strong local growth (Figure 6).

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IV. The Sources Materials

Few places on the planet are endowed with all the materials they use and procurement from distant places by expeditions or by exchange is widespread. Equally important, all societies engage in reciprocal social exchange, and unusual material or products are ideal gifts. All scholars of ancient Mesopotamia interested in exchange are indebted to Roger Moorey and Daniel Potts for creating comprehensive compendia of information of the materials and crafts important in Mesopotamia and surrounding regions (Moorey 1976, Potts 1997).

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A. Stones

There are three rather different uses of stone which merit discussion. Heavy and coarser stones such as basalt, sandstone, and limestone were used for grinding and pounding tools, finer crypto-crystalline stones such as

flints or obsidian were used for flaked stone tools, and other diverse fine stones were used for small vessels and ornaments. All stone must eventually be discarded, and stone is durable, making it ideal for quantitative studies of resource use.

Heavy stone tools are necessary for grinding grain, for percussion, and for other heavy tasks. Limestones and sandstones are widespread except in the great alluvial deltas of the Tigris and Euphrates or the Nile, and will be used if more durable stones are not available. Tougher basalts are found around Neogene volcanoes along the rift valley of the Levant, throughout Anatolia and the Caucasus, and in a few places in Iran. They were transported, particularly when water transport was available. However, the application of rigorous sourcing methods to basalt artifacts is just beginning (Fortin 19XX).

Flaked stone tools were the common material for cutting and scraping tools. Flints or cherts, cryptocrystalline silicates usually found bedded in or eroded from limestones, are the most common raw material. High quality flints are found in the Front Ranges of the Anti-Taurus and Zagros, in the Syrian Desert, throughout the Levant and along the Nile Valley. They are absent in Lower Mesopotamia and rare in the largely igneous terrains of the Iranian and Anatolian plateaus. During the earliest Bronze Age, flint was widely transported and used to make special blade tools and bifacial knives and points (Rosen 1997). Rigorous ascription to sources of these rather variable stones is difficult, but some sources are distinctive and we know that preferences did change. For example, just before our period of interest, some Lower Mesopotamian communities changed from Zagros flints to Middle Euphrates flints (Pope and Pollock 1997). Sources of obsidian, a glass-like basaltic stone, are more localized around clusters of volcanoes in western Anatolia, eastern Anatolia, the Caucasus, and southern Arabia. The trace elements characterizing these sources have been well studied. Unfortunately, obsidian transport into Iran, Mesopotamia, the Levant and the Nile is relatively minor in the earliest Bronze Age.

One can argue that social display -- the presentation of durable messages about social position -- is as important as purely utilitarian technical activities in complex societies. Materials which are rare and exotic and which have distinctive properties are particularly suited to convey the statuses of the bearer. Among the many such materials, some are remarkably widespread, such as red carnelian which occurs in northeastern India, Afghanistan, Iran, and northwest Africa, while others are highly localized, such as sky-blue lapis lazuli, the major source of which is in Badakhshan in the northeastern Hindu Kush. While these were worn as pendants or beads, other fine stones were used for display furnishings. Localized sources of marble, travertine, and alabaster carved into vessels have not been well characterized, but chlorites, steatites, and related soft stones localized in eastern Iran, South Asia, and south Arabia have been studied.

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B. Woods

The remains of wood, normally charcoal fragments, have not been widely retained or studied. When they are identified, most prove to be from local trees and bushes used for firewood, and few need be transported any great distance. The woods of lowland Mesopotamia are soft, and beams are hardly long enough to span a room or serve as a column. It is not surprising that there are records of oak moved from the Zagros and cedar moved from the Lebanon or Amanus mountains into lowland Mesopotamia. Scattered records, however are difficult to use quantitatively.

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C. Bitumen

Natural asphalt was important as an adhesive and waterproofing material from the time of the earliest villages, long before fossil fuels became widely used.

It seeped from the ground in a limited number of places in the foothills of the central Zagros, the Middle Tigris, the Middle Euphrates, and the Dead Sea. Its chemistry is well understood (Marschner and Wright 1978) and recent methodological breakthroughs (Conan and Deschesne 1991, Schwartz et al. 1999) allow ascription to source. Bitumen preserves well in archaeological contexts and its use can be quantitatively studied.

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D. Metals

Three metals -- copper, silver, and lead -- are of importance during the period between 3100 and 2700 BC. Native coppers were probably exhausted before the IVth millennium, but easily smelted ores were exploited in Oman (Weeks 2004), Central Iran (Berthoud 19xx), The Anti-Taurus and Taurus (Yener 2000), and the Wadi Araba (Levy *et al.* 2002). The only alloy commonly detected is arsenic, tin coming into use only late in

our period of focus. Arsenic, however, does occur naturally in some central Iranian copper ores. Silver ores had been exploited in the Anti-Taurus since Uruk times and was used ornamentally. Whether silver was also used as a medium of exchange in the earliest Bronze Age, as it was by the mid-IIIrd millennium and after, is arguable. Lead, a by-product of the cupellation of silver, often used for vessels and small ornaments, is not well studied. A problem with all metals is that they are easily recycled rather than discarded, and quantitative measures of metal import or use are difficult. A problem with copper is that even with sophisticated analytical techniques, it is often difficult to determine the sources of the ores (cf. Weeks 2004).

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E. Fabrics.

The production and export of fabrics seems to have been important in all the early civilizations. In southwest Asia during the earliest Bronze Age, the key plant fiber was flax, which could be grown wherever rainfall was copious or irrigation was possible. The key animal fiber was wool. Goat hair was also used for specialized fabrics, such as for tents. Sheep and goats were herded throughout the region, as documented above. Thread was and is spun everywhere as a household task, as indicated by the occurrence of spindle whorls. Weaving was a domestic activity in the earliest violages, but by the mid IIIrd millennium in Lower Mesopotamia weaving was organized in large shops staffed by women and children, and this may have begun as early as the IVth millennium. It is arguable that Lower Mesopotamia, though lacking most material resources other than mud, reeds, and domestic crops and animals, had large populations which could transform widely available materials into labor-intensive products. Fabrics would be ideal for such intensification and need to be considered in any model of inter-regional interaction. Unfortunately, like wood, fabrics preserve poorly in most archaeological contexts. It is one of Mesopotamia's "invisible exports" (Crawford 1973). Therefore production, transport, and use must be indirectly inferred.

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F. Other

Many other items – for example rare metals such as gold, marine materials, such as shell used for ornaments and tools, or exotic and high energy foods (such as dried fish, dates, or nuts) require further consideration.

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V. The Modes of Transport

Human movement -- the migration of communities, the transport of goods, and the movement of armies -- limits interaction. Before the Bronze Age, some water transport had developed, but within the Middle East land transport was by people on foot. During the earliest Bronze Age, however, a number of innovations in transport become widely available.

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A. Land: Equids and Carts

Donkeys, domesticated in North Africa, are attested in Mesopotamia as early as the mid-IVth millennium, and were probably widely available everywhere by our period of concern. Loaded donkeys can go no faster than the person on foot who leads them. Based on 19th century travelers accounts, we can assume 45 km per day on level ground, 30 km per day in hilly areas and 15 km per day in rugged mountainous areas. Each donkey, however, can carry a load of 40 kilos. Horses, domesticated in central Asia, are attested in the Anatolian and Iranian plateaux in the late IVth millennium, but they seem to have been rare. Oxen, long present in the Middle East, can carry a light load and are sometimes used locally, but they would be most useful if they could pull carts. Model cart wheels are reported from early IIIrd millennium sites (Matthews 2003). Wheeled carts are represented in elite processions in drawings on EDI jars in lower Mesopotamia, and actual carts are known in a number of mid-IIIrd millennium tombs. These seem to have been used in warfare and display. There is no indication in this period, or until much later, that carts were used to transport goods.

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B. Rivers: Canoes and Rafts

The major channels of the Euphrates, Tigris, Karun, and Nile, as well as canals and marshy lakes fed by these rivers, are ideal areas for water transport. Large canoes, rafts, and bitumen covered basket boats were traditionally used. The first is attested by models in the Vth millennium (Safar, Mustafa, and Lloyd 1981) and the

second is attested by bitumen imprints in the early IIIrd millennium (Wright 1969). Such craft would enable large shipments of stone, wood, metals, and other materials to be floated down to Lower Mesopotamia or to the Delta of the Nile. The Nile has the special advantage that in most seasons watercraft can sail upstream, southward, whereas travel up in the Tigris and Euphrates channels usually involves slow and difficult poling or pulling with lines along the banks.

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C.Seas: Sailing Craft

Maritime communities and models of boats with masts are known from the Vth millennium Gulf region (Safar, Mustafa, and Lloyd 1981). Regular visits to Cyprus and other Mediterranean islands were certainly occurring by the early IIIrd millennium. Several preserved boats, probably built to travel on the Nile, have been excavated (cf. Jenkins 1980, Lipke 1984). They have hulls of lashed planks and masts and rigging and they could have been sailed along the coasts of the Mediterranean, the Red Sea, and the Gulf. During the period from 3100 to 2700 BC, we can presume that sailing craft could move people and shipments of goods weighing several tons around these seas. These seas, however, have very different currents and seasonal patterns of winds and storms, and the capabilities of early sailing craft to navigate them must be individually determined.

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VI.The Logics of Transregional Interaction in Earliest Bronze Age in Southwest Asia

We have now discussed the geographical setting of this early 'interaction sphere', the people and communities that were the participants in this interaction, the local means of production which sustained them, the things widely used but only produced in certain places, and the means of traveling from place to place. We are now ready to talk about different possible 'logics' or rules by which people in this space could interact with each other, and generate the patterns of communication, exchange, and conflict we observe. Social scientists have discussed various logics, of which the following three were probably used by earliest Bronze Age peoples in the Middle East.

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A.Alliance Logic

Defined by the structure of kinship and embedded in networks of kin groups, participants in alliance networks exchange marriage partners and material gifts to generate amicable relations with the potential to endure into subsequent generations. Groups compete to form the most advantageous links, both in terms of material gain and military defense. Aspects of the political economy of such networks have been cogently investigated by Marshall Sahlins (1972), a work so persuasive that such logics have only recently again become the subject of further enquiry.

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B.Tribute Logic

Defined by the structure of hierarchy and relating individuals of high rank in a range of polities, lower-ranking participants give tribute to higher-ranking participants in return for sacred blessings, confirmation of office, and military support. Failure to pay tribute is a claim for independence and grounds for war. Higher-ranking participants give gifts, often exotic or valuable items, to lower-ranking figures which provide material evidence of the relationship and solid benefits. Ranking figures compete to build larger and more enduring coteries. There is no comprehensive treatment of these formations, but Vincas Steponaitas (1981) worked the structure of tribute and Marshall Sahlins (1985) and Mary Helms (1988, 1993) have worked on the ideological contexts.

...

C.Market Logic

In these networks there is a structure of values which relates buyers and sellers. Since the logic is that of the market itself, enduring markets can only exist—even in the very simple markets of early Mesopotamia-- in a framework that provides some guarantees of property rights, contractual arrangements, and the supply of the means of exchange. The guarantors of such frameworks often demand tribute or taxes in payment for their services. The breaking of contracts are grounds for sanctions. Within such a framework, buyers compete for sellers and sellers compete for buyers. Needless to say, treatments of market economies are legion.

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VII. A World System or a Transregional Network?

This overview provides the accessible empirical evidence needed to model the transregional network which linked the entire Middle East in the centuries following the collapse of the first states. This information is summarized on the final map (Figure 7.)

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Figures.

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1. Map of the Middle East ca. 3000 BC.

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2. Map of Mesopotamia and the adjacent highlands ca. 3000 B.C.

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3. Map of Mesopotamia and the adjacent highlands ca. 2700 B.C.

4. Map of southern Iran and the Gulf ca, 3000 B.C.

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5. Map of the Levant and the Nile Delta ca 3100 B.C.

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6. Map of the Levant and the Nile Delta ca 2800 B.C.

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7. Patterns of interaction in the Middle East ca. 3000 B.C.

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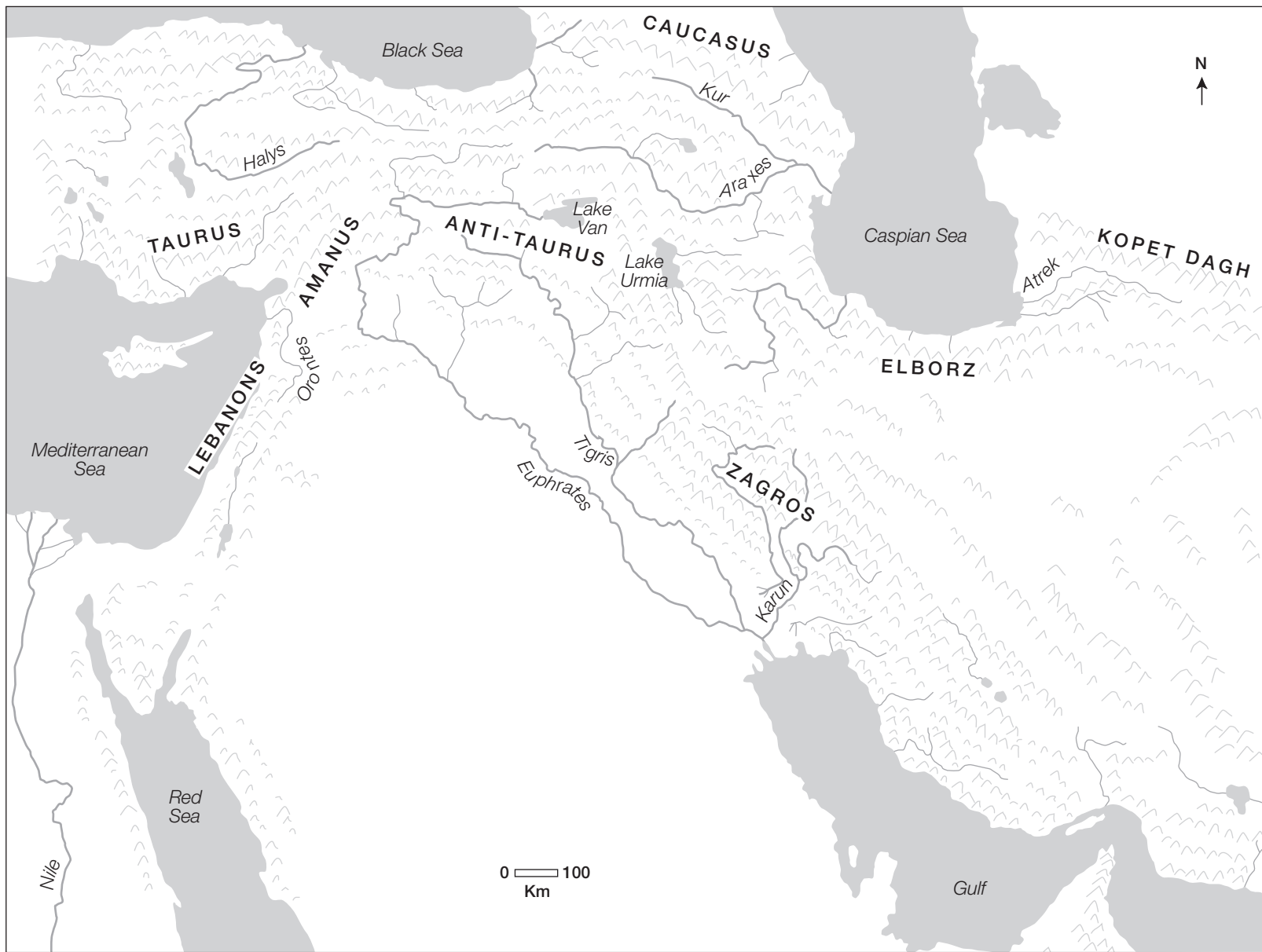


Fig. 1. Map of the Middle East

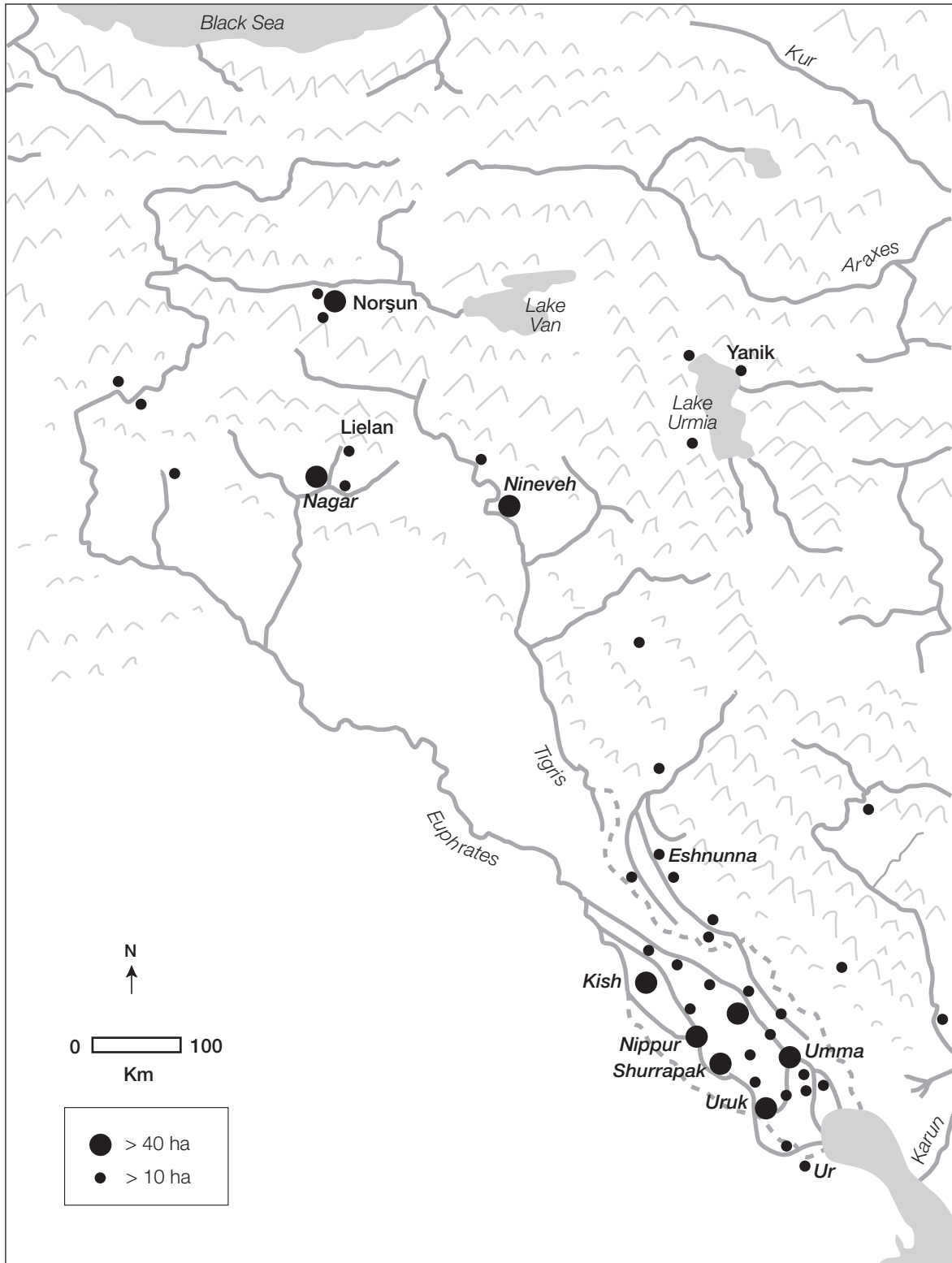


Fig. 2. Map of Mesopotamia and the adjacent highlands ca. 3100 BC

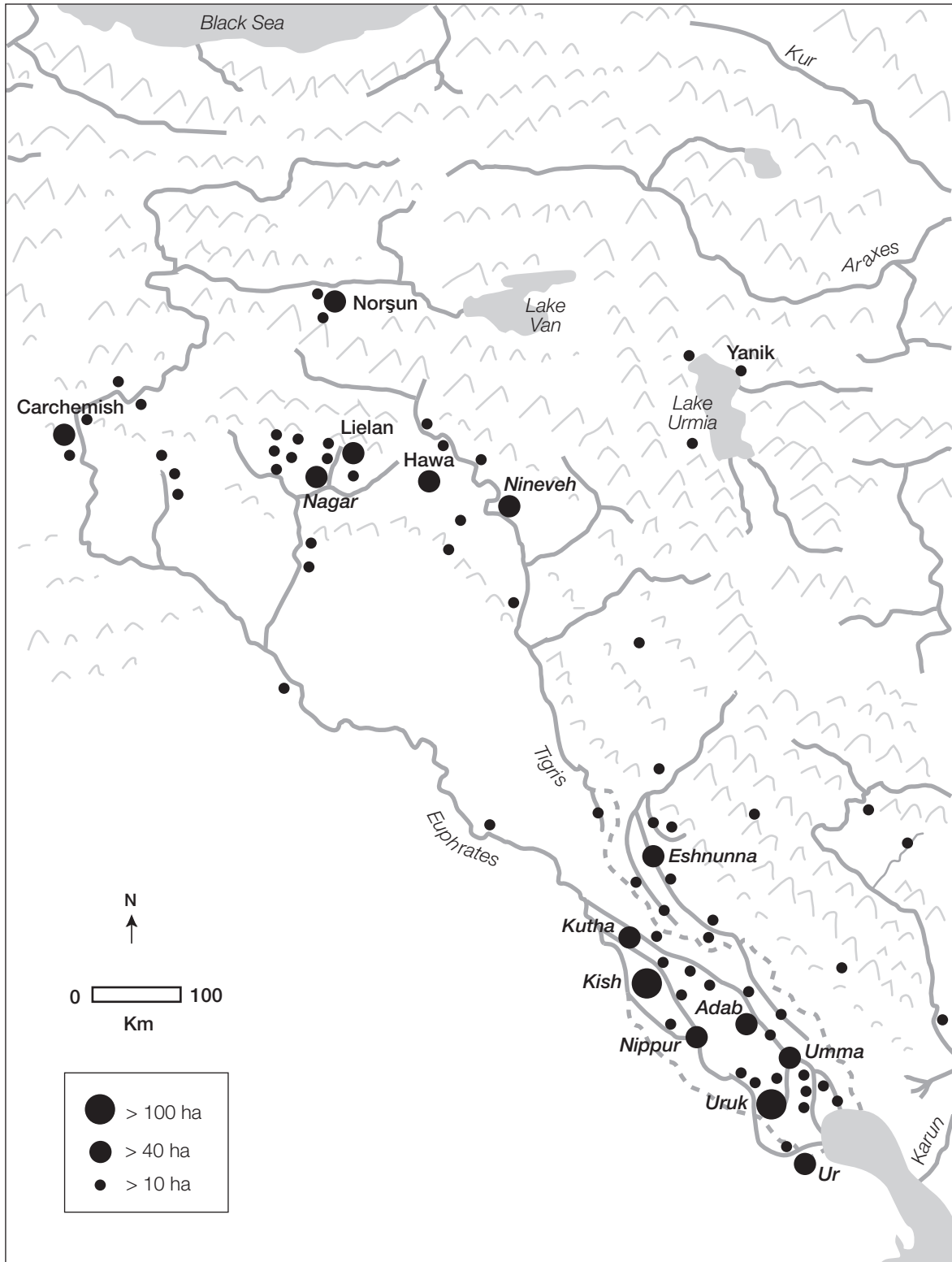


Fig. 3. Map of Mesopotamia and the adjacent highlands ca. 2700 BC



Fig. 4. Map of southern Iran and the Gulf ca. 3000 BC

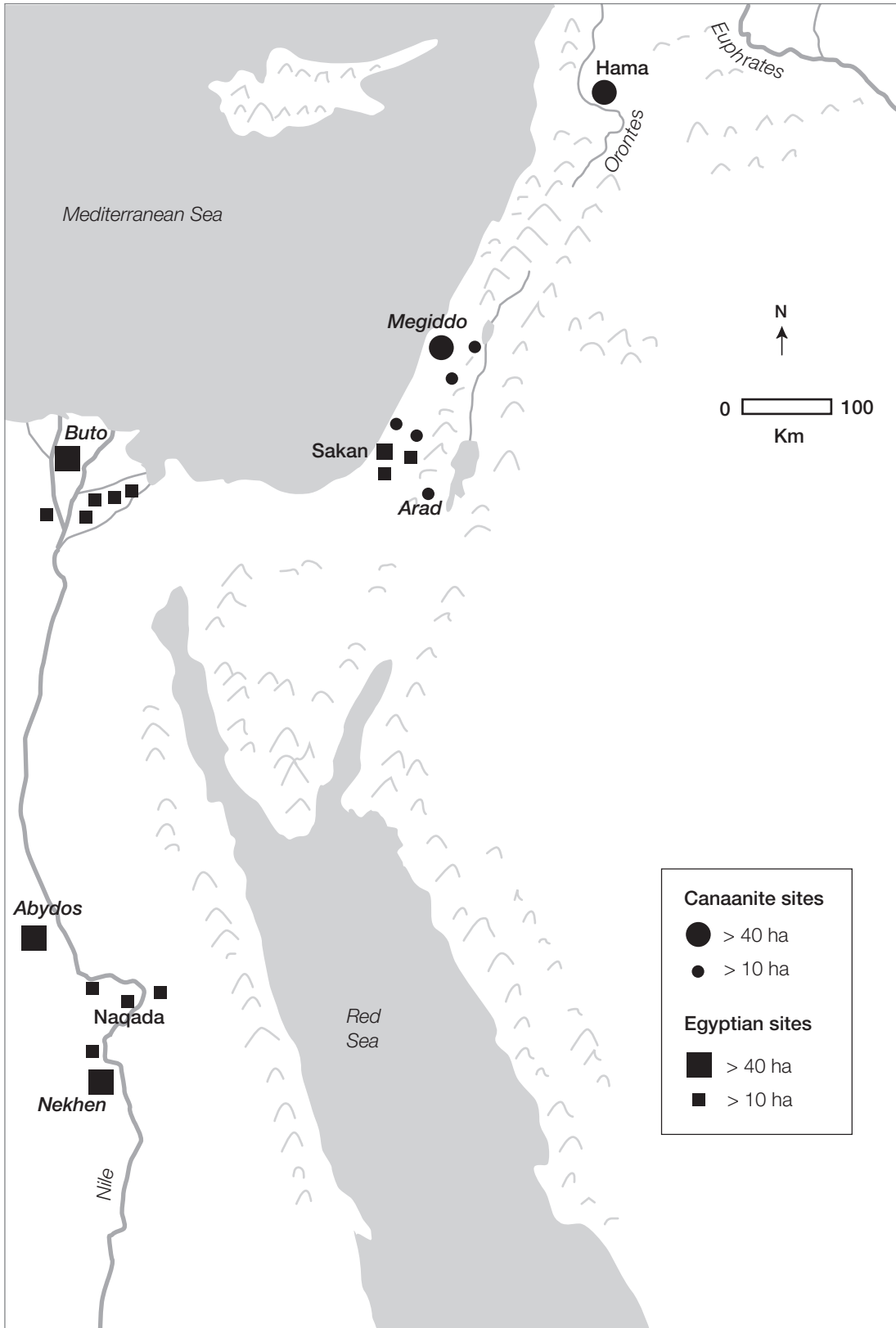


Fig. 5. Map of the Levant and the Nile Valley ca 3100 BC

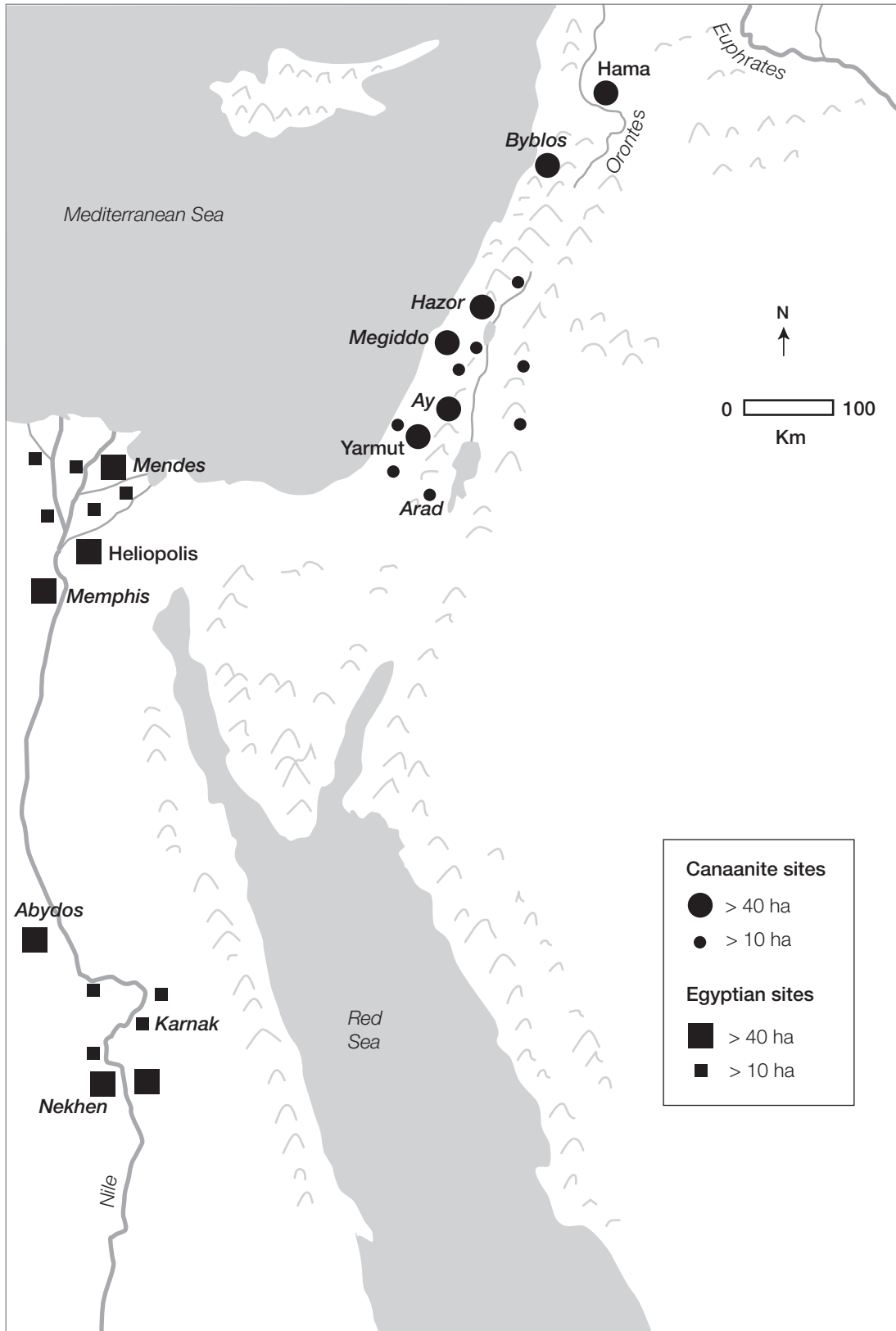


Fig. 6. Map of the Levant and the Nile Valley ca 2800 BC

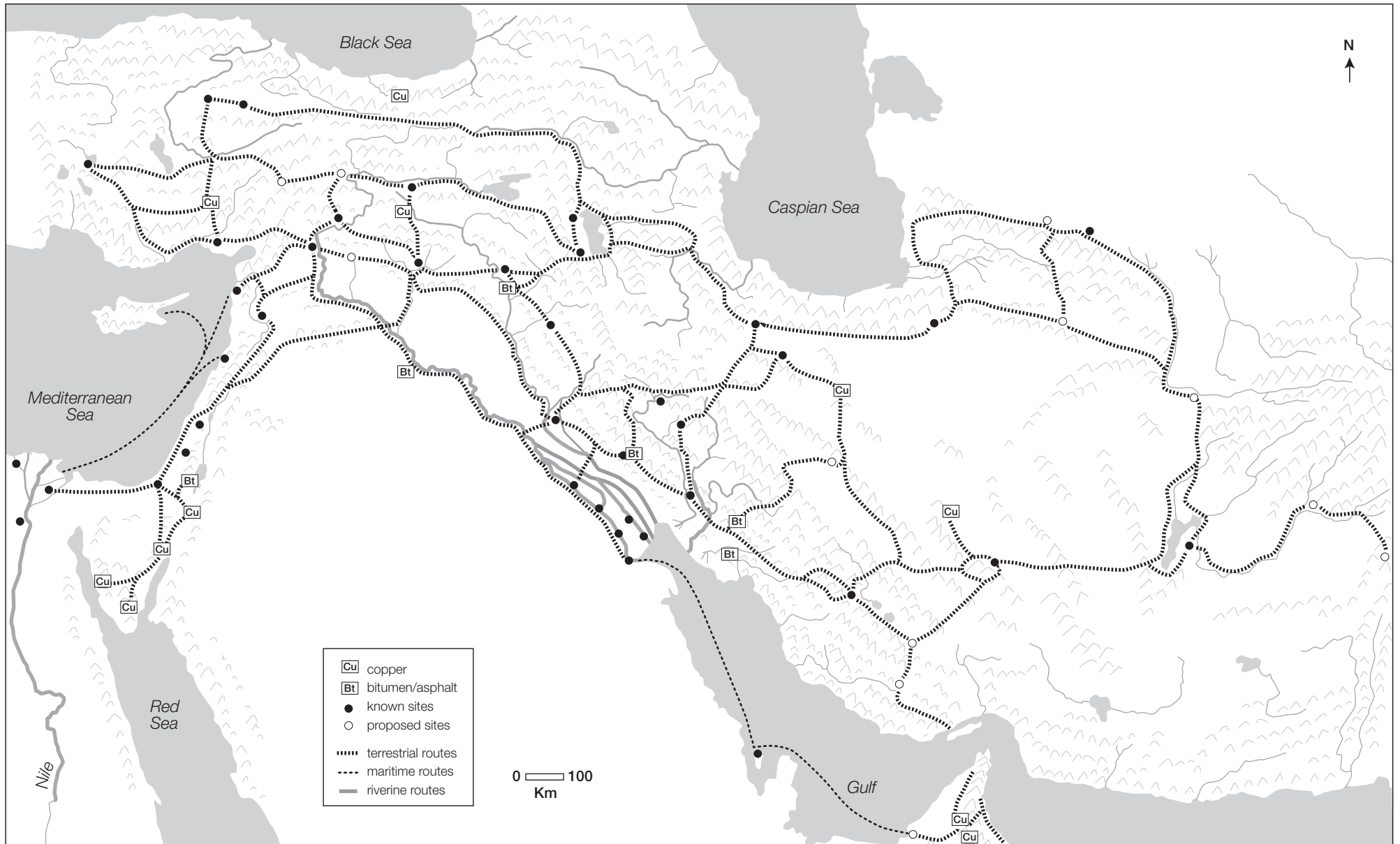


Fig. 7. Travel and Resources in the Middle East ca. 3000 BC