Settlement, Economy, and Society in the Tell Leilan Region, Syria, 3000-1000 BC

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Surveys, excavations and cuneiform tablets document the rise and collapse of an extraordinary array of state societies in Northern Mesopotamia from 3000-1000 BC, from small, loosely organised kingdoms to early empires. Yet apart from a focus on the origins of the North Mesopotamian state, scholars have consistently underplayed the variability of early Mesopotamian states. Instead historians have assumed continuity where the archaeological evidence indicates discontinuity. The separation between archaeological and historical research agenda in Northern Mesopotamia partially explains this confusion. Archaeological research has focused on the third millennium BC, while historical research has focused on cuneiform archives of the second millennium BC. Both historians and archaeologists have drawn false analogies, assuming that the later historical record can explain the earlier archaeological evidence and vice versa.

In order to redress this balance, this dissertation analyses the long-term history of one region—the area around modern Tell Leilan, Syria (ancient Apum)—using data from a wide variety of sources, including an archaeological survey, ongoing excavations, environmental research and contemporary cuneiform documents. This approach illuminates how changes in the social relations of land underlay three processes—urbanisation, tribalisation and provincialisation—which produced radically different societies. First, it argues that the earliest states arose as part of a political and religious landscape that resolved tensions between a series of economic, political and social oppositions (3000-2200 BC). Second, it analyses the rise of tribalisation and investigates how a three-century long drought led to the collapse of urban society and the extension of nomadism and set the stage for a series of kingdoms based upon tribal principles (2200-1500 BC). Third, it investigates the fate of this region as a province under the domination of two empires that standardised administrative practices throughout Northern Mesopotamia, Mitanni and Assyria (1500-1000 BC). The dissertation concludes by considering the long-term dynamics between the environment, urbanism and nomadism in Northern Mesopotamia.

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This work is dedicated to the modern residents of Tell Leilan, Syria.

Declaration of Originality

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except where specifically indicated in the text.

Declaration of Word Count

This dissertation does not exceed the word limit of 80,000 words as set by the Degree Committee for the Faculty of Oriental Studies.

Chapter 1: Introduction

I. Landscapes, Space and History

In North-eastern Syria, the boundary between cultivated and steppe land has fluctuated since agriculture began due to environmental, economic, social and political factors. We will consider the interaction between settlement patterns—where and in what manner people chose to build communities—and environmental, social and political change in the period between 3000 and 1000 BC. Surviving written documentation from these two millennia allows us to populate these landscapes[1] and to reconstruct how people in Northern Mesopotamia experienced, perceived and imagined these landscapes (Smith 2003a: 10). This study will explore the origins and consequences of social transformation from a regional perspective, by looking at how changes in the organisation of the countryside both reflected and underlay three larger processes--urbanisation, tribalisation and provincialisation—in a 1650km^2 area between the Turkish and Iraqi borders which was analysed as part of the Leilan Regional Survey (LRS) (fig. 1.1).

We shall use the concept of "social relations of land" to frame and limit our study of human interactions with "the landscape" (Porter 2000: 44-45).[2] The term "social relations of land" is meant to encompass the dynamic relationship between human actions and space. This concept is rooted in a relational understanding of space as a social product (Lefebvre 1991: 26; Smith 2003a: 69-77) and a dynamic understanding of time. It includes a study of the legal and social practices of land tenure—possession, usufruct and property as an institution that determines "exclusive rights to things"—and land use—farming, pastoralism, house-building and road-construction, to name a few of the activities under this rubric. Social relations of land thus emerge from, reflect and constrain social organisation. They both determine and are determined by political decisions, economic choices and the processes of daily life. Land tenure and land use—both pastoralism and agriculture—record a specific

[1] Texts preserve evidence of individuals and highlight the role of agency. For "agency problem" in archaeology, and approaches that seek to remedy this concern, see the essays in (Dobres & Robb 2000; Pauketat 2001).

[2] I object to the term landscape for two reasons. First, the term's multiplicity of definitions limits its heuristic utility. Archaeologists' understanding of landscape differs from common definitions, rendering theoretical discussions unnecessarily obfuscatory. Adam Smith, for example, defines it as "land that humans have modified, built on, traversed, or simply gazed upon," (Anschuetz et al. 2001; Smith 2003a: 10). This definition has little to do with understandings of "landscape" in historical ecology, art history or common usage. Oliver Rackham's definition of landscape history notes that it can be "written without people," (Rackham 2000: 4), while obviously the sense of landscape as "a genre of pictorial image", differs greatly from archaeological understandings. Second, despite attempts to root concepts of landscape in sociological theory that underscores change, becoming, and flux (e.g. Kouchoukos 1998, Porter 2000, and Smith 2003, with reference to (Bourdieu 1977; Giddens 1981, 1984; Lefebvre 1991); the grammatical flatness of this noun resists such a relational emphasis. "Social relations of land" is thus more descriptive, and ultimately more honest.

aspect of human interaction with the landscape that intersects with economic, social and cultural behaviour.[3] We will highlight how transformative social processes—like state development, tribalisation and provincialisation—are implicated within social relations of land. Given the diversity of the sources available during these two millennia, we will use the concept of social relations of land both broadly—to analyse the creation of economic, political and religious landscapes during the mid-third millennium—and narrowly—to study the operation of a single agricultural estate (*dunnu*) in the 13th century BC.

Approaches to prehistory and ancient history generally and Mesopotamia more particularly, rooted in changing concepts of land tenure have a long intellectual pedigree in political theory, history, anthropology and archaeology. Modern work by both anthropologists and archaeologists has often implicitly relied upon these conjectural histories, re-imagined as social evolutionary and neo-evolutionary theory (Yoffee 2005: 4-15). Two critical studies of modern narratives of human evolution and the origins of agriculture have identified the clear debt that they owe to Jean-Jacques Rousseau's conjectural history, although his influence is normally ignored (Latour & Strum 1986; Rudebeck 2000).

As a consequence of the dominance of hypothetical history, archaeologists (particularly those of an anthropological bent) have focused on social revolutions. As a result, accounts of the origins of the state during the third and fourth millennium BC dominate both Mesopotamian archaeology and wider archaeological accounts. Since the moment of the origin of the state is the primary watershed, theoretical accounts often implicitly assume that all subsequent states are roughly similar. Thus archaeologists ignore the multiplicity of polities present in Western Asia during the following millennia, particularly when their remains do not conform to widely held notions of the archaic state (Yoffee 2005: 5). Archaeologists generally pay little attention to the varying nature of the textual evidence over time, or its implications for the different characters of early societies. Similarly, historians usually assume "continuity" in the absence of records, even when the archaeological evidence indicates rupture. As a result, both historians and archaeologists draw analogies from the textual and archaeological record with little regard for the effects of time and space.[4] Adam Smith has recently highlighted the implications of the aspatial nature of archaeological studies of early states:

> Without an account of the constitution of authority in the production of landscapes, political analysis drifts farther from everyday life, trading agency

[3] Renger has emphasised that changes in the "dominance of a particular form of land tenure... determine the social and economic fabric of a distinct historical period" (Renger 1995: 269).
[4] For the implications of the ahistorical nature of metahistory, see Yoffee 2005.

> for determinism and imposed routines for general laws. By refusing to cede the landscape any role in processes of political formation, administration and collapse, perceived regularities in structure are unduly amplified. Fifteenth century A.D. Venice, fifth century A.D. Tikal and third millennium B.C. Uruk disappear into the singular category labels "States" despite what would seem the rather salient facts of their highly variable form, geography and spatial aesthetics... (Smith 2003: 16-17).

This study seeks to avoid such pitfalls by exploring the plurality of North Mesopotamian states during the second and third millennia (Stone & Zimanksy 2004: 2). It will privilege both space and time, by exploring each polity that arose in the Tell Leilan region with reference to archaeological, environmental and historical data related to a specific time period and geographical context. We will explore the interactions between the exigencies of time, space and society in the creation, maintenance and collapse of North Mesopotamian polities. This is not a call to abandon analogy, comparative history, or the investigation of "social revolutions". Rather it is a plea to broaden our critical focus. Analogy remains a useful tool—but one that should be applied in addition to a thorough investigation of the data for a particular space and time. Analogy can never replace concrete investigation. As Norman Yoffee concludes in a recent call for historical sensitivity in the study of early states:

> History is not a hyper-particularist collection of oddments of the past—what historians call antiquarianism—but is a method of explaining causes and effects... Such investigations must include appraisals of what social changes occurred in the past as well as those that did not occur. The goal of these new rules of the game is to understand the past on its own terms insofar as this can be imagined. (Yoffee 2005: 195)[5]

We will begin by considering the applicability of modern notions of property and land tenure to ancient Northern Mesopotamia, in the light of both modern political thought and past assyriological studies. Rather than simply applying a historically specific, western concept of "property", we will consider both theory and praxis in Mesopotamia, as seen from the textual evidence. Next we will use as a case study the settlement history of the Leilan region over the past 150 years, in order to see the malleability of settlement patterns during a recent period, when we have far more documentary and geographical evidence available than for the archaeological periods under consideration, and their interplay with larger political and economic concerns. The next two sections will address how the archaeological and textual evidence will be used to look at land tenure. Finally, this chapter will conclude with a

[5] Daniel Fleming has also called for a historically sensitive approach to the early second millennium BC. (Fleming 2002: 75)

short introduction to the structure and periodisation along with a synopsis of the general historical patterns which result from this investigation.

II. Land Tenure and Long-Term History: Theoretical Considerations

Mesopotamia and the Evolutionary History of Property

In the nineteenth century, at the same time that French and British explorers and colonial officials were rediscovering ancient Mesopotamia through excavations in Assyria and Babylonia and the decipherment of cuneiform, historians and political theorists in England, America, France and Germany were writing historical narratives that viewed progress in terms of an evolving schemata of property ownership. Some of these political theorists and legal scholars belonged to liberal or republican traditions, while others were involved in formulating socialism. They were all responding to a number of contingent factors that suddenly meant that basic economic "truths" were being redefined. These factors included everything from the consequences of the French and American revolutions for land ownership, to the effects of industrialisation on social and economic relationships (Stedman Jones 2002: 109-119). In order to explain and justify political doctrines in the short term, these theorists constructed a prehistory and early history of property ownership, by comparing ethnographies of primitive cultures in the Americas, Asia and Africa to classical accounts of land ownership and medieval chronicles of feudalism.[6] As a result, they came to believe that private property ownership was a recent innovation. These provisional histories proposed that an initial state of communal ownership, found both in Tacitus's description of ancient Germany and 19th century India, had yielded to the establishment of slave economies, like those of ancient Greece and Rome, which had been superseded by a feudal system, which had in turn been replaced by a market system and private property. The rediscovery of Assyria provided new evidence for these debates. Layard's excavations at Nimrud in the 1840s generated enormous interest among both the wider public and intellectuals, because of their perceived significance for debates on "social evolution" (Larsen 1996: 146, 157-165).

Discussions of property since the Middle Ages have relied upon a framework constructed from three basic sources: Roman law, Germanic traditions and Biblical history

[6] Obviously an extensive bibliography of the intellectual history of land tenure and property in the modern period cannot be cited here. For a general account of the development of "the idea of private property" see (Schlatter 1951). For a discussion of how 19th century ethnographic work produced a paradigmatic view of a "primitive society" see (Kuper 1988: 15-75; Pagden 1982, 1993). For the combined use of ethnographic data and ancient sources in the creation of Marxist developmental schemes see (Leacock 1972; Stedman Jones 2002). For the links between Natural Law and the four stages theory see (Meek 1976) and the essays included in (Hont & Ignatieff 1983).

(Schlatter 1951). In Medieval and Early Modern theology and jurisprudence, the development of private property had been seen as an aspect of man's fall from grace—the ineluctable loss of plenty that accompanied the expulsion from Eden. By the late 18th century, during the Scottish and French Enlightenment, this view had been neatly inverted and private property was seen instead as the triumphant outcome of history. In his lectures at the University of Edinburgh, Adam Smith suggested that human societies passed through four stages defined with regards to the means of production: hunting, herding, agriculture and commerce. These developmental stages were formulated within the tradition of "natural law" but from an economist's point of view, in order to provide the emerging mercantilist commercial society with an intellectual heritage. In Smith's schema, the first two stages were associated with communal property, while cultivation made private property possible. Adam Smith's ideas influenced the Marquis de Mirabeau's invention of a new term: "civilisation", defined as both history's fundamental process (progress) and the end result (European civilisation) (Starobinski 1992). In the wake of Smith, commentators of France's new Civil Code like Charles Toullier suggested that "history was the transition from possession as 'fact' to property as 'law'" (Stedman Jones 2002: 150).

Yet if this was the mainstream view in the years following the French revolution, the consequences of the changes in property laws enshrined in the Napoleonic code forced theorists to rethink the nature of private property and its justifications. The redistribution of property following the destruction of the French crown and aristocracy created, at first, a more equitable distribution of property, producing a new class of small farm proprietors. Within a few generations, however, by the middle of the 19th century, partitive inheritance combined with ready credit had led to the consolidation of huge estates in the hands of a new capitalist class. In response to the challenge of the French Revolution, the conservative German Historical School of Law, led by Karl von Savigny and Barthold Niebuhr, rejected the triumphalist history of the transformation of possession into private property. In a series of lectures delivered in 1829-30, Niebuhr posited the existence of four modes of land ownership prior to the development of Smith's commercial society: the oriental, the tribal, the classical and the feudal. Rather than seeing the development of private property as a natural right, "the German Historical school had uncovered a new past, during most of which the great bulk of mankind had lived in societies in which possession of the land was communal and conditional" (Stedman Jones 2002: 157).

Like their liberal predecessors, Karl Marx and Friedrich Engels also grounded their political theory in the evolutionary history of land tenure. Engels's *The Origins of the*

Family, Private Property and the State, based on Marx's unfinished notes on L.H. Morgan, remains the classic statement of mainstream Marxism as applied to prehistory and early history. Engels proposed three universal economic stages of pre-capitalist history: primitive, slave-owning and feudal. He followed Smith in locating the origins of civilisation after the invention of herding and agriculture created conditions conducive to trade. Private property and the merchant class accelerated the process of "the impoverishment of the masses" and the enrichment of the few (Engels 1972 [1884]: 226).

Given this nineteenth-century intellectual ferment, it is hardly surprising that in 1909, when enough cuneiform tablets had been translated to be of use to a non-specialist, Max Weber analysed them in order to reconstruct the sociological foundations of ancient economies (Weber 1976). Similarly, Mesopotamian scholars also analysed the development of private property in all periods of Mesopotamian history as part of this development within the humanities and social sciences, often explicitly relying upon the theoretical foundations of Weber and Marx.[7] As a result, studies of Mesopotamian land tenure that seek to flesh out grand theoretical narratives (metahistories) have occupied a privileged place in Mesopotamian historiography.

Unfortunately, these developmental narratives have often served as straitjackets for Mesopotamian historians, who have tried to make the evidence fit either a Marxist or liberal evolutionary perspective. The casual student of Mesopotamia could be forgiven for believing that always and everywhere, communal property was always only just giving way to private property. After all, according to Igor Diakonov, one may see such a process at work in the late third millennium BC, in the "early kudurrus", specifically the obelisk of Maništušu (Diakonoff 1974, 1982). Both Jozef de Kuyper and Bernard Batto hint that a similar process may be underway in Mari in the early second millennium BC (Batto 1980; Kuyper 1988). Mario Liverani sees this great transition occurring at Ugarit in the mid-second millennium BC (Liverani 1975), while both Natalia Jankowska and Carlo Zaccagnini cite the "false adoption" (*mārutu* and *tidennutu)* documents as key to the implementation of a new stage of private property ownership at Nuzi in the mid-second millennium BC (Jankowska 1969a, 1969b; Zaccagnini 1984). There are even those who see the dissolution of barriers to land sales as the defining process for Neo-Assyrian land tenure (Liverani 1984: 42). Obviously, if

[7] It is impossible to supply a full bibliography here, but for a selection see (Eisenstadt 1986; Schloen 2001; Stager 1985) for Weberian analyses of the Ancient Near East. For Marxist analyses see (Diakonoff 1969 (1949), 1974, 1982, 1996; Fales 1973; Jankowska 1969a; Liverani 1975, 1996; Renger 1994, 1995). Johannes Renger's analysis of land tenure historiography in Mesopotamia, explicitly connects the modern debate to the 19th century controversy between Foustel de Coulanges and Maine (Renger 1995: 288 and fn 47).

evidence for both communal sellers and private buyers can be found over almost two millennia, covering the years from ca. 2400-612 BC, we must accept the presence of both "communal" and "private" property as two facts of the Mesopotamian land tenure system. We cannot claim to be the discoverers of the unique—and probably wholly fictional—moment when the communal stage of property ownership disappeared and private property triumphed. It may be best to follow Marc Van de Mieroop who sees the community, the institution and the private sector as three interacting spheres of Mesopotamian society, throughout its three millennia (Van de Mieroop 1999: 107).

Modern Terminology and Mesopotamian Social Institutions

Discussions of Mesopotamian land tenure practices are complicated by Western political and legal terminology, which is as prescriptive as it is descriptive. Deceptively simple and neutral terms like property, land tenure and rural history have complex connotations in both liberal and Marxist traditions. As a result, using these terms to describe ancient social and economic institutions may obscure rather than clarify ancient processes. Historians have justified the application of foreign theoretical practices to Mesopotamian social and economic history on account of the numerous lacunae in the archaeological and textual evidence (Yoffee 1977). Theories derived from modern Western political thought have been applied to Mesopotamia because this civilisation has been seen as the first step in the creation of a unique Western civilisation. Yet these lacunae, especially when they occur systematically, may reflect social processes with which we should contend. Rather than ignoring or eliding these absences in favour of the material we do have, it may be wise to consider the significance of these absences for social relations of land in Mesopotamia. The lack of an analogous institution to our own rights-based legal discourse in Mesopotamia, for example, has major implications for our discussion of "property" in this society. Similarly, attempts to flesh-out the often laconic statements regarding property ownership, or possession of land in Mesopotamian sale documents and letters, have led to the unconscious (and spurious) transference of modern ideal types (such as the yeoman farmer, the patrimonial household or primitive communism) to Mesopotamia. Finally, the transposition of our own notions about the "universal" foundations of property ownership, drawn from Classical Economic thought, onto Mesopotamia has led to misunderstanding of this institution.

In modern legal terminology, the institution of private property relies upon an understanding of the theory of natural rights used to justify it (Underkuffler 2003: 16-21). As a result, the application of this terminology to a society like Mesopotamia, which remains,

"before philosophy", in the words of Henri Frankfort (Frankfort 1968), can obscure ancient social institutions. Despite the presence of Mesopotamian legal texts, representing both law codes and case-studies, we do not have any texts which correspond to the Western jurisprudential traditions, with its desire to justify legal systems (Lafont 1987: 342; Lafont 2000b). As a result, transferring our definition of private property to the ancient past is generally misleading. This has not stopped scholars from analysing law codes from the point of view of our own legal past. For social relations of land that has often meant a narrow focus on "formal property rights, as distinguished from informal, legally unrecognised rights and customs covering access to landed property", despite the fact that the latter have often regulated access to land in Western Asia in more modern times (Adams 1982: 10). Societies which possessed strong philosophical and legal tradition, such as the ʿAbbasid caliphate and the later Ottoman Empire, have not always developed a justification of private property, or worried about its development. Even the 1858 Ottoman Land Code, often seen as a Western-influenced introduction of private property in the Ottoman empire, far from enshrining the institution of private property, really served as a way to systematise use of state-owned lands (Sluglett & Farouk-Sluglett 1984). The primacy of private property in our own period is accidental, while the division of property into only three categories in Western thought—institutional, communal and private—is similarly contingent. Neither of these assumptions is *prima facie* relevant to the Mesopotamian evidence, which should not be forced into such a straitjacket.

Another danger for historians is the unconscious transference of ideal types from Western property history to Mesopotamia. Historians have seen private land-ownership as the "primary goal of all Mesopotamians" and as something that "made an individual a citizen (dumugi) and an integral member of a Mesopotamian city-state in a way that was not open to those who were either landless or worked another's land" (Trigger 2003: 333). These quotations, taken from an archaeologist who has made a career out of self-consciously identifying modern biases in our recreation of the past (Trigger 1989), shows how pernicious such biases are. The idea that land-ownership is a prerequisite for exercising the full rights of a citizen is apocryphal to Mesopotamia, but fits well with the "yeoman farmer"—an ideal type transplanted from the Roman republic to post-revolutionary France and America (Pisani 1998). Instead, in Mesopotamia, at least prior to the first millennium BC, the situation was neatly inverted. Private, i.e. non-institutional (which is how Trigger defines it) land did not assure the freedom, wealth and happiness of Mesopotamians. For over a century, historians had been translating *awīlum* and *muškēnum* in Old Babylonian texts, including the Code of

Hammurabi as "free citizen" and "dependant" respectively, based simply on the higher status of the former over the latter; it now seems clear that these definitions should be reversed(Kraus 1973: 19-125; Schloen 2001: 286). In the Mari texts, for example, *muškēnum* is only used for someone who does not belong to the palace (Charpin 1988: 19; Durand 1991: 21, n. 18). Far from idealising such independent "yeoman" farmers, emic Mesopotamian perception seems to have derided them. Certainly, *muškēnum* has survived into later languages as a term of reproach (Arabic: Miskīn) (Schloen 2001: 287).

A number of archaeologists and historians have fallen into a similar trap in categorising Mesopotamian history (Schwartz 1993), namely the invention of a rural-urban divide, which corresponds with no emic distinction. Both Smith and Marx assumed that this dichotomy operated from the introduction of civilisation (or even high barbarism). Yet neither Akkadian nor Sumerian includes a range of terms related to settlement sizes, like the English hamlet, village, town and city. Instead, all normal settlements, from the smallest to the largest are simply called *ālu(m)* or URU (Postgate 1994a: 83). *Ālu(m)* has the same extended meaning as the Greek *polis*—it refers to both a city and its hinterland (CAD A: 380). Although words that can be translated as village (*kaprum, dimtu, dunnu*) do occur during the first and second millennia, the dominant meanings of the latter two words have other connotations (towers and strongholds). In Mesopotamia, cities were not purely market and manufacturing centres, cut off from their hinterland, like cities in post-Medieval Europe. As Schloen argues: "the available archaeological and textual evidence indicates that most city-dwellers were not full-time specialists engaged in nonagrarian pursuits as traders, artisans, priests, administrators or soldiers"(Schloen 2001: 101). Instead city-dwellers were generally farmers, just like their country neighbours. The layout of the few small settlements which have been excavated often mirror larger ones, containing the same walls, public buildings and dense private neighbourhoods (Matthews 2003a: 161). Stone summarises the evidence for these smaller sites, noting that "they are structured as cities in miniature rather than as villages that are functionally differentiated from the larger cities" (Stone 1999: 218)

Distinguishing archaeologically between "villages" and "urban centres" using criteria other than mere size is notoriously difficult (Sallaberger & Ur 2004: 60). Chagar Bazar comprised only 12 ha during the early second millennium, yet it was an important administrative centre under Šamši-Adad, while Tell Brak, a much larger mound, seems to have been of minor importance during this period. Similarly, at various times, much of the space of large cities (including first millennium Nineveh) was open, consisting of gardens and fields (Stronach & Lumsden 1992). The position of the pastoral segment of the

population, whose independence from "urban" structures or "settlements" varied greatly over time, further complicates this picture. The population of both large and small settlements shifted seasonally to accommodate the schedules of semi-nomadic pastoralists. Distinguishing functional differences between settlements is not an easy matter of identifying a system of horizontal stratification, but rather a more complex process of understanding how communities interacted with one another by means of different ties of ownership, authority and subordination (McClellan 1999; Schloen 2001: 64).

Perhaps the most fundamental assumption made about property in the Western tradition is that it is a legal institution predicated upon the existence of scarce resources and unlimited desires.[8] It is on the supposed dearth of land that all justifications for private property ownership rest. In Mesopotamia, however, Van Driel has argued that the opposite was axiomatic, "there was in all probability more than enough land in almost all periods of Ancient Mesopotamia's history" (Van Driel 1998: 19). This surplus is reflected in the extremely low prices paid for land during all periods, generally the expected harvest for one or two years at most. It is also evident in the nature of farming practices, which seem to have always been extensive rather than intensive, or relatively wasteful of land (at least in comparison to the intensive, small-plot cultivation which was the norm in North-western Europe). Even in the 18th century, Constantin-François Volney derided the "wasteful nature" of the extensive agriculture which was practised in Western Syria (Volney 1787: vol. 2: 366-8).

III. Case Study: North-eastern Syria in the 20th century AD

The history of the last two centuries of the Habur triangle underscores the interplay between environmental, political, social and economic factors in the settlement history of North-eastern Syria. Rare travellers' descriptions from the 19th century of the land between the Habur and the Tigris rivers harp on two points: the lawless condition of the countryside and the richness of its pasture (Forbes 1839; Layard 1853; Lehmann-Haupt 1910-1931; Moltke 1882; Rassam 1897; Rich 1836; Sykes 1908). During the latter half of the nineteenth century this country was a true backwater, seldom visited and sparsely settled by villagers. It was only formally part of the Ottoman villayet of Diyarbekir; true power lay in the hands of tribesmen. Ottoman authorities considered the land useless for farming and did not interfere with the Miran Kurds and Shammar Bedouin tribes who used this area as pastureland for

[8] Most archaeological reconstructions of catchment area and the carrying capacity of early states follow from this assumption (compare Stein 2004; Stein & Wattenmaker 2003; Ur 2004; Wilkinson 1994)

their flocks (Bruinessen 1992: 95). European visitors, such as Austen Henry Layard, berated this wasteful propensity of the Ottoman Empire. After touring the Tigris and the Habur in the 1850s, he wrote bitterly of the Ottoman "misgovernment, oppression and neglect" which has turned "one of the most fertile countries of the world… into a desert and a wilderness" (Layard 1853: 241). Twenty years later, Hormuzd Rassam, Layard's former partner, spent two days riding through the country south of Nisibin, corresponding in part to the Leilan survey area and was similarly struck by its obvious fertility:

> When Assyria was the ruling power in those realms, Nissibeen must have been a place of some consequence, both for the richness of its produce and the command it must have had over the highland and lowland tribes. From its high position, the number of its rivers and the fertility of its soil, the whole province can be cultivated from the Khaboor to the Tigris (Rassam 1897: 233-4).

Today, the land that Layard and Rassam toured is almost unrecognisable. French mandate and Syrian governmental policy, which has encouraged the sedentarisation of the nomads and agricultural expansion, has created a landscape full of villages inhabited by Arabs, Suryani Christians and Kurds, often perched atop or nestled alongside the archaeological tells that these two explorers carefully noted. Rassam recorded only two villages in this part of North-eastern Syria in the 1870s, Dogir and Qubur-al-Bid (Tirbe Spi, Qahtaniyeh) (fig. 1.2); now, a traveller would pass by several hundred villages and large towns sprinkled across this plain. Although pastoralists still use this area, they graze their flocks on the stubble left after the summer harvest, rather than relying on the natural steppe vegetation (Jaubert 2000: 102-3; Treacher 2000: 196). The history of the past 150 years illustrates how quickly government policy can modify a landscape and how political, economic and legal transformations were enacted through the every-day life of the settlers of this region. Analysing this mutability informs us of the constant development of agricultural, social and political practices throughout history.

Ironically, the original reclamation of this land for agriculture began in the late 19th century, during the same period that travellers like Layard, Rassam and others were sending back horrified accounts of fertile land lying fallow (Bruinessen 1992: 96). Around 1850, Abbas, a member of one of the leading families of the Durikan, a Kurdish tribe, decided to make the plains adjacent to the Tur 'Abdin his permanent base. Prior to his move, this area had served as spring pasture for different Kurdish tribes (Sykes 1908: 468-474). Abbas founded the village of Dogir and imported Suryani Christians to cultivate the rich agricultural lands. His presence and the protection he could extend against Bedouin raids, encouraged further immigration to this region from the Tur 'Abdin mountains of south-eastern Turkey

(Bruinessen 1992: 97). Reforms in 19th century Ottoman land policy enabled Abbas and his descendants to create agricultural holdings in the plains south of the Tur ‘Abdin. The Land Code of 1858 sought to reform and clarify the laws governing the usufruct and ownership of land in the Empire in order to increase tax revenues for the central government (Issawi 1982: 147; Rafeq 1984: 371; Sluglett & Farouk-Sluglett 1984: 412-13). It did away with communal land ownership, regularised “private” property rights and encouraged the expansion of agriculture into the steppe through private land acquisition. Two years later, the land registry (*daftar khana*) systematically recorded land ownership and title-deeds for the first time (Sluglett & Farouk-Sluglett 1984: 413). Despite these legal inducements to settlement, the majority of the Habur Triangle (including more than 2/3 of the Tell Leilan Survey region) remained steppe-land under the control of Shammar nomads.

This situation underwent a sea change after the dissolution of the Ottoman Empire. Although the Sykes-Picot agreement of 1916 and the San Remo Conference of 1920 gave the French nominal authority over the Syrian Jezira, actually establishing French control over this region proved extremely difficult (Dilleman 1979: 33-57). Turkey did not in fact recognise its eastern border with Syria until 1929; while Iraq did not accept the current border until 1933 (Velud 1996; Velud 2000: 66). In North-eastern Syria, French authorities had to deal with two major problems: first, governing the Bedouin who traditionally controlled this area and second, resettling large numbers of Christians and Kurds who fled Turkey in the 1920s and 1930s to escape from genocide and repression (Velud 2000: 71-72). Antoine Poidebard, aviationist, archaeologist and member of the Comité Central des Réfugiés, suggested a possible solution to both problems drawing upon Roman imperial policy in this part of Northern Mesopotamia. He proposed transforming the upper Habur valley, north of Hasaka, from pastureland to farmland and using the refugees as manpower for this operation. The Syrian Legion would recruit refugees and reward their military service with tracts of land. In this way the agricultural exploitation of North-eastern Syria was increased and the area secured against nomadic aggressions (Velud 2000: 76-79). This policy of resettlement was enormously effective. In the *caza* of Qamichli, “one city, 28 villages, 48 hamlets and 29 isolated farms appeared in less than five years” (Montagne 1932: 58).

French mandate policy also encouraged the sedentarisation of the tribes by abolishing traditional sources of tribal authority, such as warfare and situating political power within land-ownership (Montagne 1932: 64). In order to convince the sheikhs to go along with this policy, the mandate authorities made them spokesmen for their tribes and granted them large estates. French law allocated former pasture land, which had always been considered *mahlul*

(without owner), to the nomads. Both Kurdish and Arab tribal leaders were adept at manipulating the resulting situation in order to maintain their political power (Bruinessen 1992: 104).

The Syrian Arab Republic continued this policy of converting pastureland into farmland into areas far south of Hasaka on the lower Habur (Jaubert 2000). The 1952 cadastral survey showed that the majority of holdings were large, over 100 ha and that about one quarter of families that worked the land owned it (Issawi 1982: 148).[9] The farm act of 1958 put a cap of 80 ha on the amount of dry-farming land that could be held by an individual and by 1969 had redistributed nearly 800,000 ha of land to more than 50,000 villagers (Syria 1972: 23-4). The rise of the Ba'ath party during the late sixties accelerated this process of redistribution. Several of the sheikhs who had managed to amass large estates of land bordering the steppe under the French were driven out, their land redistributed to former dependent peasants (Khalaf 2000: 116-17). For the first time, land-ownership became widespread among the Syrian peasantry. Simultaneously, growth in the agricultural sector slowed, as new land that could be put under cultivation ran out and yields decreased on the smaller estates (Issawi 1982: 148).

The resettlement process in the Jezira highlights the multiplicity of social relations of land throughout the late 19th and 20th centuries, from the early Ottoman policy of tacitly conceding the land to the nomads to the Ba'athist policy of promoting the interests of former tenants over those of land-owners. The voluminous sources of modern history allow us to delineate the interaction between government policies, agricultural and pastoral exploitation, settlement patterns and the structure of society. In the Habur triangle, a nucleated settlement pattern yielded to a dispersed one as a response to the reforms of the Syrian government in the 1960s, which encouraged individual land ownership and broke up large estates. Similarly, the settlement of the drier south followed both political (the institution of strong state control) and technological developments (the introduction of ground-water pumps). Recognising the relationship between settlement patterns and changing social relations of land may help us devise a set of archaeological methods to identify similar shifts in ancient history.

[9] This number does not take into account nomads sedentarised after 1952, who continued to remain outside of normal statistics.

IV. Towards an Archaeology of Landed Property

Considering land tenure, or property in general, from an archaeological perspective, presents a number of difficulties (Earle 2000). Unlike in other places and periods, field boundary markers do not survive in any form. Similarly, regular burial monuments do not mark the limits of different spheres of control, as is the case in Bronze Age Wessex (Earle 2002; Fleming 1971, 1982)[10]. We have no way of directly determining how field systems contracted or expanded, how partitive inheritance led to the division of one large plot of land into several allotments or how speculation allowed the consolidation of large estates. By broadening the focus to encompass "social relations of land" and thus how people relate to land through work, construction, passage and ownership, however, we can use landscape archaeology to reconstruct some aspects of the long-term history of these processes. Off-site archaeology, settlement pattern analyses and excavated data can provide evidence for the type of settlements in which people lived; the fragility or robustness of these settlements; the political organisation of the countryside; population growth and decline; the extent of ancient field systems; probable patterns of land tenure; and the presence or absence of pastoralism.

Landscape Archaeology

Landscape archaeology employs a range of techniques to locate and describe human interaction with the landscape that seek to complement excavations in analysing ancient societies (Wilkinson 2003: 4). Since the first excavations in the Middle East, archaeologists have interpreted sites in the context of their physical environment and used survey to explore the economic potential of the landscape (Adams 1981; Wilkinson 2003: 10-11). In Southern Mesopotamia, archaeologists have documented landscapes of canals and the political and economic consequences of changes in watercourses (Adams 1965, 1981, 2002; Adams & Nissen 1972). In the last twenty years, Tony Wilkinson's work in Iraq, Turkey and Syria has focused on identifying the ancient fields surrounding villages and cities in order to recover Early Bronze Age agricultural landscapes. To this end, he has borrowed two "off-site" archaeological techniques from European archaeology: the identification of manured zones (field scatter) and of ancient road systems ("hollow ways") (Wilkinson 1982, 1989, 1990a). These techniques supplement information that can be derived from comparing the spatial distribution of different settlements through time. The Leilan survey tested both of these techniques during the 1995 season and concluded that the data retrieved did not actually

[10] But see Chapter 3, where the presence of burial monuments may have served an important function demarcating territory during the mid-third millennium (Porter 2000).

represent Early Bronze Age field or transportation systems. Rather, geomorphological conditions in the Leilan survey evidence suggest different interpretations for these "field scatters" and "hollow ways".

Survey Phase	Leilan Period[11]	Estimated Date	Estimated Time-Span
1	IIIa	3000-2900 BC	100 years
2	IIIb-IIIc	2900-2650 BC	250 years
3	IIId	2650-2500 BC	150 years
4	IIa	2500-2300 BC	200 years
5	IIb	2300-2200 BC	100 years
6	"IIc"/ Habur Hiatus	2200-1900 BC	300 years
7	I	1900-1700 BC	200 years
8	0	1700-1500 BC	200 years
9	"Mitannian"	1500-1300 BC	200 years
10	"Middle Assyrian"	1300-1000 BC	300 years

Table 1.1. Chronological chart.

More and more intensive survey techniques have revealed that the archaeological landscape is nearly continuous (Cherry 1983). In the Near East, sparse scatters of archaeological material cover the areas between sites, which are indicated by denser accumulations. Wilkinson argues that these sherds represent ancient manuring practices, the spreading of night soils and compost in intensively cultivated gardens (Wilkinson 1982, 1989, 1990a). In hot climates, without irrigation, manure must be composted to offer effective nourishment to the soil (Wilkinson 1982: 323-324). Mixing ashes and burnt material from households with animal and human waste would increase the efficacy of the manure and result in the deposition of such artefacts in the fields. Although field scatters in other parts of the Near East, dating to later periods, generally seem to represent manuring of special garden crops (Weiss & Courty 1994: 513), Wilkinson argues that the wider areas of field scatter in Northern Mesopotamia implies the manuring of cereal crops (Wilkinson 1990a: 44). As a result, he uses the occurrence of field scatter to infer the sustaining area of each site, or at least the extent of the most intensively cultivated fields. In Northern Mesopotamia, Wilkinson and others using this approach have discovered that the most frequently identified sherds within the field scatter date to the late third millennium BC (phases 4-5, see table 1.1 above) and have thus inferred an intensification of cultivation during this period (Ur 2002a, b; Wilkinson 1994, 1997; Wilkinson 2000a, 2003).

[11] Periods not attested at Leilan are in quotation marks.

In order to test this theory, Leilan team-members walked multiple transects from the edge of seven multi-period tells: Abu Farah (60), Abu Hajeira (61), Toueiyel (106), Taya (112), Qarassa (49), ʻAid (90) and Leilan (1). All of these sites were occupied during phases 4, 5 and 7. All the archaeological material within a radius of one metre was collected every 50 m in order to evaluate the off-site archaeology. As distance from the tell increased, the material in each collection unit decreased, until no material was found more than 500 m from any tell (fig. 1.3). Additionally, the most common diagnostic material found in the sherd scatter from each site dated to phase 7, the early second millennium, not to the late third millennium (fig. 1.4). As soil micromorphological studies in the vicinity of Tell Leilan and Abu Farah have already shown that the third millennium surface is not coincident with the modern surface (Gaffie 2000; Weiss & Courty 1994, see below chapter 2.2), such sherd scatters probably result from post-depositional processes, including erosion and the transportation of material from sites at later dates (for brick-making, or to fertilise gardens in the modern era) (Oates 1994). Concentrations of these sherds may also reflect the remains of small houses or temporary huts located adjacent to the fields (Schwartz 1994b).

The first aerial photographs of North-eastern Syria identified wide, short linear features radiating out from Bronze Age tells and narrower features radiating out from Byzantine sites. These were immediately interpreted as the remains of an ancient road system and were referred to as "routes rayonnantes" (Van Liere & Lauffray 1954: 146). These features are difficult to identify on the ground, although the dense scatter of weeds which mark the position of the troughs may be seen under special conditions (Ur 2003: 102-103). From the air, using aerial photographs, CORONA imagery and occasionally SPOT and LANDSAT imagery, these "hollow ways"—to employ terminology borrowed from British archaeology—are immediately identifiable. The mapping of these features as part of regional surveys has suggested that the Bronze Age features exhibit a dual morphology. Some of these features terminate abruptly at a certain distance from the tell, without connecting to other road ways; others form legs of interregional route systems (Ur 2003; Wilkinson 1993). Human and animal traffic between the fields and a settlement presumably resulted in the creation of these shorter paths. Directly dating these routes can be difficult, as they were probably reused for millennia. Additionally, many of these ancient roads "captured" rain water, becoming part of the hydrologic network of Northern Mesopotamia (Ur 2003: 104-106, fig. 4). As a result, modern villagers refer to them as wadis, while some archaeologists have interpreted them as channels created to harvest rainwater for third millennium fields (McClellan et al. 2000). Although they serve this function today, given the fact that hollow

ways run across watersheds and over hills, this is secondary (Wilkinson 2003; Wilkinson & Tucker 1995). As part of the 1995 survey, hollow ways identified from aerial photographs were juxtaposed with enhanced Landsat imagery. The sites linked by four systems of 19 radiating lines were then systematically surveyed (Weiss 1997b: 128). This examination failed to produce evidence that these hollow ways dated to the third millennium. Instead, in many cases, these road systems linked modern sites (fig. 1.5-1.6.).[12] Informants within the survey area described them as shepherds' paths, which had been used during the early twentieth century (Weiss, personal communication).

Two recent studies have attempted to correlate archaeologically attested landscapes with textually attested ones. Wilkinson has compared landscape terminology from the Nuzi texts (Zaccagnini 1979), which describe the area around a small provincial centre located on the margins of the dry-farming plain of Eastern Iraq, with features recorded from landscape surveys in Syria and Iraq (Wilkinson 2003: 118-120, fig. 6.16). Sallaberger and Ur have compared and contrasted the information available from the administrative documents recovered from third millennium habitation levels at Beydar (Nabada) with information extracted from an intensive survey around this site (Sallaberger & Ur 2004). Population estimates for Beydar and its countryside, derived from tablets listing the workforce for the palace, correspond to estimates retrieved from the archaeological survey. The consilience of these two approaches suggests that Beydar and nearby towns were densely populated, a model which also accords with recent studies on houses and urban neighbourhoods (Postgate 1994b). The textual data have serious ramifications for the economic reconstruction of the province of Beydar. They imply that the central institution at Beydar controlled a labour force almost equalling the total population of both the site and the countryside. This economic institution was neither a temple, nor a palace, but probably an assembly building, representing the interests of the community as a whole and not necessarily just the elite (Sallaberger & Ur 2004).

Settlement Patterns and Locational Analysis

Settlement pattern analysis utilises techniques developed by human geographers in order to explain modern conditions. In the past twenty-five years, these models have become both historically sensitive as well as explicitly concerned with explaining "the geography of societal change", by exploring how social change is articulated both historically and

[12] Similarly, in his work on hollow ways in the Habur triangle, Ur notes that these networks are poorly preserved in the eastern basin, due to conditions of aggradation there (Ur 2003: 111).

geographically (Dodgshon 1998). Interpretations of archaeological surveys do not provide us with precise information about land-use and property schema, but they do allow us to see patterns of land-use that reflect and constrain property systems. We will look at changes in a number of simple statistics in order to quantify changing settlement patterns and examine the effects of the social processes under consideration (urbanisation, tribalisation and provincialisation) on all of the settlements in the region[13]. These include: 1) site density, the number of occupied sites per 100km^2; 2) population density, the amount of occupied hectarage per 100km^2; 3) mean site area in ha, 4) percentage of urban population, (the proportion of aggregate site area constituted by sites where X>10 ha); 5) rural site frequency: frequency of sites smaller than 5 ha (Falconer 1994: 123); 6) degree of settlement continuity, between periods; 7) nearest neighbour values, the average distance of any site to its nearest neighbour, a measurement of dispersion; and 8) population growth rates.[14] In general, these statistics allow us to use three general interpretive techniques in order to evaluate the operation of property relations over space and through time: 1) regional distribution, 2) settlement continuity and 3) population growth.

At the most basic level, regional distribution of different types of settlement (permanent and temporary) provides a general picture of land-use. We assume that permanent settlements in this area have an agricultural basis; their diachronic distribution gives us a general idea of the expansion and contraction of agricultural land. In addition, the fluctuating presence of nomadic camps and small villages in the southern, drier part of the survey area allows us to see the shifting importance of the pastoral element through time. Nearest neighbour analysis, which shows the distance of a given settlement pattern from an expected random pattern, gives us a proxy for regional distribution in terms of dispersal or nucleation (Kouchoukos 1998: 47; Roberts 1996: 15-37). In 19th century Sweden, Africa and Scotland, the clustering of settlements has been shown to relate to a dispersed pattern of land-ownership, with a family possessing several strips of land in different locations around a village. Conversely, dispersed farmsteads coincide with a concentrated pattern of land-holdings, with the house (or set of houses) located adjacent to the fields. This switch from a

[13] We will use EDA and EGDA (exploratory data analysis and exploratory geographic data analysis) in order to explore these trends. There is an emerging consensus within archaeology towards transparency and clarity in statistical presentations and modelling (Kouchoukos 1998: 41-48; Smith 2003a: 36-45), along with a recognition that complicated models are often inappropriate to our data resolution (Hodder & Orton 1976: figures 1.2-1.5). This is especially pertinent for GIS, which is at its best when identifying simple trends, but where the ease of statistical calculations has tempted many to use inappropriate techniques.

[14] These are calculated with the formula: $r=((P_n/P_o)^{1/t}-1)*1000$, where P_n is the estimated population at the second time point, P_o is the estimated population at the first point, and t is the time in years elapsed between the two observation points (Kouchoukos 1998).

dispersed to concentrated pattern of land-holdings may also document a shift from extensive to intensive cultivation, as the dissolution of large villages and consolidation of land decreases journey time and frees up time for intensification (Pred 1985; Roberts 1996: 33). Likewise, the proportion of different-sized settlements in an area often corresponds to a different organisation of social relations of land. Of course, any one spatial pattern may result from a number of different factors; however, we hope to suggest a limited range of causal mechanisms for each pattern (Hodder & Orton 1976: 8; Roberts 1996: 29).

Settlement continuity, which occurs when a single site remains occupied through different archaeological periods, generally correlates with a stable property regime. In contrast, high levels of settlement abandonment or foundation often correlate with shifting systems of property, as the 20th century example in the Syrian Jezira illustrates. We will measure settlement continuity using Robert Dewar's formulas for estimating mean establishment and abandonment rates (Dewar 1991, 1994; Kintigh 1994). Dewar originally devised his computer programme to calculate the number of settlements that are truly contemporaneous at any one moment in time (see chapter 2). Although we will also use his formula to calculate site contemporaneity, we are more interested in inferring continuity or discontinuity from the high or low value of the standard deviations for the number of sites occupied at any one time.

Finally, increases in site area often correspond to population growth, particularly if site continuity rates are high. Changes in population density for this survey region as a whole and in smaller areas affected planting strategies, agricultural intensification and land distribution. By calculating growth rates we can also identify periods with unusual rates of growth and decline. Generally, pre-industrial societies exhibit growth rates between 1.0 and 3.0, so values outside of this range may be evidence of immigration, emigration, or changing fertility rates (Kouchoukos 1998). Precipitous population decline may indicate changing subsistence practices, as in the probable shift of villagers to pastoral strategies at ca. 2200 BC (chapter 4).

Other archaeological studies supply additional data and contextualise the evidence from the landscape archaeology. Soil micromorphological examinations of buried fields or water channels can provide secure evidence for the use of certain agricultural practices (like plough-marks, manuring and irrigation) (Courty et al. 1989: 130-133; MacPhail et al. 1990). Botanical analysis yields information on the crops grown, as well as environmental evidence on where they were grown (by comparing weed seed ratios to determine the types of land under cultivation) (Chernoff & Paley 1998). Because many of the burnt seeds in the

archaeological record of North-eastern Syria actually come from animal dung, botanical analysis can also provide evidence for animal husbandry (Miller 1984, 1996). Faunal analysis can determine the types of animals present at a settlement and by examining a population's age and gender ratios, how they were used (Zeder 1991). Finally and perhaps most importantly, excavations can provide evidence about the actual function of a settlement and intra-site settlement density, information which can only be inferred from archaeological surveys (McClellan 1999).

V. Cuneiform Texts and a History of Property

Introduction

Archaeological survey data functions over a long time frame, highlighting processes that operate on a century-scale, revealing what Fernand Braudel termed, in his classic study of the Mediterranean, the history of the *longue durée*. As such, although they can highlight gross processes of land-use, they cannot fill in the details of how individuals actually interacted with the landscape at any one moment in time. Surviving cuneiform tablets can supply some of this detail, operating on the level of *l'histoire événmentielle*, but they do not do so systematically. Like other types of archaeological evidence, the availability of cuneiform tablets reflects accidents in preservation and discovery. Records kept on perishable materials, like wax writing boards, have long since disintegrated (Postgate et al. 1995). Similarly, the focus of most excavators on large sites (and within those sites on political and administrative centres) means that the majority of our documentation reflects institutional, rather than private concerns. Often, useful information must be teased out of unlikely sources. References to roving bands of raiders in Northern Mesopotamia can inform us of the boundaries between agricultural land and the steppe. Similarly, by considering the consilience of information from administrative documents, treaties and letters we may be able to reconstruct political boundaries. We must consider information on politics, economics and religion and attempt to map the resulting landscapes, in order to reach a full understanding of social relations of land. Before undertaking the historical reconstruction of economic or social history, it is thus necessary to review both what the available documentation has to say of interest about social relations of land and what it does not address. We must also consider the fit of this information to the land of Apum, by reviewing how this specific region appears in the available records and the advisability of drawing analogies between other regions and practices here. Finally, the use of both archaeological and textual data in this study means

that we must discuss ways of synthesising these different evidence sources, with their different spatial and temporal perspectives, before we can write a history of Mesopotamian social relations of land.

Available Sources

There are three main types of documentation that deal directly with questions of land use and ownership in Northern Mesopotamia from 3000-1000 BC: 1) administrative texts, 2) legal texts and 3) letters. These sources are not represented equally in all periods and in fact, in certain periods, categories are missing altogether. Information about social relations to land may also emerge from other texts, including ritual descriptions, treaties and political inscriptions, although this evidence can be harder to quantify or use interpretively.

The administrative documents represent the remnants from the internal organisation of a palace, or an administrative institution.[15] These notes were generally composed for short-term use only, in order to insure that various tasks were successfully accomplished. The majority of administrative texts relating to land use document the allocation of institutional land, the distribution of agricultural implements and seed, rations paid to agricultural workers, expected and actual yields, animal raising and delivery and related topics. Despite the obvious importance of these topics for ancient economies, we do not have as much written evidence relating to them, at least in Northern Mesopotamia, as we do for other aspects of the economy, such as the distribution of metal or textiles. This may be because agricultural activities both took place and were administered outside of the physical palace, unlike many craft working activities. As a result, archives relating to fields and pasture may be found in rural offices, none of which have been excavated.

Legal documents, on the other hand, are generally found in private archives and include wills, adoption contracts, deeds of sale for fields, garden plots and houses and lawsuits about the distribution of property. Such documentation has traditionally been the primary method for investigating the private sector in Mesopotamia. In Northern Mesopotamia, however, except for the Middle Assyrian period, very few private archives have been unearthed (in contrast to the Old Babylonian South, for instance) (Gelb 1965; Yoffee 1977). No legal documents of this kind are known from the third millennium BC, while the 20,000 tablet strong Mari archives only include approximately 200 legal texts,

[15] In Northern Mesopotamia, temples never served the important administrative role that they did in Southern Mesopotamia (particularly during the third millennium BC).

about half of which are published (Charpin & Ziegler 2003: 13-14, fn. 93). Similarly, the only law codes come from the Middle Assyrian period.

Finally, letters can often provide indispensable information about the social context in which the other two types of texts were composed. Both administrative and legal documents are laconic by nature; they employ few, carefully standardised terms and deal with a limited array of subjects. Although letters are similarly restricted linguistically, stressing concision and employing stock-phrases, their subject matter is broader. Letters often discuss meetings with pastoralists and land disputes between towns and nomads; they also provide information on migration routes. Similarly, letters from provincial governors discuss field distributions, census taking, harvest timing and natural disasters (such as locust swarms).

Our area of concern further limits the documentation available to us. Tell Leilan appears in our documentation for the first time only at the end of the third millennium BC, where Šehna and Hidar (another town in Apum) are listed together with other population centres in a tablet from Brak (Nagar) (Eidem et al. 2001). This city receives no mention in either the Ebla or Beydar archives (Bonechi 1998; Sallaberger & Ur 2004). Although a few tablets dating to the end of this period have been found in recent excavations at Leilan, just one is an administrative text regarding the provisioning of birds, while the rest are school exercises (Milano 2004). As a result, we cannot rely on direct textual information, but must make analogies to the contemporary Ebla and Nabada documentation to hypothesise the social and economic situation of the Land of Apum. In the early second millennium BC, references to the city are far more numerous, however, most of them relate to the political situation. Although more than 1500 tablets have been found at Leilan and others from Mari refer to events which transpired in the land of Apum, few of these refer to settlement choices, land-ownership, agricultural techniques, or pastoral practices. More detailed documentation about these subjects can be found at other sites, particularly Rimah (Qaṭṭara)[16] and Mari, which provide analogies for the situation at Leilan. For the late second millennium, despite the fact that this area should form the heartland of the kingdom of Mitanni,[17] little information relating to this entity has been found in North-eastern Syria, while the areas that have produced documentation were culturally and geographically distant client kingdoms of Mitanni, making analogies risky. Middle Assyrian archives have been found at several sites

[16] Although there has been much discussion of the ancient name of Tell ar-Rimah, a recent consensus seems to have been reached that the more likely name of the site during the second millennium is Qaṭṭara, not Karana (See Charpin & Durand 1987; Nashef 1989 for the identification with Qattara; the introduction to Postgate et al. 1997 for the identification with Karana).

[17] I use the term "client" following Nicholas Postgate and Moses Finley's insistence on avoiding the language of feudalism (Postgate 1992: 252).

in North-eastern Syria, while both private and institutional archives at Aššur contain information related to the government of the Habur region, including areas that must have overlapped with the survey region. The only text from this period that has actually been found in the Leilan survey region is an unpublished Middle Assyrian text found in a private house at Mohammed Diyab (Durand, personal communication).

Using this evidence to reconstruct social history is fraught with difficulty. First, our sources are not distributed over the entire period for which we presume to speak. Instead, we have sources from the 24th century BC, the 18th century BC and the 13th century BC. Second, even within the time-period represented our documentation is not consistent. We simply do not have complete records for long periods for any administrative bureau within the palace. We do not have enough evidence to statistically determine fluctuations in the price of metals or grain, unlike for other periods or places in Mesopotamia (see Slotsky 1997 for a Neo-Babylonian example). Assyriologists have attempted to use statistical techniques to derive further information from administrative documents, for example information about agriculture seasonality based on an analysis of the *naptan šarrim* texts from Mari (Hamlin 1976), but the lack of regularity in the texts has rendered such analyses almost entirely useless. Third, since the writers and the intended audience of these documents shared a specific cultural (both in terms of the larger society and the particular workplace) context, these documents do not contain the answers to many of our most basic questions, such as how much land the palace controlled, how much land it farmed directly, or how much it granted indirectly—as such figures were known and did not need to be written (Civil 1980). Additionally, the shared cultural perspective meant that customary practices were not explicated. Explanations were only given in unusual situations, which we sometimes take as typical, biasing our reconstructions. As a result, we must use the information from the texts carefully and not take exceptional situations for the general rule.

Attempts to use archaeology together with textual evidence in the past have often faltered for a number of reasons. First, except in unusual cases where archives relate to the inheritance of the house in which they were found, for example (Stone 1987), it is extremely difficult to relate textual information to archaeological information directly, as they operate on different temporal and spatial scales (Zettler 2003). Second, few studies have given equal weight to both data sources, generally stressing one over the other. In some cases, this has led to spurious attributions of the destruction of a city or a palace to a famous ruler (as is the case for the identification of Naram-Sin as the destroyer of Palace G at Ebla) (Astour 2002). Given the difficulties of synthesising textual and archaeological evidence, the dangers

inherent in a careless approach, each section will delineate the evidence at hand, before attempting to use it for analysis. Only after both the archaeological data and the textual data have been reviewed, as far as possible, in their own terms and evaluated according to their own spatial and chronological frameworks, will the two data sources be integrated (Arafat 1990; Feinman 1997; Kepecs 1997; Knapp 1992, 1993).

History and Geography: Mapping Ancient Landscapes

Given these caveats, how may we use textual data to reconstruct changing relationships to the land? First, we must accept the fact that there is no direct evidence as to the size and location of fields and other aspects of rural settlement in this area for any period, let alone for all of the periods under question and thus that we cannot directly reconstruct the rural geography of Apum (Fales 1990; Mori 2003; Zaccagnini 1979). We can only see changes in land-use and land tenure indirectly, by reconstructing how these issues related to other political and social ones that we can map. Whether they lived in small villages or cities, the people of this region constructed their mental geographies on the basis of land ownership, community ties and travel. Issues of land tenure and land use create an economic and social landscape and are essential to exploring other "geographies". In this sense, texts can inform us about "perceptual geography" about "the cultural understanding of landforms" and "the impact that these observable phenomena have on human culture and the way in which they condition the human response" (Buccellati 1990: 90). We can produce hypothetical maps of the political relations of various territories to each other, of dependent villages for major centres like Leilan, of client states and of treaty partners (fig. 1.7). Details from administrative texts and letters may also allow us to observe changes in these borders over time. Evidence from the texts can identify the functions of certain sites, like walled sites with citadels (*kirhum*) and empty lower towns (*adaššum*), which serve as refuge during times of war (Dossin 1972). We can also map areas that are outside of the control of the state, like those areas controlled by the *habbātum* during the times of Till-abnû and Jakun-ašar. The texts can also help us identify changing religious and cultural landscapes. Texts from both the late 3rd and 2nd millennium emphasise the importance of journeys undertaken by either worshippers or the gods in securing political power and delineating borders. These shared ritual experiences helped to define a cultural landscape that transcended the individual, shifting political borders and endured over long periods.

VI. The Leilan Region, 3000-1000 BC

This dissertation uses the related concepts of land-use and land-tenure to explore social change within one region of Northern Mesopotamia. Before we analyse the archaeological data, we must consider how those data were collected. Chapter Two describes the physical geography and agricultural potential of the survey area, the implications of geomorphology for site recovery, the survey methodology and the construction of the Tell Leilan Survey GIS. The next three chapters present the archaeological and textual evidence for a broadly defined archaeological period in order to explore the social articulation of land-use. In each chapter, a specific long-term social phenomenon is analysed in terms of changes in the social relations of land: state formation and urbanisation (chapter 3), collapse, resettlement and tribalisation (chapter 4) and provincialisation (chapter 5). Chapter 3 argues that the state arose during the third millennium BCE as a means to resolve the tension between a series of economic, political and social oppositions. Chapter 4 analyses the rise of tribalisation (2200-1400 BCE) and consider how a three-century long drought which led to the collapse of urban society and the extension of nomadism set the stage for a series of kingdoms which relied upon tribal principles. Chapter 5 investigates the fate of this region under the domination of two empires that regularised the administration of Northern Mesopotamia, the Mitanni and Assyria (1400-1000 BCE). Chapter 6 outlines general conclusions about the long-term dynamics between the environment, urbanism and nomadism in Northern Mesopotamia.

Chapter 2: Establishing the Framework

Before we can investigate how the changing relationship between settlement and land-use framed social processes, we must consider the methodologies employed in data-collection. This chapter will begin by detailing how the contrasting designs of the four seasons of the Leilan Regional Survey have produced the raw data for this study. Second, it will analyse issues of absolute and comparative chronology. Third, it will consider the design of the survey GIS (geographical information system) and use of satellite imagery. Finally, we will explore how the physical geography of this area constrains our interpretation of the data, by considering how geomorphological conditions affected the recovery of the ancient landscape and how geography and climate have limited agricultural possibilities. By investigating the variables of land, climate and agricultural products, we will situate changes in land-use and land-tenure within a regional framework.

I. Survey Methodology

The Tell Leilan project has undertaken four seasons of archaeological survey in the area around Leilan (1984, 1987, 1995, 1997), in addition to one year of intensive survey of the site of Leilan itself (1978). The 1984 and 1987 surveys were planned as self-contained projects, each with its own methodology. In contrast, the 1995 and 1997 surveys were executed as part of a larger research project. Prior to the Tell Leilan survey, Diederik Meijer surveyed an area which coincides with the northern half of the Leilan survey area in 1976-1979 (Meijer 1986) (fig. 2.1).[18]

The 1984 survey comprised 706.7 km^2, a 15 km radius with Tell Leilan at its centre. Within this area, 90 sites were located using the Qamishli-Sinjar map and local informants. Small low sites and lower towns often went unsurveyed (Weiss 1986). Collections from each mound were "grab" samples—with no attempt made to measure changing settlement size through time accurately.

In 1987, Gil Stein and Patricia Wattenmaker resurveyed all of the sites from the 1984 survey with third millennium BC pottery (Leilan periods II and III), in order to determine how the organisation of its countryside changed when Leilan became a 90-hectare urban centre. A series of mapping points along transects were designated for each mound (Stein & Wattenmaker 2003: 362). Circles enclosing 100 square m were drawn around each mapping

[18] Meijer surveyed 290 sites located in a 3000 km^2 area between the Hasaka-Qamishli highway, the Turkish border, the Tell Brak-'Ain Diwar road, and the Iraqi border (Meijer 1986: 3). Bertille Lyonnet and Markus Wäfler have also surveyed Farfara (186), Mohammed Diyab (55), Qarassa (49), and Sharisi (98) (Lyonnet 1990; Lyonnet 1992; Wäfler 1995).

point and all diagnostic material found within this unit was collected and analysed. This allowed Stein and Wattenmaker to estimate and map changing site size through time, as defined by the presence of artefacts in each collection unit (Stein & Wattenmaker 2003: 362-3). Since earlier surveys had established that most mounds occur near watercourses, the wadis Jarrah, Siblah and Qatrani were walked for a distance of five km from Tell Leilan in order to locate small, single period sites which had been overlooked in previous surveys (Stein & Wattenmaker 1990: 11).

In 1995, The Leilan survey area was extended into a 30 km wide transect from the Turkish to the Iraqi border (Weiss 1997a: 127-129). This more than doubled the area covered by the survey, which was now 1650km^2. Due to security issues, the 2km band adjacent to the Iraqi border could not be surveyed, while only limited access was granted to the entire area south of the Wadi Radd. The 1995 and 1997 surveys revisited all sites sampled in 1984 with an area larger than one hectare, which had not been subsequently analysed in 1987. The acquisition of a set of Syrian 1:50,000 maps covering this area (Dakshuriya, Hassawiya, Qahtaniya, Tall Khudruf and Bouara) as well as a multi-spectral SPOT image allowed many previously unrecognised sites to be located. GPS readings were taken at each site to assist in mapping. Mounds explored during these surveys were divided into quadrants, corresponding to natural topographic features, which were collected separately. For select sites, this was augmented with a system of linear transects radiating out from the top of the mound (chapter 1, IV, a). During the 1995 season, a geoarchaeological and soil micromorphological survey was undertaken along with the archaeological work.[19] As a result, mechanically cut trenches were investigated on the outskirts of several sites and along the wadis (Gaffie 2000). The sections from these trenches were drawn and the material gathered from them analysed. Sketch maps were drawn for smaller sites (under five ha) and laser maps were made for larger ones. A number of "hollow ways" apparent from the satellite imagery in the area near Tell Leilan were also explored in 1995 in order to evaluate whether these lines radiating from mounds were part of the ancient landscape (Wilkinson 1994, Wilkinson 1997, McClellan 2000, Weiss 2001).

II. Chronology

All archaeological investigations rely upon a firm understanding of chronology. Periods of excessive or uncertain length hinder our ability to identify actual trends and can lead researchers either to identify periods of demographic change fallaciously or to fail to identify

[19] Other geoarchaeological surveys were undertaken in 1979, 1985 and 2002.

them (Weiss 1977). This is the first study of settlement patterns in Northern Mesopotamia to employ a relatively fine-scale chronology (each period=ca. 200 years). As a result, it can delineate periods of change that other studies elide.

The LRS collected "diagnostic" ceramics, lithics and other objects from 325 sites. Preliminary analysis of this material indicates that sites date from the pre-pottery Neolithic (ninth millennium BC) through the end of the Ottoman Empire (19th century AD). 173 sites contained material, generally ceramics, which could be dated to the second and third millennia BC.[20] These ceramics were divided into ten chronological phases, seven of which use the Leilan periodisation[21]: 1) Leilan IIIa (3000-2900 BC); 2) Leilan IIIb-IIIc (2900-2650 BC); 3) Leilan IIId (2650-2500 BC); 4) Leilan IIa (2500-2300 BC); 5) Leilan IIb, (2300-2200 BC); 6) Leilan "IIc" (2200-1900 BC)*; 7) Leilan I (1900-1700 BC); 8) Leilan 0 (1700-1500 BC); 9) Mitanni (1500-1300 BC)*; and 10) Middle Assyrian (1300-1100 BC)*.[22] The Tell Leilan sequence provided our first point of reference, given Tell Leilan's central position within this region (Ristvet 1999; Schwartz 1988; Senior 1998). Excavations since 1979 have focused on second and third millennium deposits in both the Lower Town and on the Acropolis and have documented the material culture associated with houses, administrative buildings, graves and industrial areas (see bibliographies in Weiss 1997c; Weiss et al. N.D.). The diverse areas sampled produce a balanced view of the different assemblages that were in use in different functional areas (Porter 1999). Comparanda from other sites in the Syrian Habur and the Iraqi North Jezira, particularly published sequences from Mohammed Diyab, Brak, Barri, Hamidiya, Bderi and Rimah, were used to assign sites to the three phases attested in the survey which coincided with abandonment episodes at Leilan (Post-Akkadian, Mitanni and Middle Assyrian). The pottery type series used to determine the occupations are collected in appendix 2. This relative ceramic chronology can be tied to an absolute chronology by means of radiocarbon dates, tephrochronostratigraphy (synchronisms between

[20] In addition to the ceramics, sealings dating to phases 3, 4, and 7, were retrieved and will be published by E. Rova. Although several clay figurines were also found, these could only be dated in rare cases.
[21] Phases not attested at Leilan are starred.
[22] The 1984 and 1987 survey material were reexamined in light of the finer periodisation adopted here. Ceramics from the 1995-1997 seasons were analysed extensively in the field by Elena Rova. Ceramics dating to phases 7-8 from the 1995 season, currently housed at Ca'foscaria, Universita Venezia, were coded by the author, while ceramics dating to phases 9-10 were analysed by Viviana Donella for her Master's thesis (Donella 2002). I also examined and counted ceramics dating to phases 1-6 in Venice, however, these ceramics were not coded, as Elena Rova will analyse them at a later date. Ceramics from phases 7-8 from the 1997 were also examined and counted by the author in Syria, but limitations in access precluded their coding.

volcanic eruption signatures),[23] and historical data (sealings or tablets) from Leilan excavations.

Particularly for the third millennium, when we have little reliable historical data, radiocarbon determinations form the heart of any chronology. The Tell Leilan excavations have incorporated an intensive radiocarbon-sampling program, which has established the best available absolute chronology for third millennium Northern Mesopotamia. AMS technology allows very small samples of organic material to be accurately dated. At Leilan, radiocarbon samples are gathered from carbonised grain from discrete harvests. Larger grain samples are divided into smaller groups of five to six barley grains, which enables calculation of the calibrated weighted average of these samples using OxCal 3.5 (Weiss 2003: 609). Bayesian statistical analysis, which excludes certain values based on stratigraphic data can further reduce the range of standard deviations (Guilderson et al. N.D.; Kouchoukos 1998: 37-39). The resulting radiocarbon sequence, from stratigraphic excavations at the City Gate, the Lower Town and the Acropolis, link the Leilan relative ceramic chronology to an absolute chronology (fig. 2.2). Combining the Leilan data with new radiocarbon dates from Beydar and Brak allows us to produce a regional chronology for the Habur plains (fig. 2.3), which is superior to anything available from Southern Mesopotamia for the third millennium BC (Reade 2001: 13-14).

The absolute, historical chronology of Greater Mesopotamia during the second and first millennium BC has been hotly debated.[24] Four historical chronologies (high, middle, low and ultra-low) have been proposed that rely upon historical data, subjective interpretations of pottery chronology and astronomical observations (Aström 1987; Brinkman 1977; Gasche et al. 1998; Reade 2001). The lines of argumentation are complex and highly conjectural given the meagre historical evidence.[25] However, recent dendrochronological research on timber from Anatolian archaeological sites has established "a complete, robust and continuous tree-ring chronology for the second millennium BC +4/-7 years" (Kuniholm et al. 2005: 41; Manning et al. 2001). Since tree-rings provide an annual record they are among the best means to establish an absolute chronology. The Anatolian tree ring record has been matched against absolutely dated German oaks and found to have a very small error

[23] Each volcanic eruption has a geochemical signature, by comparing trace elements from tephra remains in soil deposits, one may establish synchronisms between them (Cullen et al. 2000: 381-2).
[24] Since the publication of Gasche et al. 1998, there have been several chronological studies and conferences, some of which are in print, for a comprehensive bibliography see (Hunger & Pruzsinszky 2004).
[25] Mesopotamian historical data for the second millennium tend to favour the low chronology (De Martino 2004: 38; Reade 2001: 9-11), while Hittite historical data and most astronomical data support the high chronology (Huber 1987; Wilhelm 2004: 71; cf. Gasche et al. 1998).

(Manning et al. 2003). The dendrochronology evidence thus effectively rules out the High, Low and Ultra-Low chronologies. Evidence for a solar eclipse in the Mari Eponym Chronicle combined with the tree-ring record favour a chronology some 13-17 years lower than the Middle Chronology (Manning et al. 2001: fn 26; Michel & Rocher 1997-2000; Veenhof 2000). The calendar dates given here and throughout the study are either based upon the standard deviations of radiocarbon samples or the Middle Chronology. Since the Middle Chronology has remained the standard system—despite all the caveats usually expressed—this facilitates the comparison of historical and archaeological data from Greater Mesopotamia.

III. GIS Construction and Satellite Imagery

GIS has long been employed for archaeological research, particularly for survey projects (Kvamme 1999). Essentially, a GIS consists of a series of databases containing locational and attribute data for each spatial entity ("sites", "rivers", etc.,) as well as the topological relationships between them. This allows for exploratory analyses of the construction of an archaeological landscape over time (through spatial queries, "what if" queries, statistics and Boolean operations) along with modelling, visualisation and output. Mirroring its original development for physical geographic applications, GIS is particularly suited to examining the interaction between archaeological sites and the environment (Wilkinson 2003: 41). Nevertheless, applications are not limited to evaluating the agricultural potential of possible sites, as recent attempts to use GIS to measure the intervisibility of monuments, or to recreate the cognitive environment of rock art landscapes (by mapping how individual elements form a narrative within a larger landscape) show (Anschuetz et al. 2001; Ashmore 2002; Llobera 2003).

Although none of the seasons of fieldwork for the survey made use of GIS technology, we constructed one in the post-survey analysis phase in order to combine and standardise the results from the different seasons of fieldwork, satellite imagery, other data on the natural environment and historical data gleaned from cuneiform sources. GIS's analytical techniques can model geographical relations that serve as proxies for social relations of land (see chapter 1). We will briefly discuss the use of satellite technology, particularly the integration of CORONA imagery after the end of the fieldwork, within the Leilan survey GIS, as the use of satellite technology informs the creation of many of the other datasets, before describing the technical details of the GIS.

CORONA Imagery and Archaeological Survey

Since the CORONA images were declassified in 1995, several archaeological projects in the Middle East have utilised them for both regional and site surveys (Comfort et al. 2000; Donoghue et al. 2002; Kennedy 1998; Kouchoukos 2001; Philip et al. 2002; Ur 2002a, 2003). The CORONA missions were the first American satellites used for intelligence purposes (Day et al. 1998; McDonald 1995, 1997; Peebles 1997); unlike later satellite missions, which used monochromatic and panchromatic sensors to record a range of variables, the CORONA satellites produced black-and-white photographic records. Although these records do not contain the range of information available from other imagery, their high resolution and age (they provide a record of the landscape before the introduction of massive irrigation and explosive population growth in much of this area) make them useful for archaeologists. The high resolution (ca. 2m) of the CORONA imagery means that even small, low archaeological sites are often visible on these images. In North-eastern Syria, fieldwork has shown that "CORONA-informed survey can produce site recovery rates comparable to the fieldwalking-intensive Mediterranean surveys" (Ur 2002a: 58; Wilkinson et al. 2004). In Western Syria, the Homs region survey (SHR) has combined CORONA interpretation with systematic field-walking. All of the tell sites and extensive artefact scatters located by field-walking were also present on the CORONA imagery—although the imagery did not document small, sparse artefact scatters (Philip et al. 2002: 112-13). The CORONA imagery and the Syrian 1:50,000 maps formed a base-map for the LRS GIS. The imagery allowed us to map the sites accurately and evaluate survey site recovery rates. We were also able to assess the effectiveness of the CORONA imagery for site recognition, by testing the results of the "wadi-walking" phase of the 1987 survey against visible sites on the CORONAs. Observing the CORONAs allowed us to locate several new sites, as well as to identify more complex aspects on already surveyed sites, like this possible lower town around the site of Abu Qadeir (264) (fig. 2.4-5).

Constructing the Leilan Survey GIS

To construct a GIS, data must be digitised and converted to a common map projection.[26]

[26] The LRS used maps with the following projections: the Qamishli-Sinjar 1:200,000 map (Lambert Conformal Projection), the Syrian 1:50,000 maps (Transverse Mercator Projection), and GPS points (WGS84, Latitude and Longitude). Although LANDSAT TM and SPOT images were used in the field, these images were not georeferenced. CORONA imagery is not available in digital, georeferenced form. Given the accuracy and scale of the Syrian maps, we used their projection for the GIS. Unfortunately, much of the information available about Syrian cartography is generally inaccurate or lacks essential details. Although Syrian officials have been punctilious about documenting their mapping projects at the UN regional cartographic conferences, the

The paper maps were scanned on a drum-scanner and georeferenced, using the arc workstation module of ArcGIS. RMS error values for each point were carefully monitored, in order to assure precision, while the combined RMS error was kept below 20m (or less than .25mm on the maps) and rectified using nearest-neighbour statistics.[27] The maps were then merged in the ARC workstation in order to provide a base-map for the region. A soil map was also scanned and georeferenced to the Syrian maps, by inputting coordinates from the Syrian map to points visible on the soils map. The SPOT image was already available in TIFF format. Ground control points (GCPs) visible on the panchromatic SPOT image (generally road intersections) and the Syrian maps, allowed for georeferencing.

The CORONA images were purchased as photographic negatives and scanned at a resolution of 10 microns (2700 dpi).[28] Although this digitisation was not high enough to capture the full resolving power of the original film (>4000 dpi), it still produced high resolution imagery (Challis et al. 2002-2004; Leachtenaur et al. 1997). The images were enhanced in Adobe Photoshop 7, where an image histogram was stretched to assure that the image used the full range of variables (Challis et al. 2002-2004: 142). Then the imagery was imported into the ArcMap module of ArcGIS for georectification and georeferencing.[29] The distortion introduced by the KH-4 panoramic camera (Selander 1997), meant that a time-consuming three-step process was used in order to georeference the images. During the first stage, from 15-30 GCPs visible on both the Syrian maps and the CORONAs were identified and a first order polynomial transformation was performed, generally producing RMS errors in the unacceptable range of between 100-200m (fig. 2.6). During the second stage, 15-30 new GCPs were identified on the already georeferenced image and a third order polynomial transformation was used to rectify image distortion. In this stage, RMS errors were greatly reduced and ranged between 10-20m. Each CORONA image was then rectified using cubic convolution. At this stage, both the edges of each negative (which overlapped slightly) and points visible on the maps and the CORONAs were checked in order to insure that they

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terseness of these presentations and the slow publication record of the regional conferences has made data gathering difficult (UN 1966, 1968, 1984). The two basic reference works on world mapping wrongly state that Syria has used the UTM projection since the 1980s for 1:25,000, 1:50,000, and 1:200,000 national maps (Böhme 2000 (1989-2000): 279; Parry & Perkins 2000: 556). A recent, detailed discussion on grids and datums in Syria correctly identifies the projection and datum used, but falsely identifies the starting point for this map projection as 1989, which is the year when the Service Géographique de l'Armée, completed its mapping of the country using this projection (Mugnier 2001: 1003).

[27] The final versions of the georeferenced maps had the following RMS errors: Dadushiya, (3.551, 15.057m), Qahtaniyah (7, 19.4m), Tell Khudruf (3.544, 15.026), Bouara (3.662, 15.106), and Hassawiyah (10.2, 23.429).

[28] CUMAP (Cambridge Unit for Mapping and Aerial Photography) kindly scanned these negatives to the required resolution.

[29] ArcMap's georeferencing and rectification techniques are not ideal for the use of satellite photography, but ERDAS Imagine software was not available for this application due to license negotiations.

matched up. If they did not, the image was discarded and the georeferencing procedure begun again. Using this technique, 17 CORONA images, from four missions, were georectified.[30]

Following georeferencing, the maps and CORONA images from December 1969 were imported into ArcGIS. A geodatabase, designed to hold all of the geographic elements that could be vectorised from these images, was created. The geodatabase organised the geographic elements into a number of datasets: "water", "soil", "sites", "off-site features", "historical data" and "modern features". Feature datasets representing roads, railroads, permanent wadis, temporary wadis, modern towns, elevation points, contour lines, national borders, survey borders, surveyed archaeological sites, collection units, off-site transects, probable archaeological sites, soil micromorphology trenches and surveyed hollow ways were created within this geodatabase. The use of a geodatabase greatly simplified measurements, as length (for lines) and perimeter and area values (for polygons) are automatically placed within the table for each feature.

A description of the techniques used to design the surveyed sites dataset illustrates this process. First, a database containing all of the available information on each survey unit (either a small site, or a topographic element of a larger site) was created in Access. Second, GPS readings of sites surveyed in 1995 and 1997 were converted from Latitude and Longitude into Syrian map coordinates using a custom conversion template in "Tralaine" software. An Access file containing the site names, final numbers and easting and northing was created, imported into access and then added to the GIS project. Points based upon the easting and northings were then projected onto the screen. Sites were located based on the GPS points, sketch maps in the survey notes, or verbal descriptions. The area of each site was compared to the area measured by pacing during survey to ensure that the feature in the GIS corresponded to the actual area surveyed. Finally, the site database was added to the GIS project and joined to the surveyed sites feature. Similar data sets were appended to other archaeological features, like survey transects and hollow-ways. Post-survey processing allowed statistics based on pottery coding to be appended to the database, future fieldwork can also be incorporated later.

[30] I am indebted to Colin Shell, David Redhouse and the SPARC list for assisting me in the development of these techniques.

IV. Geomorphology and Survey Data Interpretations

The Tell Leilan Survey Region is located on an undulating floodplain, stretching from the Habur river in the west to the Tigris river in the east and from the Jebel Sinjar mountains in the south to the Tur ‘Abdin mountains in the north (Kouchoukos 1998: 319). The survey region is underlain by Pleistocene gravel, cemented by calcretes and by plateau basalts in the north-east. Elevations in the plain alternate between 200 and 550 m.a.s.l (fig. 2.7), with a pronounced north-south incline. Geomorphological cuts have been made along the wadis to distinguish changing hydrological regimes (Besonen & Cremaschi N.D.), while other trenches have identified buried soil near archaeological sites (Courty 1994; Courty & Weiss 1997; Courty et al. 1994; Gaffie 2000; Rosen 1986; Weiss et al. 1993). This work allows us to recognise two sub-regions based upon processes of alluviation and erosion. Landscapes formed by the floodplains of each wadi, with some topographic variation can be distinguished from flat landscapes outside of the wadi floodplains. In the first area, erosion and deposition from the wadis has contributed to soil-formation, along with aeolian deposition and deflation. In the second area, “continuous micro-relief readjustment caused by surficial runoff and aeolian addition” has controlled soil formation (Courty & Weiss 1997: 110; Gaffie 2000: 18). On balance, the first type of landscape (represented by sites like Leilan and Dogir) is located to the west and north where the wadis are more deeply incised, while the second type is found in the south-east part of the survey area, east of the wadi Abbas.

Geoarchaeological studies usually assume that in places with weak topographic variation and no alluvial sedimentation, sedimentary factors during the Holocene have been negligible. Alluvial plains and areas of marked topography are recognised as active geomorphological zones, where sedimentary factors play a role in soil evolution (Gaffie 2000: 4-5). As part of the 1995 survey, geomorphological trenches were cut into the plain surrounding two sites in these two regions to test this hypothesis. Leilan was chosen in order to study how soil deposition and geomorphological processes transpired in an alluvial landscape. 26 trenches, from 2-4 m in depth were sunk into the plain. Five of these (L1-5, fig. 2.8), in a line located 200 m north of the city-wall and from 200-500 m east of the Wadi Siblah, were examined in detail. Trench L1 cut the main hollow-way radiating north of Tell Leilan, which appears to be connected to the main northern gate of the city (Gaffie 2000: 20). The much smaller site of Abu Fara, located more than 5 km from any permanent or temporary wadi, was chosen to investigate whether sedimentary factors had been important in pedogenesis in a non-alluvial plain. Nine 2-4 m trenches were investigated here (fig. 2.9). Four of the trenches were near the tell, on small adjacent mounds or depressions, which did

not contain artefacts and were assumed to be natural. Five other trenches were placed along a transect (B) in the fields to the north of the main tell (ca. 300-800m from the north edge of the mound)(Gaffie 2000: 19-20).

Stefàne Gaffie used two techniques to identify buried soil horizons in these trenches. First, he examined archaeological layers in order to recognise sealed soil horizons; second, he examined the pedological characteristics of the soil, with specific attention to structures forming horizons, in order to recognise buried soils where no archaeological material was present (Gaffie 2000: 20-21). Horizons sealed with archaeological material were recognised in two of the trenches cut in the area surrounding Abu Farah, dating to the late third millennium (AF1, phase 5, IIb) and early second millennium (AF4, phase 7, I). Three buried horizons were recognised on the basis of their grainy structure and elevated macro-porosity (L.2, L.3 and L.5). The buried soil horizon in one of these trenches (L2) was associated with sherds, brick fragments and two thin burnt deposits. Two AMS dates from these burnt levels have a combined range of 2360-2200 BC (uncalibrated= 3795 ± 95) (Gaffie 2000: 22), which reinforces the determination made on the basis of associated ceramics. Three other trenches (AF. 8, L.1, L. 2 and L. 4) did not exhibit recognisable buried soil horizons, but did contain artefacts at depths of up to 3.5m (Gaffie 2000: 25-27). Finally, one profile (AF.7) contained no artefacts or indication of buried surfaces (Gaffie 2000: 27)

Each section was then studied using micromorphological techniques as well as chemical analysis. Gaffie elaborated a typology of buried soils based on a comparison of their mineral composition and variations in porosity. This typology forms an interpretive base for the recognition of surface horizons and for pedo-sedimentary analysis for the Leilan region (Gaffie 2000: 60). Additionally, Gaffie compared the morphology of exposed surfaces and buried surfaces in order to recognise the alterations that the latter had undergone.

This study underscores the importance of aeolian deposition for the Northern Jezira. Summer dust storms lead to the accumulation of sediment transported from both local and long-distance sources. Dust deposition, still significant in areas with semi-arid climates adjacent to deserts today, was even more important in the past. As a result, the surface of the soils evolves by accretion and exhibits a cumulative character (Gaffie 2000: 81-84).

The understanding of pedogenesis in the Leilan area is crucial to the correct interpretation of the archaeological survey. Gaffie concludes on the basis of structural, mineralogical and archaeological arguments that surfaces that are contemporary with third and second millennia BC sites have been buried far beneath today's surface. His discovery of

these accumulative processes mean that sites both within and outside of the alluvial floodplains of the wadis might be buried under recent sediment build-up. In certain places, agricultural disturbance or local erosional conditions mean that artefacts are found on the modern surfaces. However, the existence of buried soils underscores that deposition processes are more complicated than archaeologists generally assume. The survival of some archaeological material does not mean the survival of an entire signature landscape, a discovery which has particular relevance to the interpretation of sherd scatter, as in general the surface of second and third millennium fields lies buried beneath more than a metre of sediment (Gaffie 2000: 77). At the same time, the chemical and micromorphological analysis of the well-preserved buried soils from ancient fields located outside of second and third millennium sites may give us direct evidence for ancient agricultural practices.

V. Geography, Climate and Agriculture

Physical Geography

The underlying geology of Northern Mesopotamia, combined with microenvironment distinctions in hydrology, soil development and precipitation, affects the fertility of this area. Although the entire area surveyed lies above the 200 mm isohyet and is considered suitable for dry-farming, slight differences in precipitation can translate into great yield disparities. Geomorphological work done as part of the Tell Leilan project has included both a soil survey and exploration of regional hydrology in order to recognise land-use opportunities (Weiss 1990). We can establish a definite North-South landscape division based upon hydrology, elevation and parent-material differences. In the north, the plain is essentially an apron shed from the Tur ‘Abdin, where the wadis incising this plain originate. This system terminates in the marshy depression of the Wadi Radd to the south, which is also fed by wadis originating from the Jebel Sinjar. The wadis transport sediments from the Tur ‘Abdin, depositing them in the alluvial plain (Besonen & Cremaschi N.D.: 1). Precipitation is highest in the north (ca. 440 mm at present) due to the orographic effect of the Tur Abdin hills and rapidly decreases to 220 mm in the Radd basin (Courty & Weiss 1997: 112). In the north, soils are calcic (red and brown Mediterranean soils, ustochrepts and xerosols), while those to the south are gypsic (aridic calisutolls). Soils adjacent to the wadi Jarrah and in the Radd depressions are dark “fine, organic-rich vertisols”, related to the high ground-water in this area and the presence of swamp deposits in the past (Courty & Weiss 1997: 112).[31] A higher

[31] The construction of a dam along the Turkish border in the early 1980s transformed the hydrology of this area. Prior to this construction, the wadis Jarrah and Siblah were permanent streams, while the Radd basin contained

ground-water table parallels the greater availability of wadis in the west. This hydrology affects modern agricultural practices, resulting in the concentration of cotton cultivation west of the Jarrah (Gaffie 2000: 19) (fig. 2.10).

Combining evidence from modern soil surveys with examined profiles of buried soils allows us to evaluate the potential of the soils of this area for agriculture and pastoralism during the third millennium BC (Hunt et al. 1990; MacPhail et al. 1990).[32] Such work has allowed us to recognise four sub-regions whose distinct environmental conditions have encouraged distinct subsistence strategies: 1) the agriculturally productive sub-region north of the 350 mm isohyet located on Mediterranean brown alluvials and ground water soils; 2) the sub-region south of the 350 mm isohyet located on ground water soils, where the high water table counter-balances decreased precipitation; 3) the sub-region to the east characterised by the basalt plateau suited to mixed agriculture and pastoralism; and 4) the Wadi Radd, a marsh fed by wadis originating in the Jebel Sinjar and Tur ‘Abdin, with agricultural, lacustrine and pastoral resources (fig. 2.11).

Settlement choices in the LRS may be partially explained with reference to these sub-regions. During the period under question, one or more large sites controlled each sub-region. Tell Leilan (1), is located in one of the most agriculturally productive spots in the plains, just south of the 450 mm rainfall isohyet and north of the confluence of the wadis Jarrah and Qatrani (fig. 2.12). Similarly, Mohammed Diyab (55, fig. 2.13), the secondary administrative settlement during much of the period, is situated just east of the Wadi Abbas—adjacent to the basalt plateau that is the dominant feature of sub-region three. It seems likely that Mohammed Diyab (55), situated just seven km from Leilan, specialised in pastoral production, complementing the agricultural specialisation of Leilan. South of the 300 mm rainfall isohyet, Tell Khodr (123, fig. 2.14) is well sited to take advantage of both the higher productivity of the groundwater soils in this arid region and the resources of the Radd marsh. Finally, al-Andalus (212, fig. 2.15), just south of the Wadi Radd may have overseen the pastoral resources in this area.

Of course, such environmental determinism can never completely explain the trajectories of individual settlements, as the situation of Tell Farfara (186) illustrates (fig. 2.16). This massive site, at least the equal of Tell Leilan in size during the second

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marsh-like vegetation. Today, the water flow of these streams is governed by the operation of the dam, while the Radd has been reclaimed for agriculture.

[32] Of course, the relationship between soils, crops, and climate is extremely complex, while the existence of buried soils and different climate regimes in the past challenges these uniformitarian assumptions (Thomas 1990: vi-ix).

millennium, is located below the modern 350 mm rainfall isohyet, more than a kilometre from a permanent (or even temporary) stream. The large size and longevity of this settlement, which was occupied from the mid-third to late first millennia BC, must be explained by non-ecological factors. In the third millennium, Farfara was located approximately mid-way between two of the largest sites in the North Jezira, Leilan and Brak. Its initial growth, which occurred after the rise of these two cities, may have been a response to new opportunities presented by the urbanism of Northern Mesopotamia.

Climate

Research undertaken over the last fifteen years has transformed our understanding of the climate of the post-glacial era. Geochemical and palynological analysis of marine cores, lake cores and speleotherms has revealed that, contrary to conventional wisdom, the Holocene has witnessed climate variability, which has had significant environmental consequences (fig. 2.17). We cannot assess ancient climates directly, but geochemical signatures, which are correlated to temperature and precipitation, provide proxies for climate change (Wilkinson 2003: 19). In Western Asia, records from Lake Van, Turkey, Soreq Cave, Israel and the Dead Sea, Israel allow us to quantify Holocene climate change, through the establishment of annual, decennial, or centennial curves of estimated precipitation (fig. 2.18). The Mediterranean climate system dictates precipitation throughout Western Asia. Winter rains in North-eastern Syria are a product of the Mediterranean westerlies: 95% of rainfall at Qamishli correlates directly with storm centres produced by the westerlies, while the value for Hasaka is 93% (Bryson 1997: 470). Micromorphological and geomorphological analyses from Habur plains excavations and wadi systems provide information which takes both systems into account. Unfortunately, these are difficult to date, less secure and less sensitive than the palaeo-climatic evidence from lakes and caves. Information from these sources can be used to divide the period from ca. 3000-1000 BC into four phases: 1) a cold, dry snap (ca. 3000 BC), which has been correlated with the establishment of the modern Mediterranean climate; 2) a long, relatively wet period (ca. 2900 BC-2200 BC); 3) another cold, dry snap (ca. 2200-1900 BC), with increased variability; and 4) the establishment of a climate significantly drier than that of the preceding third millennium (1900-1000 BC). Although another drought has been theorised at ca. 1200 BC (Brentjes 1999), based upon the

archaeological evidence for widespread collapse at this period, the available climate proxies do not show a decrease in precipitation during the late second millennium.[33]

Proxies

The Lake Van sediment core provides a proxy for fluctuations in the Mediterranean westerlies over time. Ongoing analysis of oxygen isotopes and trace element profiles of a sediment core from Lake Van describes its hydrological situation. Correlating these results with 60 years of instrumental records supplies a palaeo-humidity curve for Anatolian and North Mesopotamian precipitation. Lake Van is a particularly sensitive proxy because of the alternating light and dark sediment layers that provide an annual varve record for the last 14,000 years (Landmann et al. 1996; Lemcke & Sturm 1997; Wick et al. 2003).

An analysis of oxygen isotopes in the speleotherms at Soreq cave provides similar evidence. O^{18} values of the stalagmites and stalactites reflect the O^{18} values of the cave water, which in turn are a function of rainfall and deposition temperature. Comparison of the annual amount of rainfall, O^{18} rainfall values and O^{18} cave water values over seven years allowed the relationship between rainfall and the isotopic composition of speleotherms to be established (Almogi-Labin et al. 2002). Using this technique, Bar-Matthews and Ayalon have estimated a range of variations in palaeo-rainfall during the last 6500 years (fig. 2.19) (Bar-Matthews & Ayalon 1997; Bar-Matthews et al. 2003; Bar-Matthews et al. 1998; Bar-Matthews et al. 1999). Analysis of speleotherms from other caves in the region, particularly Maale Efrayim Cave and Nahal Qanah Cave, illustrates that the patterns observed at Soreq Cave hold true for the Eastern Mediterranean generally (Bartov et al. 2003; Frumkin et al. 1999; Gvirtzman & Wieder 2001; Vaks et al. 2003).

Recent work on the relationship between precipitation and Dead Sea lake levels has also established a rainfall curve for the past 4,000 years. A correlation of 130 years of measurements of Dead-Sea levels and rainfall at Jerusalem has produced a model which explains precipitation variability for the Levant and which can be applied to the greater Near East with decennial and centennial resolution (Enzel et al. 2003). Correlations to the wider area are particularly strong during drought and wet years. Other palaeo-climate proxy records also record general trends during this period, including cores from the Gulf of Oman (Cullen et al. 2000) and the Indian Ocean.

[33] Oxygen-isotope analysis of the Van core does show a spike corresponding to a decrease in humidity at approximately 1200 BP (Lemcke & Sturm 1997: fig. 5; Wick et al. 2003: fig. 4), but no marked signal appears in other proxies for this event.

Unfortunately, within Northern Mesopotamia, no geochemical analyses of lake cores have been performed. Although a project to reconstruct regional environmental information sampled a number of lakes from Khatuniyeh in the east to Bouara salt lake in the south, few of these cores yielded enough pollen to make analysis worthwhile (Gremmen & Bottema 1991). The best core came from the Bouara salt lake, located in an arid environment today. Although this lake core does provide sediments dating from ca. 5000 BC until the present, the few radiocarbon dates and the coarse sampling for palynological data furnish little detail on changing vegetation (Bottema 1989: 11). Geomorphological and soil micromorphological evidence, however, can also serve as a climate proxy. Wadi sections taken on the Jaghjagh, Jarrah and Habur provide some information about changing climate regimes. Drought and moist phases have also been inferred from soil formation characteristics in sections cut from Leilan, Abu Hgeira and Abu Farah (Courty 1994; Courty & Weiss 1997; Gaffie 2000).

Phases

At ca. 3200-3000 BC, Western Asian proxies record a dramatic shift towards a drier climate. This event is particularly well-marked in the Soreq Cave record, where a sudden rise in oxygen isotope ratios suggest that average rainfall fell by as much as 1/3 (fig. 2.19) (Bar-Matthews et al. 1998: 211). This region-wide event may have been synchronous with the desiccation of the Sahara (Bar-Matthews & Ayalon 1997; deMenocal et al. 2000; Gasse 2000). The Soreq Cave record also illustrates the rapid recovery from this event, as by the next century, rainfall rebounded to 93% of previous values. Although conditions for the next ca. 800 years remained wetter than present-day levels, they were drier than those of the previous two millennia, the Holocene climatic optimum. Some geologists believe this period correlates with the establishment of "modern" Mediterranean climate patterns (Sirocko 1996). Soil micromorphological sections from Abu Hgeira indicate that wind erosion increased during this period, while wadi channels became deeply incised (Courty 1994). Conversely, a section made in the Habur river near the site of Sheikh Hamad dates the establishment of a meandering river course, along with the deposition of large amounts of silt—both indications of a moister climatic regime—to this period (Ergenzinger 1991: 35). These mixed signals may be explained partly by the high precipitation variability during this period (Bar-Matthews et al. 1998: 208).

This period was terminated by a second drought, one which followed a short-lived wet and cold period (Bar-Matthews et al. 1998: 211; Weiss 2000). This event was first recognised at Tell Leilan from soil micromorphological sections which showed a sudden

increase in wind-blown sediments, a decrease in earthworm activity and the absence of pedogenic carbonates (Weiss et al. 1993: 1000). Analysis of a marine core retrieved from the Gulf of Oman shows a six-fold increase in dust, lasting for ca. 400 years (Cullen et al. 2000: 380). The evidence from the Gulf of Oman can be directly correlated to soil micromorphology records from Tell Leilan and Abu Hgeira by means of tephrochronostratigraphy. A thin volcanic ash horizon is evident in all three samples. This layer is completely unrelated to the decrease in precipitation; however, it provides a robust means of linking these disparate records (above II). Records at Lake Van, dated to 2290 BC, show a decrease in lake levels and arboreal pollen, coupled with a spike in dust levels, all indicative of a sudden increase in aridity. Within a century of this event, evidence from the Dead Sea indicates that lake levels there dropped by at least 45 m (Enzel et al. 2003; Frumkin et al. 1994).

Determining precisely when, or even if, precipitation increased following this event has proved difficult. An analysis of O_{18} and C_{13} ratios of the speleotherms at Soreq Cave, Israel suggests that precipitation during the early second millennium began to increase at ca. 1900 BC, but remained 10-15% below modern levels (Bar-Matthews & Ayalon 1997; Bar-Matthews et al. 1998; Bar-Matthews et al. 1999). However, these data also suggest that interannual variability was lower during this time period than during the preceding millennia. Similarly, at Lake Van, lake levels began to rise again at ca. 1800 BC, but humidity remained 5-15% below modern levels (Lemcke & Sturm 1997; Wick et al. 2003). Indeed, Lucia Wick and her colleagues characterise the entire period from ca. 4100-2100 BP (ca. 2100 BC-100 BC) as a phase of high aridity, exceeding that of today (Wick et al. 2003: 670). A simulation of annual precipitation at Qamishli, based on modern records and palaeo-climatic data, also posits that 1900-1600 BC was significantly drier than today (Bryson & Bryson 1997: fig. 5). The Dead Sea shows no recovery during this period; in fact, lake levels reached their minimum at ca. 1400 BC (Enzel et al. 2004). Similarly, a core from Lake Zeribar, Iran suggests that salinity increased in the lake from 4000-3000 BP, as a result of less precipitation (Stevens et al. 2001).

Agricultural Model

Ancient agricultural processes are often depicted as static, yet the dynamic nature of the Holocene climate record contradicts this assumption of stability. Agricultural practices must have varied constantly, as farmers (and sometimes urban bureaucrats) seeded a larger or smaller area and experimented with monoculture, fallow, manuring and crop-rotation. Great

interannual variability in precipitation can force farmers to choose areas with higher average rainfall, in order to avoid bad years (Halstead & O' Shea 1989). Such risk-sharing must have been an important strategy in Bronze Age agricultural practices (Ristvet 2002a).

Shifts in average rainfall directly affect agricultural/pastoral strategies. In a study of recent subsistence patterns in the Syrian Jezira, Ronald Jaubert notes that, prior to the policy changes of the last 70 years, the boundary between dry-farming land and the steppe was the 350 mm rainfall isohyet (Jaubert 2000: 99). During the twentieth century, the position of this border, though not the isohyet, has moved dramatically south due to technological advancements (the Green Revolution), increased globalisation and government policy. Yet the steppe boundary also shifts as rainfall shifts, both annually and centennially. The fluctuating environmental conditions present agriculturalists—both farmers and pastoralists—with a complex set of choices regarding land-use.

Rainfall is the critical factor for successful grain harvests in dry-farming regions. Experiments done in Northern Syria have illustrated that up to 82% of yield variation can be explained by seasonal rainfall.[34] Although different fallow regimes, seed types, seeding systems and temperature also affect yield, most variation in dry-farming systems is still a result of rainfall and soil moisture (Wilkinson 1997: 76-77). As the use of fertilisers in modern agriculture reduces the consequence of variable precipitation on yields, the effects of decreased rainfall would have been even more significant for ancient agriculturalists. Cuneiform documents from Nuzi and Assyria record yields that are far below modern averages in North Iraq and North-eastern Syria (Postgate 1990; Zaccagnini 1975, 1990). As a result, a significant and sustained decrease in average rainfall would have had a profound effect on Mesopotamian farmers.

Using estimated precipitation from Soreq cave, we have calculated yield variations for barley based on both modern and ancient harvest data from Northern Mesopotamia.[35] Figure

[34] H. Ketata found an average response of 7.4 kg/ha/mm for wheat grown in Northern Syria with a mean rainfall of 485 mm (Ketata 1987). E.J. van Oosterom found an average response of 8.57kg/ha/mm for barley in environments that received from 174-500 mm of rainfall, and 11.89 kg/ha/mm for a more frost-resistant strain (Oosterom et al. 1993).

[35] Any attempts to model inherently complex systems like agriculture involve a number of assumptions that are difficult to justify when dealing with incomplete data sources, as is the case in archaeology and paleoclimatology. Average precipition is derived from Bar-Matthews's model of centennial average precipitation based on oxygen isotopes in the Soreq Cave (Bar-Matthews et al. 1998); it does not take into account seasonal or even annual variation. Moreover, this simplified model assumes that average precipitation was the only variable in ancient agriculture. As a result, we have used the following equation to model yield: (P*E-P)*7.4+H=Y. Where P equals modern precipitation, E equals the coefficient of precipitation for the period under consideration, 7.4kg/ha is a standard rate for increased or decreased grain yield per millimetre of rainfall, H is equal to the average yield under average precipitation and Y is equal to ancient yield. This model

2.20 indicates how crop yields increase and decrease with resultant rainfall and allows us to compare the high, but inconsistent yields of the third millennium, with the lower yields of the 2nd millennium B.C. Since pre-industrial societies in Mesopotamia relied on agriculture for their continued existence, using barley to feed their populace, fund their military campaigns and subsidise their monumental building projects, decreasing yields strongly affected them, and, may have threatened their continued existence.

The combination of ancient and modern data shows us how decreasing rainfall would affect yields under a number of different dry-farming regimes. The modern figures all assume extensive nitrogen and potassium fertiliser use, combined with annual harvesting. The Nuzi and Middle Assyrian data, on the other hand probably reflect the use of a barley-fallow cycle to conserve water and soil nutrients and no manuring. The discussion of lot assignment in the Middle Assyrian laws, suggests that this common rotation cycle was used in Greater Mesopotamia in the late second millennium BC (Halstead 1990; LaPlaca & Powell 1990; Postgate 1994a). There is no textual or archaeological evidence for the use of manuring during the Middle Assyrian period, so it is not assumed. If the late third millennium regimes did employ extensive manuring, as the sherd-scatter data from other regions may indicate, yields would have been higher than the estimates given, although still lower than modern yields. Experimentation with different crop-rotation cycles would also have led to different yield values. Annual cropping cycles would have meant deteriorating fertility of the land, as well as greater vulnerability to dry years (Wilkinson 1997: 80-81). The use of manuring to improve water use efficiency, particularly when combined with alternating fallow years would have allowed for more sustainable agriculture (Wilkinson 1997: 84-85). This model obviously emphasises the effects of diachronic precipitation variability. By comparing it to a model which keeps precipitation constant, but looks at how population pressure would have led to agricultural innovation (the substitution of more intensive agricultural processes through time) (fig. 2.21), we can get a sense of ancient agricultural variability.

VI. Conclusion

Within the natural framework provided by the rolling Northern Mesopotamian plains and rain-fed cereal agriculture, the people who lived in the Leilan survey region from 3000-1000 BC used this landscape in radically different ways. At times, people lived in small,

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assumes that the original Nuzi and Middle Assyrian yields are based on an average rainfall of 390mm and 350 mm respectively, based on extrapolation from the Soreq Cave data and modern rainfall.

unplanned villages and only farmed the moist areas of the adjacent wadis while in other periods, they lived in standardised houses, set on radiating streets, in well-ordered settlements for generations, farming the drier steppe. This life-way, which characterised approximately 400 years, eventually yielded to its opposite, which focused on flexibility, movement and pastoralism and probably defined a period of about 500 years. In order to understand the interaction of individuals, states and the natural environment, we must consider the evidence for human settlement, both on a regional and site level.

Chapter 3: Inventing the State

I. Introduction

Around 2600 BC, city-states emerged across the dry-farming plains of Northern Syria, Southern Anatolia and Northern Iraq (Ball et al. 1989; Pfälzner 1997b; Weiss 1983, 1986). In Northern Mesopotamia, the state arose as a means to resolve the tension between a series of economic, political and social oppositions which arose during the first half of this millennium. In the economic sphere, this opposition operated between settled agriculturalists and specialised pastoralists who had begun to colonise the steppe. Since pastoralists are dependent on settled societies for agricultural products (Khazanov 1994), the establishment of a mobile sector of society induced great changes in the organisation of agriculture and land ownership. In the political sphere, the operative tension emerged from two competing models of leadership: between communal management and individual leadership. In the social sphere, this opposition functioned between North Mesopotamian and South Mesopotamian symbolism. We can see this conflict in the syncretistic iconography that emerges at approximately 2600 BC and includes Northern readings of Southern themes and Northern themes rendered in Southern styles.

One means by which these tensions were resolved, or at least brought into equilibrium, was through the establishment of a shared Northern Mesopotamian religious landscape, which was situated in the liminal zone at the margins of dry-farming, where landscapes of pastoralism and dry-farming met. These landscapes of pilgrimage provided an ideological foundation for communal and individual leadership and integrated local and foreign elements. The concept of social relations to the land, in the broadest sense—representing the emerging economic landscape of field and pasture, the new political landscape of small kingdoms and the emerging religious landscape of sanctuaries—will serve as an heuristic device to explore the changing political economy of the region during this time of transformation. This chapter will focus on the emergence and elaboration of state institutions in the Tell Leilan region from 3000-2200 BC, viewed within the wider framework of Northern Mesopotamia. We will consider how the emergence of the state transformed both inter and intra-site organisation during the third millennium BC, before analysing the evidence for economic, political, cultural and religious landscapes in order to explicate this transformation.

II. Interaction Zones in Third Millennium BC Mesopotamia

As a scholarly construct third millennium Northern Syro-Mesopotamia is nearly as awkward as its appellation. Such a designation refers not to a political entity, but rather to a cultural one, inferred from textual and archaeological evidence. Like other cultural entities, "Northern Syro-Mesopotamia" did not have definitive borders during the period under question; nor was it a construct that its inhabitants would necessarily have recognised. Nevertheless, it roughly corresponds to an ancient geographical term, the "Upper Land" of the Sargonic inscriptions (Postgate 1994c: 5).[36] The area under study includes Ebla and its dependencies to the west; Mari to the south; Nineveh to the east; and the Turkish Euphrates to the North. Four common characteristics make it possible to describe this expanse as a unified region, although it contains different ceramic traditions, burial practices and urban forms. First, this entire area experienced a socio-political revolution between 2700 and 2500 BC when cities and small kingdoms emerged for the first time. Second, this area shares a common written language, an early Akkadian dialect written in cuneiform.[37] Third this entire area shared a common religious landscape that developed alongside the state. Finally, this area, excluding the Middle Euphrates, also represents a distinct ecological zone, comprising the dry-farming plains, where agriculture is possible without irrigation and the nearby steppe, where pastoralism supplements meagre grain yields. Much of this area remained a cultural unity during later phases of Mesopotamian history, forming the basis of Mitanni and Assyria.

It seems unlikely that this region was ethnically homogeneous. Although personal names in the third millennium texts from Ebla, Mari, Beydar (Nabada) and Gasur are all Semitic (Astour 1992: 5-7), Urkiš probably included Hurrian speakers (Buccellati & Kelly-Buccellati 1995: 391-392; Milano 1991) and we know nothing of the language or ethnicity of people living in the Tigris-Zab triangle. Nonetheless, the emergence of the state in Northern Mesopotamia created new affiliations for individuals on the local level (sometimes, but not always corresponding to political states), as well as on the trans-Mesopotamian level, which

[36] This area may also have included the Habur triangle and the Tigris-Zab triangle; alternatively these areas may have comprised the entity know as Subir or Subartu. Whether Subartu coincided with the Habur Triangle, the area east of the Tigris, or was a legendary "northern" kingdom during the third millennium has been the subject of much debate (Michalowski 1986, 1999; Postgate 1994c; Weiss 1986: 86-86).

[37] IJ Gelb and Piotr Steinkeller have speculated that a "Kish civilisation" of Semitic speakers existed during the third millennium, incorporating northern Babylonia, the Middle Euphrates and North-west Syria (Gelb 1977, 1981, 1992; Steinkeller 1993). I accept the hypothesis that the inhabitants of Greater Mesopotamia from Kish to (probably) Assyria spoke dialects of Akkadian during the third millennium, and that Eblaite is not a separate West Semitic language (following Krebernik 1996). Nevertheless this study excludes Northern Babylonia and the Diyala because of ecological factors, as well as space constraints.

allowed for the integration of ethnically and economically diverse peoples (Adams 1966; Emberling 1997).

Within this larger area, it is difficult to delineate "interaction zones". We have a fairly comprehensive knowledge of differences in ceramics, but much less information about other forms of material culture and few textual references. Artefact distribution results from economic, ecological, political and cultural factors. If we wish to delineate how "ceramic regions" are created, we must consider the organisation and distribution of pottery production and its connection—if any—to political entities or to ethnic identity (Mazzoni 2000: 139; see also Milano & Rova 2000: 709-10). Flexible definitions of ethnicity in the social sciences, which stress that cultural identity is created or constructed, not assigned or given, further complicate our search for archaeologically defined regions (Barth 1969; Jones 1997: 76; Porter 2000: 197).

Yet we must persevere in the face of these problems in formulating definitions of regions, if only because of the need to organise our presentation of the various data. This will be done here with the understanding that our definitions of "interaction zones" are by necessity arbitrary to a certain degree. They reflect modern borders which constrain our archaeological knowledge and are the end results of diverse ancient processes—like shared religious practices; shared ethnic affiliation; economic integration; and political integration—that affect various aspects of material culture differently over time.

Our regional divisions will change according to the processes that we study. In general, we will divide Upper Mesopotamia into four main regions, relying on a combination of material culture and textually attested kingdoms: 1) the Eastern Jezira, 2) the Western Jezira and the Balikh, 3) the Middle Euphrates and 4) the Upper Euphrates and Northwest Syria, with the caveat that this division is merely heuristic and not an accurate or complete image of past political, ethnic, or economic realities (fig. 3.1). These divisions are not entirely arbitrary; they do reflect differences in ceramics, site morphology and sometimes house-plans. They also roughly correspond to a division found in the Ebla texts (Milano & Rova 2000: 736-737). No entity corresponding to the Eastern Jezira is attested at Ebla, but archaeologically this is the area defined by Ninevite 5 pottery during the early third millennium and important centres like Nineveh, Hawa, Hamoukar and Leilan during the later third millennium (Mazzoni 2000: 143; Milano & Rova 2000: 715). The second area corresponds to the kingdoms of Nagar and Abarsal during the Ebla period, the area defined by *Kranzhügeln* and Metallic Ware (Milano & Rova 2000: 716). The third area, which includes the Middle Euphrates and the Lower Habur, includes the kingdom of Mari during

the Ebla period. Finally, the fourth area coincides with the area governed by Ebla during the 24th century BC, where caliciform simple ware is the dominant ceramic tradition (Mazzoni 2000: 143-144; Milano & Rova 2000: 716-717).

III. Surveys, Settlement and the Social Relations of Land

The millennium from the collapse of the Uruk colonies (ca. 3200 BC) until the end of the "Akkadian period" (ca. 2150 BC) witnessed precipitous population decline followed by a quick recovery; the emergence of multiple small states; and the intensification of land-use in Northern Syro-Mesopotamia. The timing and scale of these phenomena differed geographically. Throughout Upper Mesopotamia, economic and social systems shifted, resulting in novel settlement patterns that accorded with new ways of living in the landscape economically, politically and symbolically. A comparison of survey patterns illustrates how social relations to the land changed as part of and in response to, the social processes characterising the third millennium BC.

The Leilan Survey

Settlement Patterns

Two previous Leilan surveys have explored the transition from a Ninevite 5 chiefdom or village economy (Leilan III) to a state system (Stein & Wattenmaker 2003; Stein 1994; Stein & Wattenmaker 1990; Weiss 1986). The current study is the first to analyse third millennium settlement patterns using a finer chronology to examine changes within the early "pre-state" (1-2, Leilan IIIa-IIIc) and early state phases (3-5, Leilan IIId-IIb). The survey evidence demonstrates the resettlement of this area after a brief contraction (phase 1) following the late Uruk period and its subsequent growth and development. Rapid population growth and the reorganisation of the population of this region around four 15-hectare sites followed (phase 2). Then, Leilan underwent a six-fold increase in size, emerging as the pre-eminent centre within the survey area, at the same time that other towns were reorganised into secondary centres (phase 3). The rise of a second urban centre in the southwest part of the survey area (Tell Farfara) and a marked rise in urban population (phase 4) followed the establishment of Tell Leilan as an urban centre. Finally, a reorganisation of settlement in this region probably coincided with a brief phase of Southern Mesopotamian (Akkadian) imperialisation (phase 5).

Phase 1 (3000-2800 BC)

No Uruk-Ninevite 5 transitional material was recognised in the survey collection, suggesting that either this entire region was abandoned following the disappearance of the Uruk colonies, or that pottery traditions in the North-eastern Habur differ from those of Northern Iraq (Rova 2003; Weiss 2003). During Leilan IIIa (3000-2800), only seven sites in this region were definitely occupied (fig. 3.2). Leilan was probably the largest of these settlements at close to 15 ha. To the southeast, Mohammed Diyab (55) was founded during this period as a small village of 3.7 ha (Lyonnet 1990). To the southwest lay the large village of Sharmoukh (59), which covered six ha and was probably a small centre during both the preceding Uruk period and this period. With the exception of 187 and 189, all of these villages were located along wadis, north of the ancient 280 mm isohyet. Palaeo-climatic evidence suggests that rainfall was depressed during the early third millennium, perhaps by as much as 30% (Bar-Matthews et al. 2002; Bar-Matthews et al. 1998). Survey data show a high rate of abandonment from the previous period with a decrease in the number of sites (from 53 to 7) and in settled ha (from 167 to 31). If one assumes 100 people per hectare, this means a decreasing density of one person per 32 km^2 to one person per 172 km^2 (Weiss 2003: 601).

Phase 2 (2800-2650 BC)

The following centuries, 2900-2700 BC, characterised by Leilan IIIb-IIIc pottery, witnessed a proliferation of new settlements in the region as populations recovered from the settlement collapse.[38] 32 new sites were founded during this period, while the number of settled ha increased by a factor of 4.5. In general, these new sites were small to medium size villages, with an average site size of 3.6 ha. Sites continued to cluster around wadis in the plain north of the modern 350 mm isohyet (fig. 3.3).

Settlement centred around three 10-15 hectare towns, Leilan (1), Dogir (16), 'Aid and Mohammed Diyab (55). At this time, Leilan only made up 13% of settled ha in the survey region; all three centres combined contained only 34%. Each of these centres had one to three dependent villages. Stein and Wattenmaker have shown that the land around Leilan and Dogir probably occupied by the cities' subsistence fields was free of village settlements, suggesting self-sufficiency (Stein & Wattenmaker 1990). It may be possible to infer a three-level settlement hierarchy during this period, with the three small centres on top; sites with populations between five and ten ha, such as Bayandur (14), Sharmoukh (59), Shair (74), Aid

[38] Settled hectarage did not surpass Leilan IV (Local Late Chalcolithic) levels until Leilan IIId—the period of state formation, emphasising the magnitude of the Late Uruk collapse.

(90), Khodr (123) and Ghazal (180) occupying the middle tier; and sites with areas under five ha occupying the lowest tier. Whether or not this analysis actually represents an integrated system, however, is unclear.

Phase 3 (2650-2500 BC)

Beginning at approximately 2600 BC, Leilan grew to a size of 90 ha. Three new radiocarbon dates from a stratum associated with the city wall provide a *terminus ante quem* for its construction of 2650-2560 BC. Other radiocarbon dates from this excavation, associated with Ninevite 5 excised pottery, provide a firm chronology for phase 3, limiting it to one century (Putzolu et al. 2004; Ristvet 2002b). Excavations within the Lower Town suggest that the new 75-hectare expansion was built according to a plan and was densely settled from this date until the end of phase 5.

During this phase, Leilan alone comprised 42% of all settled ha, while the five largest communities (Leilan and the four second-tier sites of Dogir, Mohammed Diyab, Aid and Farfara) together comprised 68% (fig. 3.4). The same period saw a slight reduction in the number of overall sites. Villages were abandoned south of the 350 mm isohyet, along the wadi Breibitch and near Tell Leilan. Their populations were probably relocated to Leilan. The total number of sites attested for this period fell to 26. With the exception of Tell Sharmoukh, all of the abandoned sites were small villages with an area smaller than four ha. As a result only 31% of settled ha comprised villages, as compared to 57% in the immediately preceding period. We are almost certainly underestimating this trend towards urbanisation. Although 81% of sites were smaller than five ha, large sites had become important in a new and unprecedented way.

Phase 4 (2500-2300 BC)

Previous archaeological research has suggested that Tell Leilan was a small, self-sufficient kingdom (Šehna), whose wealth was based on high cereal yields (Weiss 1986). Four aspects of the settlement data support this conclusion and suggest a period of prosperity: 1) the large average site size of the period, 2) the presence of two nearby urban centres, 3) a well-developed network of secondary centres and towns and 4) the location of villages within the catchment areas of the larger sites (fig. 3.5).

Thirty towns and villages were inhabited during this period. Sherd scatter of IIa material completely covers most mounds occupied, producing high average site sizes: 8.2 ha, as opposed to a diachronic average of 6.6 ha. The countryside around Tell Leilan reflects a

well-developed settlement hierarchy complete with large and small towns and villages. To the east, Mohammed Diyab (55) also increased in size from a town of 17 ha to a small city of 50 ha (Lyonnet 1990). Tell Aid (90) located 15 km from both Leilan and Farfara, also grew to its maximum size of 20 ha during this period, perhaps as a response to the growth of Farfara. Dogir (16) and Lazzaga (257) were also probably fully occupied during this period. These four settlements comprise 23% of settled hectarage for this period. Sites over 10 ha made up 58% of settled hectarage. The existence of many secondary centres surrounding Tell Leilan may have reduced transport costs and streamlined the administration of agricultural produce (Stein & Wattenmaker 1990; Weiss 1986). Sites 25 and 51 lie within the sustaining area of Tell Leilan, while 189 lies within the sustaining area of Farfara. This implies that neither city was self-sufficient; both relied on agricultural communities in their hinterlands to provide grain (Stein and Wattenmaker 1990: 16).

Phase 5 (2300-2200 BC)

Historical and archaeological sources suggest that Leilan came under the control of the Akkadian empire during this period (Ristvet & Weiss 2000; Weiss & Courty 1993).[39] Harvey Weiss and Marie-Agnes Courty have previously hypothesised that diminishing economic and political returns during EDIII in Southern Mesopotamia stimulated the Akkadian conquest of Northern Mesopotamia, the agricultural zone adjacent to Akkad (Weiss et al. 1993). Phase 4 prosperity served as a pre-adaptation for imperialism. Changes in settlement patterns support this thesis by suggesting a functional conversion of sites during this period. Four major shifts in land-use may be explained in terms of increased agricultural production: 1) the abandonment or contraction of most sites larger than ten ha; 2) the abandonment of villages close to major cities, creating a swathe of agricultural land around each centre; 3) the foundation of eight new settlements in the steppe south of the 350mm rainfall isohyet; and 4) the establishment of six new settlements in the Radd swamp (Fig. 3.6).

Mohammed Diyab (55) decreased in size from 50 to 10 ha (Lyonnet 1990). Aid (90), the next largest site in the survey area, decreased in size from 25 to 15 ha and the small towns of Dogir and Abu Farah were abandoned altogether. These four sites were the only town-sites during the preceding IIa period. Their disappearance meant that the closest town site to Leilan was located 12 km to the south at Qarassa (49), at the confluence of the Shibaniyeh

[39] Evidence includes the mention of Šehna, the ancient name of Tell Leilan in an Old Akkadian economic text from the Naram-Sin palace at Brak, and the Akkadian sealings and tablet fragments from the Leilan Acropolis.

and the Jarrah. 18 km south-west of Leilan, Farfara suddenly grew to 40 hectares. This reshuffling of the population may be attributed to the Akkadian presence in Northern Mesopotamia. Removing local second-level centres from the administration of production probably streamlined imperial administration.

The abandonment of villages near Tell Leilan and Tell Aid (90) probably occurred as part of a new emphasis on direct agricultural production by these centres. Both the villages that were within Leilan's sustaining area were abandoned, while Dogir's abandonment and the diminution of Mohammed Diyab's also gave Leilan access to new fields. Tell Ahmed (189), the village adjacent to Farfara (186), was also deserted.

The sudden expansion of settlement in the steppe south of Farfara (186) illustrates a new emphasis on exploiting the agricultural resources of this more arid area, below the 400 mm rainfall isohyet. The establishment of Qarassa (49) and three attendant villages, 54, 166 and 292 represents the northern-most example of this phenomenon, which also included the foundation of four other villages.

The rapid extension of settlement even further south, to the area dominated by the Radd swamp is also an innovation. Six new settlements were founded during this period. Two regional centres emerged, the previously occupied Khodr (123) in the north and Dumdum (241) in the southwest. The exploitation of a previously under-utilised area provides further evidence for agricultural extensification. The hypothesised increase in agricultural productivity coincided with an increase in settled ha, from 258 to 352 ha, despite the downsizing of secondary centres.

Northern Syro-Mesopotamian Surveys

Settlement Patterns

Other North Mesopotamian settlement patterns exhibit a similar trajectory of increasing population and complexity during the first half of the third millennium, culminating in the emergence of states.[40] The centralisation of population in large towns and cities in the East Jezira probably mirrored a shift in land use from unified to dispersed field systems which

[40] Unfortunately, few of the published surveys have subdivided the third millennium while some earlier surveys used now out-dated pottery chronologies (cf. Meijer 1986, Lloyd 1938). Site size data and diachronic changes in this attribute have not been consistently published. The surveyed area and the intensity of the survey vary widely, from ca. 100km^2 for the Hamoukar regional survey, to more than 3000km^2 in the Habur Basin survey, and from CORONA identification supplemented with field-walking to survey the total archaeological landscape, to an intensive survey of only 20% of the largest tells in the West Jezira. The differences in surveyed area also make direct comparison difficult, as the area under examination may have been too small to reveal the development of regional complexity.

correlated to less local control over the land. Similarly, people began to settle the steppe south and west of the 300 mm rainfall isohyet in the West Jezira. They built both riverine storage sites and *Kranzhügeln*, large, double-walled circular sites, located in "oases" with fertile soil and water resources. The dichotomy between the *Kranzhügeln* on the one hand and the small, probably seasonally occupied villages in the steppe on the other, hint at the complex interplay between specialised pastoralists and these nascent cities. Towns and cities also sprang up along the Euphrates in two phases. The foundation of Mari on the Middle Euphrates at approximately 2800 BC was the first episode of urbanisation in Northern Mesopotamia. Approximately 400 years later, other urban centres appeared to the north, on the Upper Euphrates. Finally, in northwest Syria, the urban centres remained small and were implanted in a network of villages, suggesting that land tenure regimes and agricultural practices differed from the east.

East Jezira

Four surveys in the dry-farming plains of the Eastern Jezira—the Hamoukar, Eastern Habur Basin, North Jezira and Cizre-Silopi surveys—show settlement expansion during the mid-late third millennium, coincident with the growth in size of a central city.[41]

Hamoukar's emergence as an urban centre paralleled Leilan's at roughly 2600 BC (Ur 2002b). The Hamoukar regional survey, which represents only the five km adjacent to the site, found evidence of population growth in its hinterland. Eight sites containing Ninevite 5 pottery (phases 1-3) were recorded. None of these sites contained painted Ninevite 5 pottery and Ur suggests that they should all be considered late in the period (the equivalent of phases 2-3) (Ur 2002a: 68). In contrast, 31 sites contained late third millennium pottery (phases 4-6)—although only 14 of these were settlements (Ur 2002a: 69). Although some of these sites are tell sites, all located roughly five km from Hamoukar, nine non-tell sites were also occupied during this period in the area surrounding Hamoukar (Ur 2002a: 70).

Meijer's survey of the entire Eastern Habur basin (including Hamoukar and some of the area of the Tell Leilan survey) also shows an increase in the number of sites during the third millennium, from 12 sites in phase 1, to 21 in phase 2-3, to 55 in phase 4 and 50 in phase 5. The number of sites with pottery from phases 4 and 5 clearly reflects an increase in

[41] A survey along the Wadi Ağığ found scant evidence for third millennium settlements (Bernbeck 1993: 61). We will not consider Lloyd's survey of the Tell "Afar region (Lloyd 1938) or the surveys summarised by Jabir Ibrahim. Our understanding of third millennium ceramics in this region has changed greatly since the 1930s, while Ibrahim's work is not comprehensive for the third millennium BC (Ibrahim 1986).

population during this period. 83% (34) of the largest tells in the area (covering an area in excess of 2 ha with a height of at least 15m) date to the EBA (Meijer 1986).[42]

The North Jezira survey located north of the Jebel Sinjar in Iraq revealed a similar pattern of repopulation and political development. Only four sites in this area contained painted Ninevite 5 wares, but 29 had incised and excised Ninevite 5 ware. Wilkinson suggests that the survey evidence for the late Ninevite 5 period indicates a three-level settlement hierarchy, with the site of Tell al-Hawa at the apex (42 ha), one to three sites of approximately 12 ha in the middle-tier and 26 villages forming the lowest-tier (Wilkinson & Tucker 1995: 49-50). In the North Jezira survey there was 14% settlement continuity from the previous period and high rates of abandonment at the end of the Ninevite 5 sequence, suggesting a shift in population organisation (Wilkinson & Tucker 1995: 51). By the late third millennium (phase 4-5), the main tells in the area "attained or approached their maximum settled area" (Wilkinson & Tucker 1995: 51). Tell Hawa grew to 66 ha, while three towns, all located between 9 and 12 km from this centre, grew to 10-20 ha, forming the second tier of the settlement hierarchy. At the same time, the number of villages (<5ha) decreased dramatically, from 26 in the previous period to 16 in this period. The satellite sites located in the immediate vicinity of Tell Hawa were abandoned. The later third millennium at Tell al-Hawa saw the reoccupation of the drier, southwest part of the survey area, mirroring the spread of settlement into the Wadi Radd at Leilan during the same period (Wilkinson & Tucker 1995: 52).

A survey of the Cizre-Silopi plain, northeast of the Hamoukar survey area, along the Upper Tigris in Turkey, showed a small number of Ninevite 5 sites, four of which were less than five ha and one of which (Basorin) was probably between 10 and 20 ha (Algaze 1989). Only Basorin remained occupied during the later third millennium. North of this plain, no recognisable third millennium material was present, affirming that the Turkish Tigris lay outside the main region of North Mesopotamian urbanism (Algaze 1989).

West Jezira

In the West Jezira urban centres emerged in the middle of the third millennium (phases 3-4) and population increased during most of this period. In contrast with the East Jezira, however, phase 5 was a period of population decrease when most urban centres were abandoned.

[42] This number includes figures from Meijer and corrections made by the LRS.

The Habur Basin survey of the Western Habur Triangle found few phase 1 sites. In contrast, 64 sites dated to phases 2-3, making this one of the periods of greatest population for this region (Lyonnet 1998; Lyonnet 2000, 2001). Lyonnet has noted that the wadi 'Awedj is a cultural boundary between Ninevite 5 pottery and a different pottery tradition characterising the area of the *Kranzhügeln* (Lyonnet 1998).[43] Wilkinson has surveyed the 12 km around Tell Beydar, located within the Habur Basin survey area. Wilkinson's intensive approach, which stresses geoarchaeology and off-site archaeology, fills in some of the gaps in Lyonnet's more extensive survey. Twelve sites date to the first half of the third millennium; eight of these possessed Ninevite 5 ware (late incised), while four contained a non-decorated assemblage dated to this period (Ur 2004; Wilkinson 2000a, c). With the exception of Tell Beydar, there was little evidence for occupation during this period (Ur 2004: 172-173). During the second half of the third millennium (phase 4), eight new settlements were founded, including three larger than 5 ha (Ur 2004: 175-176). Phase 5 was a period of collapse in the Tell Beydar region, during which the occupation at Tell Beydar was at least halved.[44]

Jesper Eidem and David Warburton's survey of 170km^2 in the immediate vicinity of Tell Brak found a decrease in both number and size for early third millennium sites in comparison with the preceding Uruk period (25 sites decreased to 15). In general, these sites were located along the wadis Radd and Jaghjagh (Eidem & Warburton 1996: 53-7). During the following period (phases 4-6), the number of sites increased to 26. In all periods, Brak dominated the surrounding countryside; none of the other sites was larger than five ha.

Three surveys and several excavations have been undertaken along the Middle and Lower Habur and in the steppe and highlands of the Jebel 'Abd-el-Aziz, as part of the Hasaka dam salvage project. As a result, we can analyse how inter-site settlement patterns related to intra-site settlement organisation, by comparing the results of the survey and excavation. Thirty-five third millennium sites have been located along the Middle Habur. Although the original survey made no attempt to periodise them, they all date to a period between approximately 2800 and 2400 BC. The majority of these were occupied between 2800 and 2600 BC, equivalent to phase 2 (Kouchoukos 1998: 401). Only two settlements, Melebiya and Tell Bderi, had large occupations between 2600-2400 BC (phase 3/4). In the Jebel 'Abd-el-Aziz area, including the steppe immediately west of the Habur river, the reconstructed

[43] Analysis of this survey is still in progress, and may result in a tighter chronology of the area under question (Lyonnet, personal communication).
[44] Since the Tell Beydar survey did not subdivide phases 4 to 5 it is impossible to quantify this.

settlement pattern is the inverse of that found along the Middle Habur. Here 14 small village sites, all under 1 ha and dating to EJ I and II (ca. 2900-2600 BC, phases 1-2) were detected. The small size of these sites and the probable ephemerality of their occupation, has led Nicholas Kouchokos to describe settlement patterns of the early third millennium as "sparse and centred on small, perhaps seasonally or transiently occupied sites" (Kouchoukos 1998: 373) By the end of the first half of the third millennium (phase 3-4), settlement had exploded. More than 36 sites, ranging in size from tiny hamlets to a town of 30 ha, marked the north and south slopes of the mountain (Hole 1997: 52).

Along the Balikh, most third millennium settlement was concentrated on tells in two separate settlement systems; a dry-farming northern system centred on Harran and an irrigation-dependent southern system centred on Tuttul (Tell Bi'a) (Wilkinson 1998: 80).[45] The availability of water resources, from irrigation and increased rainfall, probably fuelled settlement expansion here (Akkermans 1984: 190).[46]

Middle Euphrates

A survey of the Middle Euphrates between the Balikh and the Iraqi border documents settlement patterns in Mari's hinterland. Fourteen EBA sites were recognised by the survey including six funeral sites (Geyer et al. 2003: 113). Heavy alluviation and later occupation in the areas near the Euphrates and along the canals have masked an unknown percentage of early sites (Geyer et al. 2003: 89). Jean-Claude Margueron, the excavator of Mari, suggests that Terqa and Ramādi were founded prior to Mari in the early third millennium to control river traffic (phase 1). Mari was founded in the early third millennium as an urban centre, with a large-scale irrigation network (phase 2) (Margueron 1991: 2000). With the exception of two sites found along the Wadi Dheina, above the flood plain, all third millennium settlements were located along the Euphrates (Geyer et al. 2003: 251-252).

Northwest Syria and Upper Euphrates

The construction of several dams along the Syrian and Turkish Euphrates has entailed survey and excavation projects that provide evidence of third millennium settlement.[47] Anne Porter

[45] One other survey has been conducted along the Balikh in the hinterland of Harran (Yardimci 1993). Unfortunately, with the exception of a few maps, no site size or period information has been published.
[46] The analysis of the EBA material from Akkermans's original Balikh survey formed the subject of Hans Curvers's unpublished PhD. I have been unable to obtain a copy of this thesis.
[47] These include surveys conducted (or published) by Conteson, Copeland and Moore, McClellan and Porter, Van Loon and Wilkinson. Conteson's survey of sites north of Membij shows that at least 15 sites were occupied during the first half of the third millennium (EB1-3), while this expanded to 17 sites in the second half (EBIV) (Conteson 1985: 107-108), although in both periods these sites were generally small (Conteson 1985:

has summarised the results of the Syrian Tabqa and Tishreen dam surveys, which mirror those of the West Jezira (Porter 1999: 293-302). During phase 1, few sites south of the Turkish border were occupied (Porter 2000: 283-6). Hajji Ibrahim and Haj, small, possibly pastoralist settlements near Sweyhat may date to this phase (Danti 2000). During phase 2, a number of sites including Sweyhat, Halawa Tell B, Ahmar, Qara Qosak, Jerablus Tahtani, Shioukh Fawqani and Shioukh Tahtani were founded along the river. Further south, new sites included Tell Bi'a (Tuttul), while Hadidi expanded to 56 ha during this period. This settlement expansion reflects the situation in the Jezira to the east, where the majority of urban settlements, including Chuera, Bderi, Beydar and Hammam et-Turkman were either settled, or resettled during phase 2 (Porter 2000: 286-90). Phases 3 and 4 represent a period of consolidation, with the expansion of settlement at Tell Banat and the growth of other sites founded during phase 2 (Porter 2000: 291). Finally, phase 5 saw the first disruption in this settlement pattern, with the abandonment of Tell Banat and the diminution of Hadidi (Porter 2000: 297).

North of the Turkish border, a survey of the Euphrates floodplain by the Carchemish and Birecik dams documents a pattern out of step with the rest of the Upper Euphrates. Following the collapse of a large late Uruk settlement within this area, the early EBA (phases 1-3) experienced settlement retraction, with only nine occupied sites covering less than ten total ha—a drop of approximately 75% from settled ha during the previous period (Algaze et al. 1994: 12-13, fig. 18). The middle EBA witnessed a further decline in settlement, with only five sites and no settlement hierarchy (Algaze et al. 1994: 13-14). Algaze suggests that during the middle EBA, the predominantly north-south trading connections of the area meant that natural trade routes bypassed this part of the river (Algaze et al. 1994: 14).

North of the Birecik dam area, a survey within the floodplain of the Karababa dam shows population growth and centralisation. As in the Carchemish area, few (seven) dispersed village and hamlet sites date to the early EBA, the beginning of the third millennium (phases 1-3) (Wilkinson 1990b: 95-97). By the mid-late third millennium (phases 4-5), this settlement pattern had changed, as Titriş Höyük grew to 30 ha—"urban

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116-7). Copeland and Moore's survey, in the Tishreen Dam area, identified 16 sites for the EBI period (Phase 1-2), 18 for the EBII period (Phase 3), 18 for the EBIII period (Phase 4), and 21 for the EBIV period (Phase 5) (Copeland & Moore 1985: 41-98). The results of McClellan and Porter's survey are unpublished. Wilkinson has summarised the results of Van Loon's survey and his own (Wilkinson 2004: 2). Their work shows that Hadidi expanded during phase 4 or early phase 5, while Sweyhat expanded during phase 5 (or even phase 6). (Wilkinson 2004: 138-139). The urbanisation of this area did not result in the abandonment of small sites, on the contrary, additional foundations occurred during the end of the third millennium; while two smaller centres also appeared, perhaps related to route systems (Wilkinson 2004: 138-142).

size", while the hamlets of the early EBA were abandoned, in favour of substantial nodal settlements (Wilkinson 1990: 97). Aggregate settlement increased to three times that of the previous period, while a "steep, peaked rank-size curve" of this period contrasts starkly with previous patterns (Wilkinson 1990b: 97-98). Nearest neighbour measurements indicate wide spacing and strong nucleation within this landscape (Wilkinson 1990b: 99).

A survey in the steppe east of Sweyhat reveals the impact of urbanisation outside of the Euphrates valley.[48] Seven EBA sites were located along wadis in areas of high ground water. Their inhabitants probably used the moist wadi beds for cropping (Danti 1997: 88). In general, the late third millennium experienced a settlement peak, mirroring the history of Sweyhat. The number of sites and settled hectarage increased throughout this millennium, with no site larger than .5 ha dating to the beginning of the period, but sites up to ten ha visible by the end (Danti 1997: 88-89).

In the Jabbul plains west of the Euphrates, the earliest third millennium was a time of settlement retrenchment with only five sites distributed broadly over this area, from the Nahr ed-Dhahab in the east to the dry steppe in the west (Schwartz et al. 2000a: 449). The mid to late third millennium, however, sees a proliferation of sites (47), including the foundation of Umm el-Marra, a 25 ha urban centre. Two secondary towns of five ha also emerged, along with eight communities two to three ha in size, although the majority of sites were under one hectare (Schwartz et al. 2000a: 450-451). Many of these were located in the drier east, suggesting moister climate conditions than at present, or a policy of agricultural maximisation. These sites are characterised by a caliciform assemblage and probably date from 2500-2200 BC (phase 4-5). Immediately south of the Jabbul Lake, Bernard Geyer has found an explosion of settlement in the mid-late third millennium in the arid zone below the 200 mm isohyet (Geyer 2001b: 58 and fig. 2).

Conclusion

For most of Northern Mesopotamia, the mid-third millennium saw a floruit of urban settlement. Throughout the entire area, settlement collapsed at the beginning of this period (phase 1). No survey indicated an increase in sites during the turn of the third millennium. The earliest evidence for an urban centre is the founding of Mari, at the beginning of phase 2. After this, urbanism spread across Northern Mesopotamia from the east, with large tells appearing first in the Eastern Jezira at ca. 2600 BC (phase 3) and then later in the west. The

[48] Berthold Einwag surveyed the steppe immediately to the north of Danti's survey, but published no information related to third millennium settlement patterns (Einwag 1993: 35-36).

majority of the *Kranzhügeln*, for instance, were founded a century or two after 2600 BC (phase 4). A similar pattern occurred along the Euphrates, where Banat Period III, 2450-2300 BC, saw this settlement transformed into an urban administrative centre. In the Jabbul plains, Umm el-Marra was founded at around 2500 BC. In some cases, urban settlements emerged even later. Sweyhat, for example, grew to its full size at approximately 2300 BC (phase 5). The end of Early Bronze Age urbanism also varied geographically, with the majority of the *Kranzhügeln*, including Tell Beydar, experiencing a substantial decrease in settlement during phase 5. In the East Jezira, on the other hand, abandonment ensued approximately a century later (phase 6, Chapter 4). Along the Upper Euphrates and in Northwest Syria, abandonment was delayed for probably another century, while the area around the Birecik dam in Turkey and on the Euphrates to the south near Sweyhat underwent a settlement increase.

In general, sites decrease in size as one travels west, with the major urban centre of the Jabbul plains only 25 ha in size, the size of subsidiary town in the East Jezira. Surveys in the East and West Jezira emphasise the large average size of settlements during this period, characterised by high tells (Wilkinson 2003). In the Jabbul plains, on the other hand, myriad agricultural villages were occupied (Schwartz et al. 2000a). This may reflect different land tenure practices in the two areas. Finally, not all surveyed areas shared in the Early Bronze Age prosperity. The area around Carchemish was a backwater during this period. Although the founding of Mari provides evidence for the importance of the Middle Euphrates during this time, few other settlements occurred along the river.

IV. From Villages to Planned Cities

The development of new forms of spatial organisation was one of the most basic transformations associated with urbanism in Northern Mesopotamia. The preceding study of settlement patterns illustrated this change in regional organisation. Settlement and the household organisation also shifted. Small, single-roomed houses yielded to a proliferation of house-types (Pfälzner 1997b, 2001b). Regular city plans emerged from the agglutination of small houses. Two types of city plans are attested during this period. East of the Euphrates, in the Jezira, the standard city had a platform-temple, palace and town square on the Acropolis, connected to outlying domestic quarters through radial streets (Dohmann-Pfälzner & Pfälzner 1996, 1999). The regular spacing of large cities in the east (located approximately 15 km apart, e.g.. Leilan, Aid, Farfara, Dumdum, Brak, Barri, Hamidiya) coincided with this development. West of the Euphrates, administrative buildings dominated

cities, with sparse domestic quarters. The arrangement of burial monuments, military forts and minor administrative centres in the west probably also followed a standard pattern (McClellan 1999).

These innovations appeared in phase 3 and reached full expression during the following two phases as the material expression of North Mesopotamian urbanism. Their development was part of "state formation". The emergence of new forms of property, like the standardisation of fields and pasture outside of settlements and the development of new concepts of territoriality were also imbricated in this process (Adams 1966) (Pfälzner 1997b; Zagarell 1986).

Neighbourhoods and City-Planning East of the Euphrates

Dynamics of property-ownership influenced the organisation of domestic quarters and common space within settlements. Evidence for the development of city planning and the state allocation of property during the mid-third millennium has emerged from intra-site surveys and horizontal excavations at urban settlements across Northern Mesopotamia at Bderi, Sweyhat, Titriş Höyük, Chuera, Mozan, Leilan and Taya.[49] Salvage excavations undertaken as part of the Eski Mosul and Habur dam projects during the last twenty-five years have revealed the spatial organisation of pre-urban settlements and illustrate how the urban revolution affected smaller, "non-urban" sites (Rova & Weiss 2003 and BCMS 21 (1991); Schwartz 1994c).

During phases 1 and 2, most houses contained only one or two rooms and were scattered throughout a settlement. The difficulty of excavating large horizontal exposures of this period on multi-period tells means that we have few examples of complete domestic architecture and none at all from large sites (>10 ha) from phase 1.[50] As a result, the preponderance of small, one-room houses during the entire Ninevite 5 sequence (Leilan IIIa-IIId, EJI-II) may be an artefact of limited excavation. Only Kutan and Mohammed Arab, both excavated as part of the Eski Mosul Dam Salvage project, have produced complete floor-plans of houses associated with Ninevite 5 painted and early incised pottery (phase 2) (Bachelot 1987, 2003; Roaf 2003: 318-320, fig. 14). These houses usually contain one room, although a few larger houses have also been excavated. Evidence for domestic architecture

[49] (Dohmann-Pfälzner & Pfälzner 1996: 1; Dohmann-Pfälzner & Pfälzner 2002; Matney & Algaze 1995; Meyer 2002; Pfälzner 1997b: 240-1; Reade 1973; Weiss 1990c; Zettler 1997b). Nineveh was also a large city with both a 40 ha Upper Town and an extensive Lower Town during the Ninevite 5 period (Stronach 1994: 92-93).
[50] I reject Pfälzner's interpretation of small, grill-plan buildings from this period as domestic architecture (Pfälzner 1997b: 242), interpreting them as granaries instead (Hole 1999: 275-276; Schwartz 1993/1994: 247; Wilhelm & Zaccagnini 1993: 21, Pl. V-VII).

associated with incised Ninevite 5 pottery (phase 2) is also sparse. At Tell Mohammed Arab levels C-E of the main sounding included one and two-room domestic houses with storage pits or grain bins (Roaf 2003: 318-320). At Raqa'i on the Middle Habur, small, one-or two-roomed houses without individual storage facilities may date to this period (Schwartz & Curvers 1992). Their small size suggests that they were the residences of nuclear families (Roaf 2003: 320) (fig. 3.7).

Excavations of non-domestic quarters and surface surveys at large towns and cities dating to phase 3 have produced evidence for city planning coincident with the emergence of urban sites (fig. 3.8, Meyer 2002; Weiss 1990c: 189-206, Abb. 3). Fortification walls encircled the lower towns or high mounds of most Northern Mesopotamia cities. Defensive works of this kind have been excavated at Leilan (Ristvet 2002b), Beydar (Lebeau 1997), Mozan (Buccellati & Kelly-Buccellati 1988: 61), Hamoukar (Ur 2002b), Chuera (Novak 1995; Orthmann 1986: 62-3) and Bderi (Pfälzner 1988: 236-8; Pfälzner 1997b). These long-occupied central mounds contained administrative architecture and public space, including evidence for palaces, temples and open spaces (Pfälzner 1997b). Some domestic housing lined the streets that connected these precincts to their lower towns (Dohmann-Pfälzner & Pfälzner 1996, 2002). The majority of domestic housing, however, was located in the lower towns (fig. 3.9, Weiss 1990c). There is also evidence for green space—brick pits or garden plots—in lower towns, including the distinctive moats around the high mound of the *Kranzhügeln* (Meyer 2002).

Two house-types were common during this period in Northern Mesopotamia; allotment houses, the typical "urban" house-type of phases 3 and 4, appear for the first time (fig. 3.10),[51] while the one-room houses typical of the earlier third millennium continue to be built in smaller communities like Raqa'i (Schwartz & Curvers 1992: 401-404). These two house-forms, representing different property relationships and community structures, indicate that pre-urban societal elements continued to flourish in early states. Allotment houses at Chuera, Bderi and Tell Abū Hafūr were built to a standard size and placed along planned streets (Kolinski 2000a: 43-44; Pfälzner 2001b). Peter Pfälzner has shown that the length of the faces of these allotment houses was standardised according to the Babylonian *nindan* measure (Pfälzner 1997b: 249, Abb. 8). Allotment houses contain individual storage facilities, including space for storage vessels, storage bins and storage pits (Pfälzner 2001b; Pfälzner 2002: 274-275). Houses 2 and 3 from level 4 at Abū Hafūr are the earliest examples

[51] Contra Pfälzner 1997 who dates these houses to the following phase.

of regular-sized "allotment houses" with front dimensions of 7.7 and 6m respectively, or 1.25 and 1 *nindan* (Kolinski 2000a: 43-4, fn. 43).[52] Analysis of the botanical remains from household storage rooms at Tell Bderi shows that cereal crops were harvested close to the ground and not threshed or cleaned before storage, suggesting that grain stored in such places derived from individual household fields and was not supplied by a central authority (Pfälzner 2002: 278-279). The standardisation of allotment house lots and the evidence for individual, rather than communal storage may reflect the introduction of private land-ownership to Northern Mesopotamia (Pfälzner 2002: 278). The long life span of these houses and the creation of family tombs also argue for the increased value of urban real estate. Excavations at Melebiya, Bderi and Chuera have documented numerous renovations of the same house (Lebeau 1996; Pfälzner 2001b). In Southern Mesopotamia, such building activity resulted from the operation of partitive inheritance, which may have affected property in the north as well.

Excavations at Raqa'i have documented village houses during this period. In level 4, small two-room houses clustered around the "Rounded Building", the communal/public structure of this tiny (.4 hectare) settlement (Pfälzner 1997b: 248; Schwartz 1994c: 21-23). The Rounded Building, a large-scale storage facility, lay at both the literal and metaphorical centre of this village. The simple architecture and evidence for communal storage imply an egalitarian community with communal ownership of grain and hence land, in contrast to the situation in the nascent urban centres of this period (Pfälzner 1997b: 273-274; Pfälzner 2002).

During the beginning of the following period, phase 4, allotment houses remained in use at Bderi and at Chuera. At Tell Leilan, a complete house excavated in the Lower Town South is dated to this period (fig. 3.11). The length of the house's front is 10m, or 2 *nindan*, although it differs in plan from allotment houses found elsewhere. The main room of this house featured a hearth and a plastered work-area, while a small enclosure in the northern part of this room served for storage. North of the main room lay a small storage room. Two larger rooms were set in the back of the house. Fortuitously, this house was destroyed by fire, preserving most of its contents (Weiss 1990c). In Chuera, houses 3 and 4 from phases 8-5c have been characterised as allotment houses. These houses featured narrow entry-ways and water-drainage channels that discharged into the street (Dohmann-Pfälzner & Pfälzner 1996).

[52] The numerous parallels between the pottery retrieved from Tell Abū Hafūr, layer 4 and Tell ar-Raqa'i 3, suggest that these levels both date to phase 3. Compare the pottery illustrated in Kolinski 2000: fig. 6 and 7 with that from (Curvers & Schwartz 1990: fig. 21) and appendix 1.

The latter part of this phase saw a diversification of house-plans, perhaps in accordance with the emergence of different professions and classes. Excavations during the last twenty years in Syria have revealed an enormous number of house-plans belonging to this period at Beydar, Brak, Melebiya, Bderi and Chuera. Pfälzner has suggested that the three house-types at Bderi—*Zeilenhäuser, Kuppelhäuser* and *Doppelbogenhäuser*—belonged to semi-sedentary pastoralists, agricultural landowners and landless labourers and artisans respectively (Pfälzner 2001b: 374-376). Excavations elsewhere in Northern Mesopotamia have also revealed a wide variety of ground plans, probably due to an increasing disparity of wealth; a relaxation of central control; and a general diversification of socio-economic organisation (Pfälzner 1997b: 254).

During phase 5, settlement was reorganised. Several cities were either abandoned, or became ceremonial/burial locales devoid of domestic habitation. At Chuera, Brak and Taya, elite houses belonging to this period have been excavated in sparsely settled quarters, leading Pfälzner to characterise this as a period of gradual depopulation. In Chuera's *Bereich* E, one sumptuous house—*Steinbau* V—was built atop the remains of three houses from the previous period (Pfälzner 1997b: 260). Part of another large house dating to the beginning of phase 5 at Arbid had a sherd paved courtyard, storerooms and reception rooms. Other, smaller houses were built up against it (Bielínski 1998: 213-215; Bielínski 1999: 283). House W1—the "mansion" at Taya is dated to late in this period (Reade 1971: 96). In contrast, excavations at Leilan, Mozan, Brak and Ğassa al-Garbi have revealed small, closely-packed houses (Dohmann-Pfälzner & Pfälzner 2001: 110; Oates et al. 2001: 61-62; Pfälzner 2001b: 106; Senior 1998: 512). Increasing disparities in wealth and living standards among urban residents probably explain the wide divergences in housing during this period.

Town Morphology along the Euphrates and in Western Syria

Excavations at the largest sites along the Upper Euphrates and in Western Syria indicate that cities in these areas were administrative centres with small residential populations, in contrast to the densely populated cities of Northern Mesopotamia and the Middle Euphrates. Upper Euphrates salvage excavations (particularly the extensive excavations at Tell Banat) indicate that this pattern is not an artefact of the archaeological bias towards monumental architecture to the exclusion of domestic housing. Smaller central places like Hadidi, however, were densely settled (Meyer 1996: 136).

In general, Syrian houses became larger over time, as single-roomed dwellings dating to the early third millennium yielded to large domiciles following the urbanisation of this

area. During phases 1 and 2, the few small villages in Western Syria contained one-room houses and pit houses, probably occupied by settled farmers and semi-sedentary pastoralists respectively, with little evidence of social stratification (Schwartz 1994a: 164, fn. 5). Examples of this house type from phase 1 (3000-2900 BC), featuring one or two room houses with courtyards, have been excavated at phase A at the tiny hamlet of Hajji Ibrahim (Danti 1997, 2000). At nearby Sweyhat, other single-roomed houses belonging to phase 2 have been exposed. At the western edge of the early third millennium village, a small, oval subterranean pit-house, like those built by semi-sedentary pastoralists in the recent past, has been found (Danti & Zettler 2004). At Halawa, single-room houses clustered around a cultic precinct date to this period (Pfälzner 2001b: 395).

During phases 3-5 house-types at Banat, Sweyhat, Mari and Umm el-Marra were elaborated. At Tell Banat, a pottery manufacturing area, in which industrial production and domestic architecture existed side-by-side, covered 2 ha of this site at 2500 BC (Porter 2000: 317). In the following phase, a separation occurred at Banat between domestic and industrial space (Porter 2000: 331; Porter & McClellan 1998). At Sweyhat, a magnetometric survey and associated excavations in the lower town have revealed several large houses with stone foundations, although no complete ground plans have been recovered (Zettler 1997b). At Mari, the large *Maison Rouge* was built south-east of the Ninni-zaza temple during phase 4 (Parrot 1953). Another domestic quarter (Chantier F) was located east of the Ištar temple during this phase (Margueron 1987). At Umm el-Marra, recent excavations have uncovered several levels of mid-late third millennium architecture, probably corresponding to phases 4 and 5 (EBIV). The architecture for both was fragmentary, generally consisting of stone substructures without mudbrick superstructures. The earlier phase contained the remains of two houses (seven rooms were exposed), while in the later phase the southern house had been abandoned and turned into a midden (Schwartz et al. 2000a: 423 and fig. 3). During both phases, pits containing apotropaic figurines were dug beneath the floor (Schwartz et al. 2000a: 424-425).[53]

The relative paucity of domestic architecture at Banat and Ebla parallels the information from cuneiform sources. The Ebla archives and excavations suggest that Ebla's palace was literally identical to the city (Archi 1992: 25; Pinnock 2001). At both Banat and Sweyhat, domestic occupation was a late development. At Banat, the construction of monumental funerary installations, temples, administrative buildings and extensive industrial

[53] An extension of this area in 1999-2000 revealed more domestic architecture (Schwartz et al. 2003: 327).

areas preceded the construction of permanent domestic architecture (Porter 2000: 331). Porter has hypothesised that semi-sedentary pastoralists were responsible for the initial construction at Banat and used the site for centuries without settling down (Porter 2002: 452-454). At Sweyhat, the acropolis contained substantial public architecture and was fortified in the early-mid third millennium, while the residential neighbourhoods in Sweyhat's lower town were built a century later (Danti & Zettler 2004). As in Banat, Sweyhat's cultic and administrative functions long preceded its "urbanisation".

V. Landscapes of Fields and Pasture

The emergence of the state in Northern Mesopotamia coincided with a focus on surplus production. Faunal and archaeobotanical analyses suggest that early states across Northern Mesopotamia extensified their agricultural base, incorporating more land into subsistence strategies. In the marginal zones, faunal analysis shows a new emphasis on the exploitation of domestic animals and the evolution of specialised sheep and goat pastoralism (Porter 2000: 450; Zeder 1998a). In the humid zones, archaeobotanical analysis indicates that cities extended their fields into previously unexploited steppe (Wetterstrom 2003). We will explore the evidence for pastoralism in the south and west Habur plains during the mid-third millennium BC and the evidence for the extensification of agriculture during this period in the Northern Habur plains. Finally, we will discuss the inter-relationship of these two developments and their implications.

Inventing Pastoralism

The capitals of the three major kingdoms of the late third millennium—Ebla (Mardih), Mari (Hariri) and Nagar (Brak)—were all gateway cities, located in areas marginal for agriculture, where pastoral resources were critical. The majority of the 2500 plus tablets found at Ebla—the best documented Northern Mesopotamian centre—is devoted to the circulation of textiles.[54] The overwhelming reliance on sheep at Ebla encourages us to integrate pastoral systems into our model of Northern Mesopotamian agriculture. A diachronic study of changing human interaction with the environment along the Middle Habur and in the Jebel 'abd-al-Aziz has documented the establishment of specialised pastoralism in the steppe.[55] It suggests that communities emphasising sheep and goat pastoralism in the steppe were part of

[54] Of the texts so far published, ARET I, IV, and VIII deal solely with textiles, while large numbers of the texts published in ARET II, III, and VII also concern textiles. See (Archi & Biga 1982: 21) for the proportion of texts belonging to different functional categories in the main archive, L. 2769).
[55] (Hole N.D.; Hole & Kouchoukos N.D.; McCorriston 1995, 1997; McCorriston & Weisberg 2002; Zeder 1994, 1998a; Zeder & Arter 1993).

a new system of specialised production. Further evidence from the Beydar tablets, excavations at Beydar and Brak and ecofactual studies along the Upper Euphrates support this hypothesis. The innovative relationship between specialised settlements, traditional farming villages and nascent urban centres transformed the economy of Northern Mesopotamia.

The Middle Habur and the Jebel 'Abd-al-Aziz

Salvage excavations along the Middle Habur incorporated wide spread archaeobotanical and zooarchaeological analyses into regional survey and excavations (Hole N.D.; Zeder et al. 2000). Both the zooarchaeological and archaeobotanical projects produced evidence that a full-blown pastoral economy emerged here between 2700-2400 BC.

Faunal analysis of fourth millennium sites on the Middle Habur and around Hasaka documents an emphasis on hunting. Over 70% of the bones retrieved at Umm Qseir on the Middle Euphrates derive from wild animals; onager was the major meat source (Zeder 1994: 113). The excavators have suggested that this site was a locus for exchange between local populations and Southern Mesopotamians, used only sporadically, as a pastoral/hunting encampment (Hole & Johnson 1986-1987; Zeder 1994: 112-13). At Kuran, a site north of Hasaka, a lens of densely packed gazelle bones, representing more than 200 animals, was retrieved from deposits dated to 3200 BC (Zeder 1998c: 574). This evidence indicates that game was abundant and people exploited it heavily during the fourth millennium BC.

In contrast to this emphasis on hunting, the third millennium faunal evidence from a range of sites along the Middle Habur, illustrates that a new subsistence strategy focused on sheep and goat herding had developed by 2600-2500 BC (phase 3). Faunal analysis of occupational levels from Mashnaqa and Bderi, two small-medium size sites along the Middle Habur, dated to 2500 and 2600 BC respectively, shows a decrease in the ratio of wild to domestic species, with wild species representing just 10% of each sample. These sites showed an overwhelming reliance on ovicaprids, with sheep and goat making up 86% of the sample at Bderi and 80% at Mashnaqa (see Becker 1988 for an analysis of the Bderi 1985 material; Zeder 1995: 29; Zeder 1998c: 578). Analysis of faunal samples from the late-mid third millennium at 'Atij, Raqa'i, Ziyadeh and Gudeda shows a steady decline in the percentage of wild species and a concurrent rise in sheep and goat. At 'Atij, the percentage of sheep-goat rose from 32% in levels 13-10 (dated to ca. 3000-2900 BC) to 66% in levels 6-1 (dated to ca. 2700-2600 BC). Evidence from Ziyadeh and Gudeda confirms this doubling

of the proportion of sheep and goat from the early-third millennium BC (Zeder, unpublished manuscripts cited in Kouchoukos 1998: 408).

The results of the archaeobotanical analysis undertaken at the Middle Habur sites support this theory. The proportion of barley and barley-processing debris in these small sites is dramatically higher than at sites in the North Jezira or at earlier sites (McCorriston 1998: 48; McCorriston & Weisberg 2002: fig. 3). At Tell Raqa'i, ca. 50% of midden samples was made up of barley-processing debris, while at 'Atij 25% of the samples were. Dry-farming and steppe-weeds are ubiquitous in the assemblages at these sites and in other Middle Habur farming villages. Since seeds in midden samples generally come from burnt dung, these plant remains tell us what domestic animals ate. The presence of barley debris and grain, often used for fodder and a mixture of dry-farming and steppe-weeds imply that animals grazed on the nearby steppe and in fallow fields and were hand-fed barley when forage was scarce (McCorriston 1998: 50). Joy McCorriston proposes that the occupants of these sites "used broad space narrowly—they focused on a specialised herding and foddering strategy that exploited steppe and river while integrating their lives into a broader economic framework across northern Mesopotamia" (McCorriston 1998: 51).

By combining the zooarchaeological and palaeobotanical data with evidence of settlement, we can reconstruct how social relations of land changed over this millennium. During the mid-late fourth millennium BC, the Jebel 'abd-al-Aziz was completely uninhabited, while only a few temporary sites (like Umm Qseir) were scattered along the Habur River. At ca. 2900 BC, several small villages were founded near the river. In all, 22 sites, most of which were under five ha, were occupied between 2900 and 2600 BC (Monchambert 1983, 1984a, 1984b). Several temporary sites under one hectare in the Jebel 'Abd-al-Aziz also date to 2900-2600 BC (EJI-II) (Kouchoukos 1998: 393) (see section II, above). From 2600-2300 BC (EJIIIa), most of these sites were abandoned; population was centralised into a few large sites, like Bderi (ca. six ha) and Melebiya (perhaps 15 ha) (Lebeau 1993; Pfälzner 1986-97, 1986-1987, 1988). The faunal remains from Bderi dating to EJIII (phase 4) indicate that pastoralism remained important (Becker 1988). At the same time, *Kranzhügeln*, urban sites with smaller accompanying communities, were founded in the Jebel 'abd-al-Aziz (Kouchoukos 1998: Table 7.4, 412). Studies of the potential agricultural sustaining areas of the *Kranzhügeln* show that they could not support the thousands of people who lived in these cities (Kouchoukos 1998: 393-4). Like the earlier settlements along the Middle Habur, the *Kranzhügel*'s citizens must have relied upon pastoral resources.

Feeding a Kranzhügel

Archaeological and textual data from Tell Chuera and Tell Beydar (both *Kranzhügeln*) also indicate the importance of sheep and goat pastoralism for these early urban centres. A comparison between the late third millennium faunal assemblages from Beydar (EJIIIa-IV) and the late Chalcolithic remains from a nearby site showed that the percentage of ovicaprids increased during the third millennium from 71.1-83% (Van Neer & De Cupere 2000: Table 22). A reconstruction of the age profiles of the ovicaprids implies that the Beydar shepherds emphasised the exploitation of secondary products like milk and wool (Van Neer & De Cupere 2000: 84). Analysis of faunal remains from a domestic area and a temple at Chuera found high percentages of sheep and goat bones, 65% and 70% respectively (Boessneck 1988). As at Beydar, reconstructed age profiles document a shift from the meat-producing economies typical of the late Chalcolithic period to secondary-product production during the third millennium BC (Vila 1996).

The archaeological evidence for wool production coincides with evidence for herd management from the Beydar archives (Pruss & Sallaberger 2004). Sixty-two Beydar tablets (29%) document the administration of sheep, goats or their products (Ismail et al. 1996; Milano et al. 2004). At Beydar, the price for commodities is documented in wool fleeces (sigi bar), sheep skins (kuš udu) and grain, emphasising the pastoral foundations of the economy (Beydar 4 and 6 in Van Lerberghe 1996: 112). Information from four sets of tablets allows the reconstruction of pastoral administration at Beydar. First, eighteen tablets comprise an official census of sheep herds taken at the time of "plucking" (shearing) (Beydar 118, 151-167 Sallaberger 2004: 13-14). Second, nine tablets document the quantity of wool collected at this time (Beydar 50, 51, 56, 60, 61, 82, 95, 103 and 118 in Van Lerberghe 1996). Third, six tablets and eight bullae pertain to deliveries of ewes, goat-skins, or fleeces from various shepherds.[56] Fourth, six tablets record the foddering and care of sheep, or the sacrifice of specially fattened sheep during holidays.

The Beydar tablets list eighteen men in control of sheep herds and twelve men in control of goat herds. Understanding the relationship of these men to the political economy of Beydar is difficult, as no word for shepherd is attested in the Beydar documentation. The term *ba-rí* udu would seem to mean shepherd, given its etymology (Sallaberger 1996: 94), but none of the names designated *ba-rí* udu in the ration lists correspond with those of the men in charge of flocks (Sallaberger 2004: 18). Approximately 140 *ba-rí* udu are documented in the personnel lists and grain expenditure tablets, where they receive the

[56] (Beydar 4, 6, 21, 70, 117, 130, 173, 175-176, 186, 192-195, 210 in Sallaberger 2004: 15-17).

second highest share of rations. In one list (Beydar 3), they appear as agricultural workers and are listed as members of the plough-team for each dependent town (Beydar 3 in Van Lerberghe 1996: Table 2), although Walter Sallaberger suggests that their relationship to the plough team may relate to the allotment of fields for pasture following the harvest. In both the personnel lists and the grain expenditure documents, they are listed in apposition to the lú ğiš-DU apin, the agricultural workforce, making it possible that this term "not (only) designates[s] the profession of shepherd, but [also] the members of a social group living on animal husbandry" (Sallaberger 2004: 18). If the *ba-rí* udu were the pastoral segment of the population, then they lived firmly under the thumb of the state. The Beydar texts demonstrate the state's extensive oversight of large sheep and goat herds.

The 30 shepherds listed in the texts were each in charge of a flock of 210 sheep or 300 goats, quantities that correlate with the ideal sizes of such flocks (Sallaberger 2004: 18). During most of the year they were probably responsible for pasturing the sheep outside of the settlement, perhaps on the high basalt plateau directly east of Beydar (Sallaberger & Ur 2004: 66). During the spring, in the month of Šamaš, the wool from all the sheep belonging to the palace was collected at one central location. Administrative officials took a census of the animals belonging to each shepherd and also recorded the number of wool fleeces that each flock produced. A cautious estimate of the number of sheep owned by Nabada, based on the average size of herds in the texts as well as the number of attested herdsmen, is 7400 (Sallaberger 2004: 20). The ratio of wethers to ewes suggests that herd stability and wool production were priorities. The high numbers of ewes attest to an interest in procreation and flock management. Flocks of exclusively female goats were probably kept for milk production, although milk is never listed as a commodity in the texts. The high number of skins of male goats listed in texts 4 (>1000) and 70, shows that they were "slaughtered in large numbers" (Sallaberger 2004: 20). It is possible to reconstruct a scenario whereby the Beydar institution hired the shepherds to care for the sheep during the year and required them to provide a set amount of wool and lambs, similar to the situation at Old Babylonian Larsa (Kraus 1966).

Pastoralism along the Euphrates and to the West

Archaeobotanical and faunal analyses at Hajji Ibrahim and Sweyhat on the Euphrates and Umm el-Marra in the Jabbul plain between the Euphrates and Aleppo, also suggest the development of specialised pastoralism during the third millennium BC in the Ebla region. Ecofactual data from Hajji Ibrahim, a phase 1 hamlet on the steppe east of the Euphrates,

document a diversified village economy, with little emphasis on sheep pastoralism. Only 36% of the identified animal bones belonged to sheep or goat, with high percentages of pig (17%) and cow (11.5%) (Weber 1997). The archaeobotanical remains from the site are consistent with an economy "where domestic subsistence production required smaller numbers of animals and devoted agricultural land to (human) food production" (Miller 1997b: 104). Excavation revealed a few houses and a grain silo; it seems likely that Hajji Ibrahim was a small, self-sufficient hamlet, where grain was stored on a community basis.[57]

Faunal analysis at nearby Sweyhat indicates increased reliance on sheep and goat pastoralism over the course of the third millennium BC in concert with the growth of this site from 5-45 ha (Buitenhuis 1983: 138; Weber 1997; Zettler 1997a: 4). In contrast to Hajji Ibrahim, pigs are not present at Sweyhat (Weber 1997: 136). Botanical analysis supports this scenario. High weed seed to cereal ratios, which indicate an emphasis on steppe-grazing rather than foddering, suggest pastoral intensification (Miller 1997a: 128). Since the Sweyhat survey documents agricultural intensification during the same period (Wilkinson 1982), the narrow floodplain may have been intensively farmed, while the nearby steppe was used for pasturage (Miller 1997b: 103).

Umm el-Marra, by contrast, was founded during the mid-third millennium (phase 4) as an urban site (Schwartz et al. 2000b). Like Sweyhat, faunal analysis points to the importance of steppe resources, particularly sheep-goat pastoralism (65% of all bones) and equid hunting (13%). Very few pig or cow remains have been identified from any of the EBA contexts (Schwartz et al. 2000b: Table 2). In contrast, archaeobotanical samples document a lower weed to cereal ratio than at Sweyhat, suggesting a greater emphasis on farming. Flocks either grazed field stubble or were foddered (Schwartz et al. 2000b: 446).

The Ebla archives only document state- or elite-administered animal breeding; there are no references to any ethnically distinct pastoral nomads (Milano 1995: 1222).[58] The pastoral component of the state economy was significant. The king's herds numbered as

[57] Although the excavator interprets the site as a specialised storage facility for pastoralists (Danti 1997: 91-92; Danti 2000), this is a hard thesis to maintain in light of the botanical and faunal evidence, particularly the high percentages of pig.

[58] The presence of tribally-organised pastoralism at Ebla is subject to debate. Soon after the discovery of the archives, the existence of the toponym MAR.TU in the Ebla documentation prompted scholars to assume a significant Amorite presence at Ebla (Van Driel 1997-2000: 96). Further evidence revealed that Martu was the name of a village near Ebla, not a tribal group (Astour 1992: 54-55; Buccellati 1992; Milano 1995: 1222) More recently, Pelio Fronzaroli has proposed that the terms Kam_4-mu and da-mu relate to kinship terminology of "semi-nomad family groups" (Fronzaroli 1998: 112). Nevertheless, within the Ebla documents, the Kam_4-mu were "high-ranking personages and officials" who are mentioned in the context of diplomatic journeys as well as the regulation of irrigation waters—not with regard to flocks or grazing rights (Compare the attestations in Fronzaroli 1998).

many as 67,000 sheep, which grazed in the *kur* beyond the settled periphery of the cities, while textile manufacture comprised one of the central activities administered by the palace (Archi 1992). Nevertheless, there are few references to the actual administration of the herds (Renger 1987).

Extensifying Agriculture: The Case of the East Jezira

In the Eastern Jezira, phases 2 and 3 witnessed a different form of economic intensification. Palaeobotanical and survey data suggest that land under cultivation increased to include previously unexploited marginal areas. Decreasing ratios of sheep and goat bones indicate a new emphasis on sedentary agriculture and pig husbandry (Weiss et al. N.D.; Zeder 1998b). The Eastern Jezira settlement patterns, which record the increasing exploitation of marginal zones (section II), also document this process of agricultural extensification. Geomorphological surveys have uncovered evidence for canal enlargement (and supplementary irrigation) near Leilan (Weiss et al. 1993) and for manuring elsewhere in Northern Iraq and Syria (Wilkinson 1994).[59] Both of these techniques intensified economic production by increasing agricultural yields. Palaeobotanical and zooarchaeological evidence have been analysed from Leilan, Mozan and Brak.[60] These sites differ in material culture, settlement trajectory, ecological setting and even ethnic affiliation. However, they all occur above the 250mm rainfall isohyet, in areas where dry-farming dominates pastoralism.

At Leilan, palaeobotanical samples from all five phases allow us to reconstruct changes in agriculture during the third millennium (Weiss et al. 1993; Wetterstrom 2003). These samples come from a variety of contexts—storerooms, storage jars, middens and ovens—and were incorporated into the archaeological record in different ways. By analysing these depositional processes and identifying the provenience of the carbonised seeds, we can reconstruct diachronic shifts in farming and animal husbandry.

Three samples from phases 1 and 2 document agricultural practices prior to state formation. Two samples date to phase 1 at Tell Leilan. One sample originates from ash deposits associated with an oven, while the other comes from a burnt storage area (Wetterstrom 2003: 388). The first sample represents the by-products of the hand-cleaning of a wheat-crop, which was then used as fodder, with the resulting dung burnt for fuel. The presence of *prosopsis* seeds in the sample, an important fodder for sheep and goats during

[59] But see the discussion of manuring in chapter 1, IV, a.
[60] Melinda Zeder has also analysed faunal samples from Kashkashok and Abu Hafur, located south of Brak (Zeder 1998c).

summer, strongly hints that most of the plant remains in this level come from dung (Wetterstrom 2003: 388-389). The second sample represents grain and legumes stored in a semi-clean state, with almost no by-products from cleaning a crop. Along with cleaned durum, cleaned barley and semi-cleaned emmer wheat, this storehouse contained large quantities of lentils (Wetterstrom 2003: 389, tables 1-2). The small size of the sounding means that the exact archaeological context of this sample is unclear, although it is probably a small storeroom attached to a house (Mayo & Weiss 2003). The phase 2 sample also comes from ash deposits associated with an oven and consists of by-products of cereal-cleaning and weed seeds. Generally, the archaeobotanical evidence suggests that farmers during the Ninevite 5 period followed a diversified strategy, planting almost equal ratios of barley, glume wheat and free-threshing wheat in order to benefit from the different growing requirements for each plant (Wetterstrom 2003: 390).

Institutional storerooms on the Acropolis and a private house in the Lower Town have produced archaeobotanical samples from phase 3.[61] An analysis of middens associated with the institutional storerooms on the Acropolis through five building levels, all dated to Leilan IIId, shows a dramatic fall in the ratio of moist to dry indicator weeds. This probably documents the extension of agriculture from moist areas, such as wadi banks, to the drier plains. The appearance of new weed varieties in the terminal IIId storeroom suggests changes in "farming practices, harvesting methods or grazing patterns" (Chernoff & Paley 1998; Wetterstrom 2003: 391-392). An increase in the ratio of barley to wheat suggests that barley was planted in the drier soils, while a mixture of durum, emmer and barley continued to be sown in well-watered fields (Wetterstrom 2003: 392).

Evidence from phases 4 and 5 attest to state control of agriculture. Samples from private houses in the Lower Town show that barley predominates over wheat (Weiss et al. N.D.). Very low ratios of cereal to chaff from the Lower Town imply that houses here received pre-cleaned cereal stores, probably from a central storehouse. At the same time, the high ratios of pulse-seeds, absent from samples taken on the Acropolis, suggest that these houses supplemented cereal rations with private sector agriculture (Wetterstrom N.D.). Remains from a series of three burnt storerooms, adjoining a courtyard and a cultic platform in an elaborate ritual quarter on the Acropolis provide evidence for a central storehouse (Weiss 1997a). Room 1 of this storehouse was a specialised barley grain bin, with a thick layer of clean, charred barley grains on the floor. The other two rooms contained jars filled

[61] Palaeobotanical samples from this period from the city-gate are being analysed by Dominique de Moulins.

with durum and emmer wheat; straw was also stored in this quarter (Weiss et al. N.D.). East of the cultic platform, stored grain retrieved from jars lying on the floor of a phase 5 food-processing area showed the continued predominance of cleaned barley over wheat (4.5:1, with low proportion of chaff and rachises) (deMoulins 2001). Meanwhile, soil micromorphological sections taken of the Wadi Jarrah suggest that the inhabitants of Tell Leilan built irrigation channels to stabilise wadi flow (Weiss et al. 1993: 999).

The evidence for state intervention in agriculture contrasts with data suggesting that household pig-rearing provided meat for the non-elite population of Leilan. An analysis of faunal remains from housing in the Lower Town exhibits an increase in pig percentages from phases 3-5. During the Leilan IIId settlement (phase 3), ratios were equally split between pig (33%), sheep and goat (32%) and cattle (29%). By the first architectural IIb phase in the Lower Town South, the percentage of pig bones had increased to 47%; they rose to 63% in the final phase. Where age could be determined, 86% derived from infants or juveniles. The complete remains of two piglets suggests they were raised in sties in the Lower Town (Weiss et al. 1993: fn 30). Since pig-raising is rarely subject to state control, domestic animal-husbandry probably contributed an important part of the diet (Zeder 1998b). Faunal analysis in the cultic quarter demonstrates that Leilan elites had access to large quantities of sheep and goat. Ovicaprids comprised 62% of the Acropolis sample, compared to pig, 22% and cattle, 8% (Zeder 1995: 29; Zeder 1998c: 574) . This disparity suggests either that the elite and non-elite populations had substantially different diets, or that sheep and goat were important in a ritual context.

Analysed archaeobotanical samples from Ninevite 5, pre-Akkadian and Akkadian excavated contexts at Tell Brak show similar trends of agricultural extensification and intensification (Charles & Bogard 2001; Colledge 2003). Ratios of barley to wheat increased from the Ninevite 5 to the Akkadian periods. A correspondence analysis plot of the relationships between cereal taxa over time demonstrates clear differences between the two periods (Colledge 2003: Figure 11.10). An analysis of weed taxa also exhibits how the ratio of steppe-weeds to moist-area weeds increased over time. Sue Colledge interprets this pattern as "an indication of a greater use of fallowing, of the expansion of fields into the steppe or of the degradation of the land at the time" (Colledge 2003: 411). Samples taken from phases 4-5 (Late Early Dynastic and Akkadian, Brak L-M) show that different crops were used in private houses and public areas. Small, hand-cleaned pots of grain were stored in individual houses during the late ED period, probably for the day-to-day consumption of the household. These houses also contained pots full of pulses—peas and lentils—as well as

the storage of crop by-products like straw which may have been used as fuel (Charles & Bogard 2001: 320). No pulses have been found in the Akkadian public area, providing evidence that public-sector barley production existed alongside a household sector (Charles & Bogard 2001: 325).

Ratios of different animal species at Brak may also mirror the public-private distribution seen at Leilan. An analysis of bones from Ninevite V and late third millennium domestic buildings at Brak has demonstrated increasing percentages of pig, which reach 50% during the Akkadian period (Dobney et al. 2003: Fig. 12.1-12.2). Analysis of kill-off patterns show that most pigs were slaughtered young in order to maximise pork production (Dobney et al. 2003: 421). Sheep age profiles, on the other hand, indicate patterns consistent with a focus on wool production (Dobney et al. 2003: 428-429). The Brak evidence also shows disparity between private and elite provisioning. Analysis of faunal evidence from Akkadian levels in operation FS, a public building, exhibit higher percentages of sheep and goat (60%) and lower percentages of pig (25%) (Weber 2001: 346-347).

Two palaeobotanical samples dating to the mid-late third millennium from Mozan imply that this city followed a different agricultural strategy. At Mozan, the only published palaeobotanical samples for this period came from excavations along the city wall. Bread wheat comprises the majority of both samples, 93%, with low quantities of einkorn and wild barley (Galvin 1988). Giorgio Buccellati has hypothesised that Mozan's real hinterland was the Tur 'Abdin, not the dry-farming plains to the south. Access to these mountains coupled with the verdant plains immediately adjacent to the site gave Mozan both agricultural and pastoral opportunities, along with access to natural resources like timber, stone and metal (Buccellati 1999: 241-242). Given the proximity of the mountains, herders from the Mozan region may have practised vertical transhumance. Such factors suggest that Mozan had a different economy from the other cities of the North Mesopotamian plain.

Land Ownership in The East and the West

The evidence for land tenure and land use in the third millennium BC comes from Ebla in the west and Gasur in the east. There is no evidence from any site actually within the Habur plains. A bulla from Beydar (203) found in the 1999 season may record the yield from a field of a certain size, but this is interpretation is tentative (Milano et al. 2004: 113). As a result, any reconstruction of land-ownership in the Habur plains must rely on analogies drawn from the Ebla and Gasur evidence, supported by archaeological observation. Despite the

hypothetical nature of these conclusions, they will provide a probable framework for economic relations in the third millennium BC.

The evidence for land tenure from Ebla consists of roughly 100 texts (Archi 1986; Fronzaroli 1989; Lafont 1998; Milano 1996; Renger 1987; Zaccagnini 1981). The immovable property discussed in these texts falls into five main categories: 1) land ceded (permanently or semi-permanently) to palace employees or relatives of the king[62], 2) land ceded temporarily to palace employees in return for service, 3) land ceded to administrators for the subsistence of palace employees, 4) land directly administered by the palace and 5) land directly owned and administered by villages. Land ceded to palace dependants, whether it falls in either of the first two categories, vastly outweighs in quantity and importance the land directly managed by the palace. Land given to palace personnel was carefully documented in cadastres, where it was listed by either the profession of the recipients or region. Land grants of this nature generally consisted of arable fields, although vineyards and olive groves are also mentioned (Milano 1996: 137-138). Category 3 is the least straightforward. These fields are termed gána kú or "sustenance fields" and are often listed together according to class of recipient. Guruš, ur_x-functionaries, high functionaries and members of the royal family received fields of a standard size, either 200 or 400 gána-ki[63]. The palace supplied the administrators/owners of these fields with the seed, animals and forage necessary for a high yield. This yield was then given directly to the recipients. TM.75.G.552, for example "enumerates nine administrators (na-se_{11}), each of whom must draw his subsistence (kú) from fields belonging to another person" (Milano 1996: 138). Texts pertaining to category four, fields directly owned and administered by the palace, include lists of seed for the fields and rations for agricultural personnel. Palace records registered barley yields from palace-owned villages and farms, subdividing the harvest into seeding, forage and ration quotas (še-numun, še kú, še-ba) (Milano 1996: 140). TM.75.G.188 lists palace-owned fields totalling 16,000 gána-ki in area, equal to 940 ha, probably located in the immediate environs of Ebla (Milano 1996: 142). The final category—land owned and

[62] Fields, farms and villages could be inherited. Several juridical sanctions found in the main archives at Ebla relate to permanent property concessions. These include TM.75.G.2395, which discusses the Tiša-Lim's dowry of property on the occasion of her marriage to Imâr-ENzi-Damu, the king of Emar; and TM.75.G.1452 and TM.75.G.1430 which record large concessions to palace personnel. Such permanent donations were probably unusual, as they required an extra level of administration.

[63] The standard unit of land measurement at Ebla was the gána-kešda-ki. Based on seeding to harvest rations, Lucio Milano has suggested that this unit corresponded to approximately 1/6 of an iku, or .588m^2 (.0588 of a hectare) (Milano 1987a: 187).

administered by private persons outside of the palace organisation—is the least well documented.

The division of the countryside around Ebla into these five categories of immovables created a complicated pattern of land distribution. Generally, the king and high officials owned several dispersed fields and villages. TM.75.G.1439+ lists fields ranging in size from 100 to more than 2,000 gána-kešda-ki, situated in the hinterlands of nearly 60 different villages, which belonged to four different officials: Enkilu (32,000 gána), Dubu-Išar (19, 160 gána), Iriba (30, 600 gána), X-NI-um (4,720 gána), for a total of 86, 650 gána.[64] As in later periods, the holdings of large property owners were fragmented. The variable status of many villages suggests that these holdings were also discontinuous, with some land belonging to palace or absentee owners and the rest divided among the villagers.

The Sargonic texts from Gasur come from the archive of a state-owned agricultural estate (Foster 1987: 89). A prosopographical study allows us to assign people into three groups: grain producers, outside administrators and ration recipients (Foster 1987: 105). Seventy-four producers held large parcels of land, ranging in size from 100 to 18,000 apin-lá. Several producers received more than one parcel. Ili-Mešum, U'ili and Puzuzu, who work together received four different parcels in one text (15) (Gasur 15 in Foster 1987: 91-93). This suggests that, as at Ebla, the arable of Gasur formed a patchwork, with dispersed land holdings. Each producer received the seed needed to sow his holdings from the estate office (Foster 1987: 93-94). The estate office also filed receipts of harvested and threshed grain from each of these farmers (Foster 1987: 94). Foster speculates that the majority of these farmers may have been "free citizens of the community leasing parcels of land from the estate", since they do not appear on the ration lists (Foster 1987: 105). In the texts, the estate administrators possessed specific titles, received "prepared food" and special rations and probably took advantage of their access to the barley surplus of the estate to lend grain at usurious rates (Foster 1987: 96, 105). The largest group documented in the texts are the consumers, who receive cleaned rations of barley from royal storehouses. Some of the ration recipients may have been fulfilling limited service to the crown, as the phrase "grain rations for... personnel (of) 1 day" demonstrates. Others may have been attached personnel who regularly received rations (Foster 1987: 102). The final category of texts documents the fulfilment of éš-gàr, described by Foster as "that portion of the estate's resources or produce

[64] Also see TM.75.G.1992 (Milano 1996: 142, fn. 61).

that was owed to the crown" (Foster 1987: 103) Different personnel from all three groups are attested in the éš-gàr documents.

Archaeological and survey evidence indicates that several different land tenure and pasturage regimes were in operation. The Leilan survey area probably contained agricultural estates during the Akkadian period, like the one documented for Gasur. The Naram-Sin palace at Brak contained several courtyards and storage rooms and was probably designed as an agricultural clearing-house, where grain from disparate state-owned fields could be gathered (Mallowan 1944). As at Ebla and elsewhere in Mesopotamia, the legal status of land probably differed. The large average size of sites and the degree of settlement centralisation both suggest non-contiguous holdings, similar to the pattern displayed at Ebla. The high rates of settlement continuity may also have led to more fractured land holdings on an individual level, given the operation of partitive inheritance. This continuity would also have produced a strong corporate identity for the village. As in later periods, village institutions were probably responsible for the division of land, as well as other agricultural decisions—like which land should lie fallow; which land would be common land, etc (Diakonoff 1969 (1949): 207).

Agriculture, Pastoralism and the Rise of the State

Ecofactual and textual evidence from a variety of third millennium sites suggest that individual settlements specialised in agricultural and pastoral intensification. Wilkinson and Ur have calculated that there was little land available for pasture in the entire Northern Jezira above the modern 250 mm isohyet during the mid-late third millennium BC, based on the high numbers of occupied tells (Wilkinson 2003). The evidence for large stable villages does suggest that much of this land was under cultivation, but a more detailed look at any area of the Northern Jezira reveals areas which were probably used for pasture, such as the basalt plateau east of Mohammed Diyab or the Hisham plateau west of Tell Beydar. Nonetheless, the steppe-land along the Middle Habur remained an important resource for the flocks of northern cities. The city-states and kingdoms that emerged in the mid third millennium BC united farmers and pastoralists.

Archaeological and textual data from the kingdom of Nagar illustrate some of the complexities of uniting these two systems to provision a kingdom. Faunal analysis implies that the majority of meat consumed domestically at Brak (Nagar) came from pigs. These animals could be easily and cheaply raised in courtyards and then slaughtered to provide meat for the family. As Brak pursued a strategy of agricultural intensification, seeding the drier

land outside of the wadi flood plains, less land was left for pasturage. Perhaps as a result, smaller centres located within the boundaries of the kingdom of Nagar, such as Beydar and Kashkashok, specialised in sheep herding. Beydar's location adjacent to a pastoral resource may explain the emphasis on wool-processing and sheep-herding there. The deposition of sheep and goat bones in public contexts at Brak suggests that mutton consumption was important for reasons of status or ritual. Slaughtering lambs and kids may have ritually unified farmers, administrators and craftsmen with the pastoralists in the steppe. Alternatively, or concurrently, sheep consumption in public or ritual contexts could have emphasised links to traditional practices, like sheep and goat rearing which had yielded to agricultural intensification and pig-rearing in urban contexts. The elite preference for lamb at Šehna suggests a similar scenario for this kingdom, where ritual consumption of lamb connected the city with herders living in the steppe to the south. Strategies of power may have necessitated the integration of pastoral products, at least symbolically, into the political life of this city.

VI. Landscapes of Leadership: Communalism and Kingship

Two, seemingly opposed, ruling institutions—the "king" and "the elders"—emerge from textual and archaeological evidence for the third millennium. Studies of the political foundations of the North Mesopotamian state have contrasted the exclusionary and corporate power wielded by these bodies. Archaeologists and historians have long described Ninevite 5 pre-state societies as chiefdoms (Matthews 2003b; Schwartz 1985, 1987, 1994a), defined as "societies in which local communities are integrated within a single polity presided over by a paramount chief and an accompanying ruling aristocracy" (Schwartz 1994a: 155).[65] The White Room Building at Gawra (Level XII, LC I, 4500-4300 BC) has been interpreted as a chief's residence. It thus provides a long prehistory for exclusionary secular power in Northern Mesopotamia (Dolce 1998; Rothman 2002). Some scholars have even posited the North Mesopotamian, or at least Kish civilisation, origins of the palace and kingship (Postgate 1994a: 141; Weiss 1990a). Likewise, new syntheses of third millennium archaeological evidence and second millennium textual evidence have situated the emergence

[65] The new anthropological historicism of the 1980s and 1990s has led most anthropologists to reject the application of anthropological analogies to neo-evolutionary archaeological theories (cf. Tierney 2000; Wilmsen 1989). Chiefdoms have been particularly subject to criticism (Rothman 1994: 3; Yoffee 1993; Yoffee 2005: 22-41). Yoffee has argued that any theoretical discussions of such societal, political, and economic transformations in Southern Mesopotamia, should rely instead on textual evidence from the better-known historical period, to correct for archaeological over-simplification, or the over-application of neo-evolutionary anthropological concepts (Yoffee 2005).

of politics in Greater Mesopotamia within the exercise of corporate power (Fleming 2004a; Porter 2000, 2002). Porter has conceptualised the appearance of the state along the Euphrates in terms of tribalism and communal power, a situation which she contrasts to the growth of states in dry-farming Upper Mesopotamia (Porter 2002). Daniel Fleming has reconsidered the evidence for "primitive democracy" in Mesopotamia in his study of Mari and Emar (Fleming 2002, 2004a).[66] Both Porter's and Fleming's discussions of corporate power rely upon analogies drawn from work on communal power in early state settings in Mesoamerica and Africa (Blanton 1998; Blanton et al. 1996; McIntosh 1999a, b).

Throughout the third millennium BC, the power of the commune and the power of the king were in constant conflict. On the one hand, kings gained power from careful use of communality, on the other, the communal institutions behind kingship wielded strong influence. Tension between political ideologies emphasising communality and individuality required the creation of social structures that allowed for the continued functioning of society. We will explore the terminology of rulership preserved in the cuneiform texts of Ebla, Mari and Beydar to elucidate emic concepts of power. We will also evaluate the expression of both individual and communal power through analysis of civic architecture, storage facilities and burial customs.

The King and the Assembly

Texts from Ebla, Beydar and Mari refer to two political institutions: the king and the assembly, although the terms used for these institutions vary. At both Ebla and Nagar the "EN" is the paramount leader, while at Mari, as in South Mesopotamia, "LUGAL" is used (Archi 1987; Ismail et al. 1996). In all three cities, however, the Sumerogram "KA.UKKEN" describes an assembly with political power.[67] At Ebla, ABxÁŠ (or ÁBBA.ÁBBA), usually translated as "elders", also designates a communal institution.[68] We will review the use of these terms in order to explicate the division of political power in Northern Mesopotamia before the Akkadian period.

The main political figure in the Ebla texts is the EN, or in Ebalite, *malikum*. In contrast, LUGAL names the high functionaries of this state. Ebla texts also refer to the king

[66] Fleming's study reworks Thorkild Jacobsen's model of primitive democracy (Jacobsen 1970).
[67] KA.UKKEN is glossed in the vocabolario d'Ebla as *da-da-mu*, and related to *tâtamum* in Mari Old Babylonian (Durand 1989).
[68] G. Pettinato's defines ÁBBA.ÁBBA as "responsabile, capo" in the *Thesaurus inscriptionum eblaicorum*, noting "il lessema e stato tradotto sinore, sulla base di G. Pettinato, ma erroneamente, con "Anziano." Alfonso Archi 's review of this work, however, argues that the definition of "anziano" should be retained (Archi 1997-1998: 275). I thank Gonzalo Rubio for this reference.

of Nagar as EN, as do the new texts from Tell Beydar (Archi 1998; Ismail et al. 1996). However, the title LUGAL designates the kings of Mari and Kish in Ebla texts that detail gifts for foreign kings. Alfonso Archi suggests that the use of the two Sumerograms correspond to two different Semitic words, *šarrum* and *malikum* (Archi 1987: 38-39). The correlation between Ebla and Beydar in this instance suggests a shared cultural heritage with respect to leadership terminology.

Despite the near omnipresence of the term EN in the Ebla documentation, the actual operation of kingship at Ebla remains contested and probably incorporated both corporate and exclusionary elements. ENs and *maliktum*s (queens) are almost never mentioned by name at Ebla, but are known only by title, while the important officials Ibrium, Ar-ennum and Ibbi-zikir are known only by name, never by title. The actual relationship of these powerful men to the king remains unclear. Ibrium, for example, demands an enormous land grant from the king (TM.75.G.1444). The king not only honours this request, but swears never to renege on this agreement (Astour 1992: 25). Similarly, administrative documents often link the king with the elders. The first entries in the palace ration lists from Ebla alternate between provisions for the king and for the king and the elders.[69] As Lucio Milano comments, "obviously one has to suppose that the mention of the "elders" is often implied by the single entry "king" (Milano 1987b: 522). The corporate nature of the term "EN" at Ebla has encouraged some to reject an exclusionary kingship model (Biga & Pomponio 1987; Michalowski 1988). Instead, "kingship" was probably held by a plurality of individuals, perhaps within an extended family (Porter 2000: 254). The EN and the *maliktum* may have been figureheads for a collective entity, which was the supreme authority.

At Nagar, the texts hint that collective authority played the dominant political role. In the pre-Sargonic texts from Beydar, an assembly of (local) kings (UKKEN EN EN), which includes the king of Nagar, is the main attested institution (Beydar 106). Ebla textile tablets list gifts to "kings" without countries in the region around Nagar, probably pastoral chiefs (TM.75.G.2465 r. V 25-VI 3 in Archi 1987: fn 9). The city of Nabada (Beydar) did not have an EN. Instead a council of elders probably governed the town, under the aegis of the king of Nagar (Beydar 86).[70]

[69] For example TM.75.G.445 1-3: 1 *mi-at* 20 še bar/ninda en/wa ABxÁŠ, also TM.75.G.266, TM.75.G.229, TM.75.G.299, TM.75.G.325, etc. (Milano 1987b: 538-9; Milano 1990)/

[70] The term "KA.UKKEN" is rare in the Ebla texts. Its one occurrence also refers to an assembly of kings. ARET 3.732 VII: 1-5: "šu-[x-(x)]/ kaskal lú KA.UKKEN/ en en/ 1 túg-NI.NI 2 *gú-li-lum* 6 gín DILMUN 2 NI kù-gi/níg-ba ^{d}⌜*ku*⌝-[*ra*]/⌜1⌝.

Jean-Marie Durand has suggested that KA.UKKEN corresponds to the *tâtamum* of the Mari documentation. At Tuttul and Imar, the *tâtamum/tahtamum* was a collective composed of people who assembled to consider legal, economic and political affairs (Durand 1989: 37). This institution was probably a council of elders, rather than a popular assembly. We know of other cases in which such councils alternated with kingship. During Yahdun-Lim's reign, a Ben-yaminite king ruled Tuttul, while during Zimri-Lim's a *tâtamum* reigned (Durand 1989: 38).

The related term KA.UNKEN occurs in a cultic context in the Mari pre-Sargonic texts. Here the plural noun DINGIR.DINGIR—the gods—modifies the assembly. This assembly of the gods received offerings (*gitium*) of spelt and bread in three different texts (Charpin 1987a: no.7, 8 and 12). Although one could contend that this was a purely religious institution, an analysis of texts no. 8 and no. 12 argues otherwise. In no. 8, KA.UNKEN dingir dinger is listed with some divine names, but also with the É LUGAL— the house of the king. Similarly, in no. 12, KA.UNKEN dingir-dingir is the only divine entry. Grain is destined for the É-GAL (the palace) and the É-A-AN. Rather than a purely divine institution, the KA.UKKEN DINGIR.DINGIR may be an assembly of ancestral kings, not gods. An Ebla administrative text records offerings to dead kings and queens. The recipients are listed by the divine determinative and their name or as DINGIR EN.EN (divine kings).[71] The assembly of the gods at Mari may have been the past tense of the assembly of kings attested elsewhere.

The Ebla texts also testify to the presence of other political institutions in Northern Mesopotamia. The kingdom of Lu'atum located along the Upper Euphrates was ruled by a group of elders, designated "ÁBBA-ÁBBA" before it was incorporated into the kingdom of Ebla (Milano & Rova 2000: 722-723).[72] Another group of city-states located in the upper Balikh valley and the foothills of the Taurus were ruled by *badalum* officials, not ENs (Milano & Rova 2000: 731), while a plurality of kings (EN-EN) ruled Armi, Azu, Ibal and Manuwat (Archi 1987: 42).

The terminology of the Pre-Sargonic texts currently available from Northern Mesopotamia highlights the complexities of individual and communal leadership. At Ebla and Nagar, the kings participate in communal leadership; the decision-making apparatus either includes a significant collateral element, as at Ebla, or takes a collective form, as at

[71](Archi 1988b: ARET VII. 150l obv. III: 6 and rev. III:2). For ancestor traditions at Ebla see (Archi 1988a: 109; For an opposing view see Porter 2000: 225-231; Schmidt 1995: 24).

[72] It is tempting to associate Tell Banat with Lu'atum, given its large size, position on the Upper Euphrates, and long communal tradition.

Beydar/Nabada. Similarly, outside of these kingdoms, many of the city-states of Northern Syro-Mesopotamia exhibit different forms of collective leadership. Although we cannot delineate the actual spheres of operation of these forms of government, their plurality suggests a political landscape, the complexity of which may be masked by our own, modern and sometimes simplistic notions of "kingship" (Michalowski 1988: 267-268; Porter 2000: 254-256).

Loci of Power

In a recent exploration of political landscapes, Smith argues that:

> More than any other of the social sciences, archaeological perspectives on political life must directly confront the difficulties posed by understanding authority through places—in the ruins of built environments, distribution of artefacts and images of town and country (Smith 2003a).

The presence of monumental architecture, often defined as the construction of palaces or temples that showcase the power of an elite, has been cited as a characteristic that distinguishes states from other political entities. Mesopotamian texts also testify to the exercise of communal power at city gates, town squares and assembly-buildings (Ristvet 2002b). We will examine the archaeological evidence for the changing loci of leadership over the course of the third millennium in order to delineate the relationship between exclusive and communal power with regard to the appearance of early states.

We have no evidence for secular administrative architecture in Northern Mesopotamia from phases 1-2. Despite the characterisation of these societies as chiefdoms, no chiefly residences or other secular centres of chiefly power have been found (Forest 2003; Roaf 2000, 2003). Instead, all excavated non-domestic buildings were religious in nature—the platforms, towers and mausolea which make up Tell Hazna 1 (see below, VIII, Munchaev & Merpert 2002); the platform at Fisna (Numoto 2003); and one-room shrines at Mari, Raqa'i and Brak.[73] Roger Matthews has suggested that the architecture of these one-room shrines relates to issues of restricted power: "public access to the presence of gods may have been controlled, if permitted at all, by a cadre of mediators, whom we can call priests, whose status was rooted in this control over access to a limited and very special resource: divine blessing" (Matthews 2002: 190; Matthews 2003b). Human, horse and cart figurines found in courtyards adjacent to these temples probably pertain to indigenous religious rituals (Matthews 2003b: 107). The presence of seal impressions inside and adjacent to the level 5,

[73] These are generally identified as such by their architecture, specifically the placement of their entrances and the presence of altars, platforms or benches (Matthews 2002: 186-188).

HS4 temple altar at Tell Brak indicates the administrative control practised by temple officials over outside offerings (Matthews 2002: 190).

Small soundings of later third millennium palaces at Ebla and Leilan have revealed secular administrative architecture dating to the mid-third millennium in Northern Mesopotamia (phase 3). At Ebla, excavations beneath Palace G have exposed its mid-third millennium predecessor, Building G2. The excavated portions of building G2 consist of a storage facility, possibly "a modest precursor to Palace G" (Astour 1992; Mazzoni 1991; Schwartz 1994a: 164).[74] At Tell Leilan, excavations on the Acropolis Northwest have revealed a series of storage rooms, covering at least 300m^2 which are associated with a 150m^2 platform dating to 2600 BC (Calderone & Weiss 2003; Weiss 1997b). These two activity areas almost certainly comprised the western quarter of an administrative building, a predecessor to the Akkadian building now under excavation.

Phase 4 and 5 palaces combine several elements found in earlier "public architecture". Palaces at Beydar, Chuera, Bi'a, Mozan, Leilan, Ebla and Mari included storerooms, reception suites and temples. Joachim Bretschneider and Greta Jans have suggested that the numerous similarities between the palaces at Beydar, Chuera and Bi'a prove that a standardised ground plan for palace construction already existed by 2400 BC (fig. 3.12, Bretschneider & Jans 1997: 86; cf. Porter 2000: 340). All three palaces were constructed on multiple levels with a staircase leading to a reception suite located in the centre of the palace. Bathrooms complete with water-drainage systems were located near this suite in all three palaces (Bretschneider & Jans 1997: 80-1). The excavators interpret the Beydar palace's southern quarter—a niched room containing a podium or altar and more water installations—as a sacral space.

Administrative buildings with sacred quarters have also been found at Mozan, Leilan and Mari. Although the palace at Mozan dates to the Akkadian period (phase 5), its parallels to earlier North Mesopotamian palaces suggest little deviation from a common North Mesopotamian ground plan. At both Mozan and Leilan, for example, palaces abut platforms containing burnt altars, with associated mortuary structures and water installations. At Mozan, the stone platform was constructed along with a keyhole-shaped stone structure that enclosed a deep shaft where offerings had been deposited. Marilyn Kelly-Buccellati interprets this construction as an *abi,* a Hurrian "passage to the netherworld" based on the evidence of a later bilingual Hurrian and Hittite ritual text (Kelly-Buccellati 2002). At

[74] But note that Paolo Matthiae concludes that this excavation revealed "large well-made silos, but no trace of palatial structures" (Matthiae 1991).

Leilan, an ossuary is located in a similar position southeast of the platform (Weiss 1997b). The *Palais Présargonique* at Mari also includes cultic installations in the south of the palace (Margueron 1993).

Freestanding temples of this period have also been excavated at Mari, Beydar and Mozan. The temples at Mari and Beydar are located close to these cities' palaces; both institutions probably comprised one public district. A one-room temple dated to the middle of the third millennium crowns the highest point of the mound at Mozan, next to an open "town square"(Buccellati & Kelly-Buccellati 1995; Dohmann-Pfälzner & Pfälzner 1999: 26). Bretschneider has suggested that the platform and stairway leading up to the public sector at Tell Beydar was "lined with temples...creating a monumental entrance for visiting dignitaries and the elaborate processions accompanying them" (Bretschneider 2002). The relationship between temples and palaces in the mid-third millennium in Northern Mesopotamia thus differs greatly from that in Southern Mesopotamia, where they were spatially segregated (Oppenheim 1977).

Communal architecture—town squares, city gates and *tahtamum* buildings—also proliferated during phases 4 and 5. Magnetometric survey has revealed that both Tell Mozan and Tell Chuera possessed large open areas in their centres. The midden deposits located near these open spaces at Chuera and Mozan suggest that feasts or other public festivals were celebrated here.[75] South of the cultic platform in the Leilan Acropolis Northwest lay another large open "green space"—which probably served a similar function (Weiss 1997b). The excavation at the northern city gate at Tell Leilan exposed architecture associated with administrative artefacts dating from 2600-2200 BC (Ristvet 2002b). In the Beydar and Ebla tablet, city quarters were designated by "city gates" (Astour 1992: 44; Ismail et al. 1996), suggesting that these areas comprised part of the administration of the city. In the treaty between Ebla and Abarsal, dependencies are characterised as BÀD. BÀD—fortresses, using the Sumerian term for city wall (Edzard 1992: 192). In later Mesopotamian documents, the city gate is one place where the city assembly meets (references in Ristvet 2002a). Finally, excavations at Sweyhat revealed a phase 5 structure, decorated with wall-paintings, that was possibly "a gathering place for the elders of the city" (Danti & Zettler 2004). At Tell Halawa

[75] Contra Pfälzner for Chuera (Dohmann-Pfälzner & Pfälzner 1996: 1996) . The relationship between the temple and the open space at Mozan suggests that this was a settlement focus, despite (or rather, because of) its lack of architecture (Dohmann-Pfälzner & Pfälzner 1999: 39)

B, a "sacral quarter" contained a series of small buildings atop mudbrick platforms perhaps connected with communal leadership.[76]

Excavations of political places mirror the ambiguity attested in the third millennium documentation with regard to exclusive and communal authority. Just as the very institution of "royalty" at Ebla included multiple powerful actors—untitled "viziers", elders and other members of the royal family—"palaces" in Northern Mesopotamia housed both single and communal leaders. The reception suite in the Beydar palace, for example, was remodelled during the course of phase 4. In the beginning of this phase, a podium was attested in the "throne-room", but when this area was rebuilt, no new podium was erected. The lack of a proper "throne-room" in the final phase at Beydar, has led the excavator to propose that this building now functioned as a community institution (Sallaberger & Ur 2004). This echoes the situation in the Beydar tablets, where the only local authority attested at Beydar is either the "council of the chiefs", or the five main officials who authorise the disbursement of rations to people in Nabada's periphery (Ur 2004: 252-253). The excavators of Tell Banat have not characterised the successive public buildings (6 and 7) uncovered in Area C as a palace or a temple. These buildings had stone foundations and were built on multiple levels, like contemporary palaces in the east. In both cases a mudbrick platform lay to the south of these constructions. Meanwhile, building 7 was constructed atop "White Monument 3", a communal burial structure that preceded the construction of the more famous White Monument at this site (see below, section VI). Directly east lay the monumental tomb 7 which incorporated both individual and communal burial traditions during the course of the mid-late third millennium (Porter 2000: 323-324). Given the unusual nature of the archaeological remains at Tell Banat, with their emphasis on communality and the lack of evidence for altars or a throne-room, this building may have been a space where local communal authority was delineated, like the smaller assembly buildings at Halawa and Sweyhat. Its similarities to other palaces and temples in Northern Mesopotamia underscore the complexity of the exercise of power in this region.

Storage Facilities

The dearth of monumental, specialised religious or political architecture in the early and mid-third millennium in Northern Mesopotamia (phases 1-3) corresponds to an abundance of specialised large-scale storage facilities. Storage facilities have been interpreted as evidence

[76] These may date to either phase 3 or phase 4, Porter prefers the earlier phase, while Lüth dates these platforms slightly later (Lüth 1989; Porter 2000).

of both individual (Schwartz 1987, 1994c) and communal authority (Pfälzner 2002). The ambiguity pervading these interpretations reflects an inherent ambiguity in these constructions, which could belong to an individual or a community. Throughout the third millennium, chiefs, elders and townspeople probably disputed the control of grain surplus. Storage facilities thus served as loci for the expression of all forms of political power.

Granaries have been excavated at villages in Northern Iraq and along the Syrian Middle Habur. At Mohammed Arab, Karrana 3 and Siyana in the Eski Mosul region, small granaries dating to the Terminal Uruk or Transitional Ninevite 5 were recovered (phase 1) (Roaf 2000; Schwartz 1987). These rectangular buildings had substructures characterised by parallel walls beneath a reed matting floor surface upon which grain was strewn and stored in ceramic vessels. The grill substructure allowed the circulation of air beneath the grain, keeping it dry and preventing spoilage (Roaf 2003). The same general plan was used for the larger granary at Telul-eth-Thalathat, which measured 18X6 m in area, some centuries later (Telul-eth-Thalathat IV, Leilan IIIb-c, ca. 2800-2600) (Numoto 1997; Rova 2003). Along the Middle Habur, the earliest architectural levels (phase 2) at Ziyadeh, 'Atij, Raqa'i and Kneidij include grill-structure buildings with reed mat floors, probably granaries (Hole 1999; cf. Pfälzner 1997b). During phase 3, large semi-vaulted silos at 'Atij, Kerma and Raqa'i replace them (Hole 1999).

The interpretation of the meaning and utility of these structures has resulted in diametrically opposed reconstructions of the economy of Ninevite 5 communities. Schwartz argues that since large-scale storage of surplus is a hallmark of political complexity, "a large centralised facility such as the granary at Thalathat... would imply a system of staple collection by the rulers of a complex chiefdom or an early state" (Schwartz 1987: 96). In contrast, Pfälzner hypothesises that the large-scale granaries and identical one-room houses of Raqa'i correspond to communal storage in an unranked village society (Pfälzner 2002). In the absence of related architecture at Telul-eth-Thalathat V, it is difficult to argue for or against the presence of chiefly legitimation based on staple storage. The lack of recent horizontal excavations of early Ninevite 5 levels at large sites must caution our arguments.

Much of this discussion has focused on the storage buildings and silos excavated on the Middle Habur, which have a capacity in excess of the needs of the local population (Schwartz & Curvers 1992). Archaeologists have proposed two hypotheses for the construction of these storage facilities: first, that grain originating either here or further north was sent to Mari (Fortin 1998; Margueron 1991: 81; Schwartz 1994c) and second, that the grain was consumed by local populations, including semi-sedentary herders and/or their

flocks (Fortin 2001; Hole 1991, 1999; Kouchoukos 1998; McCorriston 1998; Pfälzner 2001b). In the first scenario, these settlements shipped grain down the Habur to the Nahr Dawrin, a transportation canal dated to the early third millennium (Geyer et al. 2003: 250; Margueron 2000: 106-7). Middle Habur storage facilities, the related administrative buildings (like the Rounded Building at Raqa'i) and the "administrative artefacts" like cylinder sealings and clay tallies found in these sites may provide evidence of external administration that supports this thesis (Fortin 2000; Margueron 1991, 2000; Schwartz 1994a, c).

The second hypothesis argues that the storage buildings were both constructed and maintained for local use, although opinions vary as to the nature of this local use. Pfälzner has suggested that the Rounded Building at Raqa'i represented communal storage for this settled village, which had a strongly collective identity (Pfälzner 1997b: 247; Pfälzner 2001b: 378). Hole and Kouchokos, on the other hand, have conjectured that Raqa'i, like numerous historically and ethnographically attested villages in Syria, was probably oriented towards the steppe and contained a sizable nomadic component (Hole 1991, 1999). Raqa'i's inhabitants may have lived half the year as farmers on the river and half the year as herders in the steppe; been divided into two distinct halves, one sedentary, one nomadic; or been sedentary with close-ties to neighbouring nomads (Hole 1999: 278-80). McCorriston has hypothesised that villagers stored barley, legumes and grain-processing debris to feed to animals during the summer as fodder (McCorriston 1995). The proponents of the local use scenario emphasise that administrative artefacts do not necessarily attest to long-distance trade. Numerical tablets and cylinder seals could have been used to regulate storage within a community or contact between pastoralists and farmers, just as stamp seals had since the late Neolithic in Northern Mesopotamia (Hole 1999).

I suspect that most of the grain stored in Middle Habur communities was consumed locally and that similar granaries occurred in a range of North Mesopotamian sites. Managing this storage required the use of administrative technology in the early third millennium BC for large and small communities. Due to the almost complete exposure of levels 3 and 4 (phases 2 and 3) at Raqa'i, we know more about the organisation of this village during the early third millennium than we do for any other site of the same date in Syria or Iraq. It might be impetuous to decry its organisation as atypical, as other excavations of this period have been generally small, deep soundings, revealing little detail.[77] The organisation

[77] Compare plans in Roaf 2003.

of Raqa'i, which suggests central allocation and distribution of both land and grain, may have been representative of small communities during the early-mid third millennium (and later). Its use of animal resources as a buffer against poor harvest years makes it typical of communities in marginal environments during all periods.

Emerging leaders in the early-mid third millennium probably struggled to assert their control over communal grain storage facilities. At both Ebla and Tell Leilan, grain silos and storage rooms dating to 2600 BC, were found beneath later palaces (fig. 3.13). In these cases, monumental grain storage preceded the emergence of the palace. By phases 4 and 5, the state sponsored the construction and controlled the use of granaries, as the construction of a granary in Beydar's lower town and the storage wings in the Beydar palace attest (Suleiman & Lebeau 2003). Communities in Northern Mesopotamia no doubt knew that charismatic individuals could seize control of granaries and use them to establish a power-base. The communal ideology which prompted the minimisation of status differences at Raqa'i was probably one technique used to diffuse this threat (Pfälzner 2002). The persistence of communal, or at least multiple lines of authority in cities, attests to a long-term concern with limiting individual access to power.

Graves, Wealth and Social Power

Burials articulate the place of the dead in a given society and interact with a range of socially constructed institutions, from inherited rank, to religious practices, to political legitimation.[78] In third millennium Northern Mesopotamia, the wide range of grave types and written evidence for ancestor traditions is particularly eloquent. Ritual activities celebrated by the living, such as feasting or sacrifices, accompanied and/or followed internment.[79] The association of communal graves and public buildings expressed the individual or communal exercise of power within these societies. Two major geographical divisions of burial practices existed in Northern Mesopotamia. East of the Euphrates, individual burials dominated this entire period, while along the Euphrates and in Northern Syria, both communal and individual burial traditions coexisted from at least the second quarter of the third millennium.

In the East Jezira, phase 1 burials were sparse, particularly high-status ones. Despite the difficulties of generalising from a small sample size and the uncertain dating of much of the evidence (excavated in the 1930s), we can divine a gradual increase in the number of

[78] See (Porter 2000; Whitley 2002) and the essays in (Campbell & Green 1995).
[79] (See references in Porter 2002; Toorn 1996: 48-65).

high-status burials (Bolt & Green 2003). At Chagar Bazar, early third millennium graves contained only simple inhumations, accompanied by a range of simple grave goods (Mallowan 1936, 1937; Schwartz 1986: 46 and Table 1:a). At Tell Leilan, two burials retrieved from phase 1 in operation 1 contained only a few associated vessels (Schwartz 1986: 50; Schwartz 1988). At Mohammed Arab, the excavation of a cemetery dating to the early part of this phase, produced a sample of 12 simple burials (Bolt & Green 2003: 522-523).

Beginning in phase 2, however, burials of high-ranking individuals have been recovered from Leilan, Rijm, Mohammed Arab, Kashkashok and Girnavaz (fig. 3.14). These individual graves contained a large number of high-quality goods to accompany the deceased on his journey into the netherworld. Associated vessels relating to funerary feasting were located either within or adjacent to the grave. At Tell Rijm, a man was buried with two sets of drinking vessels, comprising 28 cups arranged in painted pedestal bowls (Bielínski 2003: 493). At Tell Leilan, a grave built of mudbrick contained a flexed body wearing a carnelian bead and shell necklace, two copper pins, a cylinder seal and five vessels. A pit next to this grave contained 32 vessels, including sets of small cups and jars placed inside pedestalled bowls or larger bowls (Schwartz 1988: 22-25). Most of the smaller cups and bowls were decorated with Ninevite 5 incising, while the large pedestalled bowls and jars were painted and were probably "archaising funerary vessels... used within high status burial rites during the late Ninevite 5/Leilan III period" (Bolt & Green 2003: 525). At Mohammed Arab, grave 54V: 23 also had a brick superstructure and similar goods: three seals, three pins and pedestalled bowls with associated cups (Bolt & Green 2003: fig. 21). Some of the burials at Girnavaz date to this phase as well as phase 3 (Matthews 2003b: 125). Burials were placed both in pits and mudbrick cists accompanied by pottery vessels, metal vessels, weapons, jewellery and cylinder seals (Mellink 1991: 135). Jean-Daniel Forest has drawn parallels between the deposition of drinking vessels at Tell Rijm and a third millennium cemetery in the Hamrin, in which small hemispherical bowls were placed either within the tomb, or just outside of it, along with animal bones. He also notes that abundant deposits of small bowls mark inhumations further south at Khafajah and at Abu Salabikh (Forest 2003: 567; Pollock 2003: 26-27).

High-status burials from phases 3 to 5 have been recovered at Mozan, Beydar, Leilan and Girnavaz, while the large samples from Beydar and Girnavaz suggests that all graves became slightly richer during this period. Burials dating to phase 3 include a high status grave found in the North-eastern section of the Outer City at Tell Mozan. This tomb was

constructed of stone and contained over 100 vessels of Ninevite 5 and early Metallic ware, along with a few Jezira bichrome ware stands and an assortment of metal artefacts (Kelly-Buccellati 1990: 129-130).[80] High status burials in the cemetery at Girnavaz contained a similar assortment of grave goods (Erkanal 1991; Matthews 2003b). At Beydar, a corbelled Akkadian tomb was built into the ruins of the Early Dynastic place on the Acropolis and furnished with metal weapons and ornamentation, as well as crane skeletons. At Leilan, a small cemetery located southwest of the Acropolis contained richly furnished adult burials. (Pulhan 1996). Other, more prosaic burials come from under house floors and cemeteries outside of the city wall at Beydar. Although some of these graves contained mudbrick cists, the presence of architecture did not always correlate with richer goods (Bluard et al. 1997; Bretschneider 2003; Debruyne 2003). All of the graves at Beydar contained a single inhumation and most were accompanied by Jezira bichrome stands and drinking vessels (Lebeau 2003).

Evidence for burials in public or communal contexts appears during the same period. At Tell Leilan, an ossuary containing the bones of multiple individuals was uncovered next to the cultic platform and Acropolis Northwest "palace". This mortuary installation may have grounded the public building in a collective tradition. At Tell Mozan, the ritual "*abi*" structure probably served as a place of negotiation between the powers of the underworld and the secular government. At Tell Brak, ritual closures of the FS "caravanserai/ temple of Šamagan and the SS public quarter included the deposition of donkey, dog and human corpses along with metal riding paraphernalia" (Oates et al. 2001: 41, 90).

Individual burial traditions, then, are dominant in the North Jezira, with evidence for high status burials increasing over time. In some cases, as at Leilan, Beydar and Mozan, the placement of these burials near public buildings may serve to link these prominent individuals with political power. The evidence for drinking and feasting traditions associated with high status burials, whether it resulted from funeral feasts or the celebration of *kispum* ritual afterwards, suggest one method elites could use to unite the entire community. Collective burials consecrated public buildings, including both palaces and temples. The existence of such rituals links mortuary traditions east of the Euphrates with those of the west.

[80] This tomb may date to Phase 3 or 4; since the material has not been published in full, it is impossible to decide. On the presence of Jezira bichrome ware stands here (not Scarlet Ware as originally suggested), see (Lebeau 2003).

Excavations along the Euphrates have uncovered a dizzying array of both individual and communal burial traditions. Recent studies have argued that these different traditions represent not ethnic boundaries, but different articulations of a single ideology of death and ancestor creation (Porter 2000: 374).[81] The mortuary evidence from the Euphrates, which includes simple single graves, high-status graves, family tombs and mortuary monuments with associated defleshing grounds, illustrates the emergence of and struggle between corporate and exclusionary political authority. There are signs of a shifting balance over the course of the third millennium between these forces, with single graves or simple communal internments in the earlier period and more elaborately furnished graves and communal rituals surrounding these internments in the later period.

It is difficult to date the development of burial practices on the Euphrates, since much of our evidence comes from unstratified cemeteries at Tawi and in the Birecik Dam area (Peltenberg 2004). At Titriş, the extra-mural cemetery dates to the period before the urbanisation of this settlement. Following the growth of this city, graves were built on family plots in order to sanctify new property relations (Honca & Algaze 1998). Burials within these cemeteries occur in pit or mudbrick cist graves, similar to the eastern examples, although some shaft and chamber graves occur as well. The former generally contain a single inhumation, while the latter often contain multiple burial levels, with offerings, including cups, added over time (Porter 2000: 397).

Shaft and chamber graves are one example of the many communal burial types that have been found in this region. Communal burials occur at Halawa, Tawi, Hadidi, Titriş, Selenkahiye, Jerablus Tahtani, Umm el-Marra, Ahmar, Bi'a and Banat and include hypogea, shaft and chamber burials and other constructions which incorporate human bone (Carter & Parker 1995; Peltenberg 2004; Porter 2002). Multiple burials along the Euphrates probably shored up different ideologies. Constructions like the White Monument at Banat may have united the entire site, while hypogea like the famous example from Tell Ahmar, tomb 302 from Jerablus Tahtani, or the royal burials at Umm el-Marra were probably family tombs constructed for these settlements' elites (Peltenberg 1999; Porter 2002; Schwartz et al. 2003; Schwartz et al. 2000b). These tombs contained burial goods deposited at the inhumation and offerings made afterwards as part of ongoing mortuary rituals. Monumental above-ground tombs created a ritual landscape along the Euphrates and in Western Syria, from Gre Virike to Mari and west to Umm el-Marra.

[81] Contra (Carter & Parker 1995).

As in the east, communal ritual burials occur alongside public buildings. At Tell Bi'a, the association of the royal tombs and the "*Alte Palast"* illustrate "how the occupants of the overlying palace physically appropriated the ancestors and then further enforced exclusionary status by placing burials within the palace" (Peltenberg 2004; Strommenger & Kohlmeyer 2000). The relationship between building 7, White Monument 3 and Tomb 7 at Banat may illustrate a similar process of the appropriation of communal ancestor ideology by exclusionary kings (Porter 2002). Recent excavations at Tell Ahmar under the directorship of Guy Bunnens have revealed a public complex located immediately north of the hypogeum excavated by Thureau-Dangin (Bunnens 1999). Finally, excavations of Ebla's Palace G have revealed a stone-built "hypogeum" in the western part of the royal palace. Although this structure contained no burial, Paolo Matthiae has hypothesised that the kings of Ebla were buried in nearby structures beneath the palace (Matthiae 1997).

Despite the much greater elaboration of communal burial practices along the Euphrates, there are some elements that link traditions here to burial traditions in the east and elsewhere in Mesopotamia. First, in both areas quantities of cups and drinking vessels accompany burials. They probably derive from communal ceremonies at the time of inhumation or offerings afterwards. Second, the relationship between mortuary evidence and public structures in both places is similar. Along the Euphrates and in Western Syria, burials firmly ground public architecture in collective traditions; in the east, burials may have legitimated public construction. Third, some of the grave goods in both areas are similar; an example is the use of specific painted ceramic industries in burial contexts, including the use of Banded Euphrates Ware in the west, late Ninevite 5 Painted Ware and Jezira Bichrome Ware in the east and Scarlet Ware in the Hamrin. Finally, the role of equid burials at Banat, Umm el-Marra and Halawa recall the ritual deposition of donkeys in area FS at Brak.[82] Given the evidence for equids on cylinder seals in northern Mesopotamia and their emphasis in the Ebla tablets, equids may have comprised an important part of a pan-Mesopotamian ideology.

[82] They also recall burial 14 in area WF at Nippur, where seven individuals and four animals (one equid and three sheep) were buried in three stages, along with conical bowls, and a painted fine-ware jar, which the excavators interpret as a direct import from Northern Mesopotamia. This internment dates to the Akkadian period, and is thus contemporary with equid burials at Brak and Umm el-Marra (Gibson & McMahon 1996: 12-13).

Exclusive and Communal Authority

From the earliest period, both exclusive and inclusive architecture and ceremonies were part of life in these communities. The key aspect of the available evidence is this ambiguity—that is, the lack of a clear delineation between these forms of authority and the evidence that individuals and groups attempted to manipulate both sources of power. The evidence for feasting in both burial contexts and in the open spaces of the first cities suggests that communal ceremony played a focal role in the production of political power.[83] At the same time, the presence of elaborate graves belonging to a specific lineage and the elaboration of kingship and palaces, underline the exclusionary nature of the actual practice of rulership. Royal control of communal silos may have allowed for the construction of the first palaces at Leilan and Ebla. Along the Euphrates, in contrast, communal burial practices, reimagined as royal hypogea, preceded the construction of the first public buildings. Leadership may have remained a collective enterprise, involving the king and the elders, or councils of chiefs. Individual leaders and groups of leaders probably used both ideologies in order to gain power. As in the second millennium BC, collective assemblies may have alternated with kings in individual centres. The third millennium does not show the simple replacement of communal power by individual power, instead it illustrates the complex interplay between both types of authority.

VII. Landscapes of Communication

Northern Mesopotamian artists adopted Southern Mesopotamian glyptic motifs at approximately 2600 BC, coincident with the appearance of cities and states. Donald Matthews has termed the stylistic influence of Southern Mesopotamia "the dominant factor of Early Bronze Age glyptic" in Northern Syro-Mesopotamia, as far north as Titriş Höyük (Algaze & Misir 1992; Matthews 1997: 1-2). Schwartz has argued that we should interpret the adoption of Southern Mesopotamian styles in terms of the dynamics of Northern Mesopotamian societies:

> The adoption of southern Mesopotamian models for Ninevite 5 elite material culture precisely at the point when Ninevite 5 societal complexity was undergoing intensification is surely not without significance, [although it] need not imply a southern Mesopotamian causal role... the elites of less "sophisticated" societies often adopt the symbols of status and power of more

[83] For feasting, "commensality" and politics in Mesopotamia see the essays in (Joffe 1998a; Milano 1994; Pollock 2003), for other archaeological and ethnographic discussions of feasting and drinking see (Bray 2003; Dietler 1990; Dietler & Hayden 2001; Sherratt 1997).

> prestigious groups in order to "absorb some of their charisma" (Schwartz 1994a: 165).

We will present the evidence for the adoption of Southern imagery in Northern Mesopotamian art and iconography over the course of the third millennium BC and discuss the significance of this borrowing.

South Mesopotamian imagery appeared during phase 3, concurrent with the urbanisation of North Mesopotamia. This shift in imagery coincided with a shift in sealing activities (Marchetti 1996: 94; Parayre 2003: 277-278). In phases 1 and 2, the majority of seal impressions recovered in Syria were related to the Piedmont, or glazed steatite style, which was common from Iranian Sistan to Northeast Syria (Collon 2003; Marchetti 1996; Parayre 2003; Pittman 1994). These seals exhibited geometric and occasionally figurative motifs and were affixed to baskets or other containers. Their distribution throughout this area has been attributed to informal trading networks, linking Iran, Syria and the Tigris, while excluding Southern Mesopotamia (Marchetti 1996: 101). In phase 3, banquet and contest motifs, borrowed from South Mesopotamian sealings (EDII) suddenly became popular.[84] Although clearly related to Early Dynastic glyptic, these scenes were reinterpreted in a new framework, which included the use of western Syrian models. As Donald Matthews states,

> The Leilan IIId impressions are not ignorant provincial imitations of southern models, but belong to a new hybrid style. The [development of the hybrid] Chuera Style therefore indicates that state formation occurred in eastern Syria not through the impositions of a foreign model, but through indigenous processes which, admittedly conscious of cultural inferiority, selected what was required from at least two foreign sources (Matthews 1997: 196-197).

Simultaneously, the scope of sealing activities increased and seals were applied to containers, door pegs and clay strips. During phase 4, this style developed further with regional variations at Brak, Chuera and Ebla. The Brak and Ebla styles remained in use during phase 5, particularly in private contexts, although Akkadian seals, directly imported from the South, largely supplanted them in authoritative contexts by the end of this period (Matthews 1997: 179).

What symbols and scenes were adapted from South Mesopotamia by North Mesopotamian artists and the emerging elite who supported them? The two most popular "Southern Mesopotamia" themes were banquet and contest scenes. These were combined with different Syrian motifs: the man with raised arms, fish, birds, scorpions and rosettes (fig.

[84] Two seals from Chuera and Girnavaz may be direct South Mesopotamian imports, although the majority of seals are of local manufacture (Marchetti 1998: 131).

3.15). Such hybridism characterises the seals retrieved from the Leilan IIId storeroom on the Acropolis and the City Gate (McCarthy N.D.; Parayre 2003), as well as the slightly later Chuera sealings, which Donald Matthews assigns to one trans-Jezira style (Matthews 1997: 115). Banquet and contest scenes dominate Northern Mesopotamian third millennium glyptic; these two themes are constantly reimagined and depicted in myriad styles.

Both themes echo cultural practices already present in the north during the Ninevite 5 period. The banquet scenes, with their focus on communal drinking, recall the deposition of cups in elite graves during phase 3 and 4 (Pinnock 1994: 22-26; Pollock 2003). This suggests a link between drinking and political power in Northern Mesopotamia—a connection well attested cross-culturally (see above). The contest scenes, particularly those emphasising the protection of herds of caprids from lion depredations, reflect the increasing importance of pastoralism in the North Mesopotamian economy. Although this iconography might be new to Northern Mesopotamia, its adoption and continued popularity result from its appropriateness to this milieu.

The adoption of South Mesopotamian motifs coincided with the blossoming of a pan-Northern Syro-Mesopotamian style. The expansion of figurative motifs during this period allowed nascent elites to express pan-Mesopotamian and specifically Northern themes. The elaboration of the iconography of equids in the Habur triangle in the late third millennium stressed the local foundation of authority. In phase 4, Brak style sealings, particularly those recently excavated at Beydar, emphasised wagons and equids in military, hunting and cultic contexts, reflecting the importance of donkey and horses at Nagar (fig. 3.16, Jans & Bretschneider 1998). In the Ebla texts, Nagar is famous for its equids and riding instructors (Archi 1998: 8-11). Tablets from Ebla, Mari and Beydar reference the importance of equids,[85] while the last quarter of the third millennium BC saw a proliferation of covered wagons and equid figurines (Moorey 2001). A small sealing fragment featuring a miniature equid from the Leilan city gate excavation comes from a level which has been radiocarbon dated to 2500 BC (phase 3), showing the antiquity of this attribute (McCarthy N.D.). Equids and wagons were a key element of both agricultural and pastoral economies. Among pastoralists, wagons probably "provided bulk transport for the portable shelters, food and supplies that freed herders from a dependence upon logistical support from the local river valleys", while among agriculturalists, they provided the means to transport grain to cities and villages (Moorey 2001: 345).

[85] For equids in third millennium texts see (Archi 1998: 8-12; Charpin 1990b: no. 38 and 39; Ismail et al. 1996).

Throughout the third millennium, Northern Syro-Mesopotamia shared a common glyptic tradition. A recent study of the Early Bronze Age sealings from the Upper Euphrates concluded that there was no specific "Carchemish" style, distinct from that of Syro-Mesopotamia for the late fourth to mid-third millennium BC—a conclusion which could be drawn for much of Northern Mesopotamia (McCarthy 2003, 2004). Instead, elements drawn from various traditions provided a flexible iconography that united different urban traditions.

VIII. Landscapes of Ritual: Ancestors, Territoriality and Political Legitimation

By the time of the Mari, Beydar and Ebla archives, the economic, political and cultural dichotomies identified in the previous sections were no longer in opposition. Instead, each Northern Syro-Mesopotamian kingdom united these elements in an organic whole. At Nagar and Ebla, the public economy managed both pastoral and agricultural resources by overseeing the equitable division of pasture and agricultural land. Their political structures fused elements of communal, tribal and individual leadership, while their iconography blended foreign and indigenous motifs in both the Ebla and Brak styles. What force reconciled these oppositions—inherent in pre-state societies across Northern Mesopotamia—and in so doing allowed for the emergence of the state?

Archaeological and textual data suggest that religion served as one means of integrating these oppositions (Kouchoukos 1998: 433-435). Excavations and surveys have revealed cultic monuments dating to approximately 2600 BC across Northern Mesopotamia. While each of these complexes has a distinctive form, they all unite concepts of monumentality and death, perhaps as part of an ideology that stresses ancestor creation (Porter 2000, 2002). All of these sites are located either in the desert, or in areas straddling the pastoralist-agricultural landscape divide; offerings at each site relate to both spheres. Each cult centre is located in a different region: the Upper Euphrates, the Western Jezira and the Eastern Jezira. The presence of individualising and collective elements at each ritual monument and the unique combination of Southern and indigenous features in their construction merge the sometimes-opposed tendencies discussed above. Three ritual texts from Ebla describe how a pilgrimage to a mortuary complex in the countryside affirms the political power of an urban king (ARET XI). This section will argue that the evidence from the sites of Tell Banat, Jebelet al-Beda and Tell Hazna 1 indicates the establishment of a landscape of pilgrimage, coincident with the urbanisation of North Mesopotamia. It will hypothesise that ARET XI illustrates the operation of such a landscape approximately two centuries later.

Banat

The 20 m high White Monument at Tell Banat (Tell Banat North, Fig. 3.17), located just north of the main settlement, dominates the landscape (McClellan 1998; Porter & McClellan 1998). This unusual mound was a complex burial mound used for at least half a millennium. In its early phases the White Monument reinforced both a sense of collective identity for the pastoralists and farmers living along the Euphrates. During the later third millennium, however, local kings appropriated these communal traditions in order to justify their exclusionary leadership.

Although excavation never penetrated the heart of this mound, it did reveal three construction stages for this monument. Porter believes that the White Monument was a giant ossuary, the final resting place for certain "ancestral remains", interred there after being defleshed (Porter 2002: 374). The first version of the structure was a white pyramid built of gravel that incorporated human bone and smashed pottery. Stone-lined cists and earthen cairns containing a few, disarticulated human bones were cut into this mound. Stone tumuli enclosing pots and human bones were scattered over the surrounding area (Porter 2002: 320-321). During the second construction phase, a single large mound incorporated these disparate mounds. This mound, White Monument II, was built of bands of pisé and human bone (Porter 2000: 322). The pottery associated with it dates to ca. 2700/2600-2400 BC (phases 3 and 4). During the final construction stage, a burial monument was built that enclosed White Monument II. Unlike the previous mortuary monuments, White Monument I was constructed in one stage. It was built in even horizontal layers, each of which contained the disarticulated remains of two or more individuals, equid bones and small offerings like beads and clay balls (Porter 2002: 331-332).

At the main settlement, another "white monument" lay immediately beneath a public building, dated to ca. 2700/2600-2400 BC (Porter 2000: 315-316). This mortuary monument was the earliest construction at Banat and dates to the beginning of the third millennium BC. During its earliest phase, the site contained mortuary monuments, public buildings and a pottery-manufacturing complex, but no purely domestic architecture (McClellan 1999; Porter & McClellan 1998). This may represent a situation where all of the site's inhabitants were linked to the religious-administrative centre (Porter 2002: 27). The emphasis on corporate identity, exemplified by the treatment of the dead within the White Monument, indicates that urbanism at Banat was not wholly exclusionary.

Banat lies on the left bank of the Euphrates in Northern Syria, between the 200 and 250 mm isohyets. Although it falls within the dry-farming zone, climatic variability and frequent Euphrates floods would have made farming a risky enterprise. Porter suggests that the site was initially founded by pastoralists and continued to be meaningful to a mobile community (Porter 2002: 28). By the late third millennium (2400-2300 BC), however, she believes that fault-lines had begun to open up between the new elite and the pastoral base. A monumental tomb which dates to this period may signal a new emphasis on individual power (Porter 2000: 357-362). At the same time, the rebuilding of the White Monument strove to connect this new power-base to old corporate traditions, but with a twist. The building techniques used in the final stages of the White Monument evoke Southern Mesopotamian ziggurats. As Porter comments:

> This concurrent manipulation of highly divergent symbols is likely to have been the act of a group who on the one hand sought to establish their differentiated position in an interregional context, while on the other, needed to offset the troublesome ramifications of that distinction by claiming commonality with their local constituents" (Porter 2002: 28).

The White Monument is the only excavated example of a series of sites known otherwise only from survey. Three other sites (Mankut, Medkuk and Bani), with a similar topography, were identified during the Middle Euphrates survey. The first site, located less than a kilometre from the outer fortifications of Mari, may represent a mortuary site for that city during the third and second millennia BC (Geyer et al. 2003: 171-172). Other "White Monuments" may exist elsewhere in Northern Mesopotamia. At Tell Leilan, the unexcavated, distinctive "ziggurat" which dominates the Acropolis has the same morphology as the White Monument and may be a similar construction.[86]

Jebelet al-Beda

South-east of Banat, west of the Jebel Abd-'al-Aziz, lie the remains of another unusual religious complex atop a hill called Jebelet al-Beda. In the spring of 1913, Max Freiherr von Oppenheim found a number of basalt sculptures there while conducting a geographic survey of Syria. He kept their location secret until 1927, when he returned to the hill to carry out excavations (Oppenheim 1933: 226). There he found the remains of four monuments, a statue in the round of a man with a club and a flounced skirt and three stele: the sun-god standing on two men, the storm-god standing on a bull and a tiny fragment of a tressed gown (fig. 3.18). Oppenheim suggests that this final fragment belonged to a depiction of Ištar

[86] I am grateful to Christophe Nicolle for discussion of this feature.

standing on a lion (Oppenheim 1933: 239). In the inscriptions of the Kings of Urkiš and Nawar from the end of the third millennium BC, the Lady (Belēt-Nagar, Ištar or Šauška), the Storm God and the Sun God form a trinity (Frayne 1997); the stele of Jebelet al-Beda may represent the earliest evidence of this religious tradition. Limestone ashlars, which once formed a platform, lay scattered around the basalt sculptures. These blocks concealed graves that had been dug into the limestone of Jebelet al-Beda. The hill tops surrounding Jebelet al-Beda contained more cist-graves, none of which were accompanied by grave goods (Oppenheim 1933: 229-230). Although Oppenheim believed that the graves were later, Ursula Moortgat-Correns, who reviewed the notes for his original excavation, has argued that these cist-graves are contemporary with the sculptures (Moortgat-Correns 1972:55). She has dated them both to EDII, or roughly 2600 BC (Moortgat-Correns 1972: 21).

Oppenheim discovered no remains of contemporary settlement at Ras et-Tell, or in the surrounding area, leading him to conclude that, "Ras Et Tell can have been nothing else than an open place for worship belonging to the oldest Subaraic Tell Halaf kings—for themselves and their herdsmen" (Moortgat-Correns 1972: 250). This area probably served as a pilgrimage centre for pastoralists and the inhabitants of the Kranzhügeln to the north and west. Like the final stages of Tell Banat, the religious complex at Jebelet al-Beda exhibits an unusual mix of Northern and Southern traits. The stele represent the major gods of North Mesopotamia, while the worshipper statues recall Southern Mesopotamian examples writ large. Smaller versions of this statue occur at Tell Chuera, in the *Antentempel* and are considered Souther Mesopotamian imports (Kouchoukos 1998: 435). Yet the integration of graves into this complex is clearly a North Mesopotamian feature. As at Banat, the dead have been literally incorporated into this monument.[87]

Tell Hazna 1

The final religious complex, Tell Hazna, lies in the Habur triangle, between Hasaka and Tell Brak, on the wadi Ridjla. It resembles one of many small, but high tells in the Jezira, usually assumed to be villages during this period. Excavation, however, has revealed that during the mid third millennium BC (phase 2 to phase 4), Tell Hazna was a temple complex including multi-level platforms, towers and rooms.[88] There is no evidence that this site ever had a domestic function during the centuries it was in use as a cult centre.

[87] For the connection between Jebelet-al-Beda and ancestor rituals see (Meyer 1997); for the relationship between the *Beterfiguren* at Chuera, household religion and Jebelet al-Beda see (Pfälzner 2001a: 403-406).
[88] This date is based on the ceramics published in (Munchaev & Merpert 1994), particularly figures 23-25.

The third millennium remains are fourteen metres tall and arrayed on four platforms. The lowest platform is connected to an outer defensive wall built of pisé, while walls also enclose the higher platforms. In the centre of this settlement is a tower, eight m high, with a 1.6 m enclosure wall, constructed with semi-pilasters. The tower contains several vertical chamber divided by brick and stone-paved floors. It was built upon a 1.7 m platform connected to lower platforms (Merpert & Munchaev 1999). Excavations within the main tower have unearthed dense ash layers containing grain, animal bones and zoomorphic figurines (particularly of sheep and goat), which the excavators have interpreted as offerings. Seventeen unused sickle-blades were placed in a niche in the tower along with a stamp seal (Merpert & Munchaev 1999: 121). It is possible that this tower was a grain silo, where offerings were made as part of an agricultural cult. The other three platforms contained other cultic chambers, another tower and industrial installations. Some of the rooms in this complex were filled with great numbers of animal bones, while two small chambers contained a cache of more than 40 clay animal figurines (Munchaev & Merpert 1994: fig. 31).

Chambers, which were built on the highest platform, resembled third millennium houses, though they differed in function. These rooms were not built for the living, but to house the dead. Skeletons of adults were "laid on beds and accompanied by rich goods" (vessels, bronze tools, bronze weapons and hundreds of quartzite and carnelian beads). Dead children had been buried in vessels and cists dug into the floors (Merpert & Munchaev 1999: 122). .

Like Banat, Hazna is located near the 250 mm isohyet, often treated as the dividing line between the steppe and agricultural land (Munchaev & Merpert 1990). It was probably the centre of a cult that combined agricultural and pastoral elements. Indeed, the alteration of agricultural implements and grain offerings in the main tower, with the caches of animal figurines and bones in the chambers of the uppermost platform might suggest that different areas of this complex served the needs of farmers and herders.

The Hazna temple complex combines elements from both Southern Mesopotamia and Western Syria in a late Ninevite 5, indigenous framework. The excavators note that this is the northernmost example of the "high temple" tradition better known in the Diyala and Southern Mesopotamia. At the same time, the placing of the mausoleum at the highest point of this complex recalls the situation at contemporary Gre Virike on the Euphrates north of Carchemish (Okse 2004). Here chambered graves containing adult burials were erected upon a small terrace constructed on a natural hill, while later infant and child burials surrounded

them. Nearby circular pits contained offerings of grain, animal products, ash and animal figurines (Okse 2004). The pottery and material found at Hazna belongs to local Ninevite 5 and metallic ware traditions, suggesting that farmers and pastoralists in the Eastern Jezira used this sanctuary.

Pilgrimages and Kingship in ARET XI

If Banat, Jebelet el-Beda and Tell Hazna provide examples of special places in the landscape, cultic complexes divorced from normal settlements, three ritual texts from Ebla, illustrate the relationship between these complexes and nascent North Mesopotamian states. These three texts, published by Pelio Fronzaroli, describe a ritual pilgrimage that occurred on the event of the marriage of a king of Ebla.[89] Fronzaroli believes that they describe three actual ceremonies, occurring after three separate weddings (Fronzaroli 1992), while Lorenzo Viganò interprets this rite as an annual celebration of kingship (Viganò 1995).

The ritual begins with the wedding of the king and queen in the king's father's house, an event that comprises the first stage of the Ebla coronation ceremony. The nuptials are celebrated with sacrifices to various gods in the palace and at the shrine of the god of royalty. The day after the wedding, the king and the queen leave Ebla in order to perform sacrifices and specific rituals in various locations in the countryside. They go to a place called Mašad, near Ebla, where they sit in "the thrones of their ancestors" and prepare for a longer journey. Their caravan includes several important officials and the statues of Kura and Barama, the divine couple of Ebla. Binaš, the site of the royal mausoleum, is the caravan's final destination,[90] although the king and queen stop in various cities along the way to make offerings to ancestral kings of Ebla and Rasap, the god of the dead. When they reach Binaš, the king and queen enter the é *ma-dim*—the house of the dead—along with the statues of Kura and Barama. Text B gives a full account of their activities:

> The king and the queen enter the house of the dead...
> The divine couple, Kura and Barama, come to the house of the dead and enter their chambers.
> And they dwell there.

[89] Texts A and B are similar in content, although B contains more narrative information, and the "viziers" listed in each text differ. Text C is an abridged version of text B (Fronzaroli 1992: 163-164).

[90] It is unclear how to read NE, the first sign of this toponym. Archi and Bonechi both read Binaš—and it is under this form in most toponym lists outside of ARET XI, while Fronzaroli uses the form Nenaš in the official publication. We will follow Archi and Bonechi here. Binaš was probably a temple-mausoleum centre. Although the Ebla texts mention deliveries of textiles for an assembly (UNKEN-ak NE- *na-áš*^{KI}, ARET III: 277 II 5) and a lady of Binaš (dam /Ne-*na-áš*^{KI} ARET III: 878 r. III: 3), few personal names from this town are known, and most of the references are cultic (ARET IV: 1; r. XII: 21, where Binaš is associated with Kura, the god of royalty (Archi et al. 1993; Bonechi 1993).

> And the king enters his chamber.
> And then the queen enters her chamber...
> When those of the cloth arise, the king and the queen depart and sit on the thrones of their fathers.
> And await the rising of the sun.
> When the sun rises, the invocation priests invoke and the lamentation priests intone the laments of when the birth goddess Nintu was angered.
> And those that it illuminates ask to be illuminated.
> And the birth goddess Nintu illuminates the new Kura, the new Barama, the new king and the new queen.[91]

Their sojourn in the é *ma-dim* transforms both the actual royal couple and the divine royal couple. The texts describe three seven-day ritual periods, during which the king and queen hold vigil in the mausoleum at night and return to their thrones during the day to perform sacrifices and offer libations to the gods and the deified kings. Only after this month, when they are ritually remade in the image of their ancestors, can the king and queen ascend to power (Fronzaroli 1992, 1993; Porter 2000).

Binaš, with its mausoleum and temples, resembles the archaeological sites already described. Here, before assuming political power, the king and queen perform certain ceremonies that unite them, quite literally, with the dead. The relationship between these rituals and the king's ascension to power is explicitly stated in TM.75.G.1730, an administrative text in which this journey is described as "the enthronement of the king" (Viganò 1995: 218). As Pelio Fronzaroli has noted, "by their participation in the cult of the gods and defunct ancestors the high Eblaic functionaries contribute to the conferring of regality on the new sovereign, to whom they rest united in a social and sacred pact" (Fronzaroli 1992: 185). This ritual emphasises the interconnections between the collective dead, the gods and political legitimacy at Ebla. The royal pilgrimage to Binaš emphasises the interplay between the corporate nature of royalty and the individual king. It unites other oppositions as well, the sacrifices to the gods include both pastoral and agricultural products, while the very act of recording this ritual in cuneiform illustrates the blending of Southern and Northern Mesopotamian cultures.

Landscapes of pilgrimage have a distinctive North Mesopotamian identity. Indeed, the emphasis on mortuary rituals underlines the autochthonic nature of this cult. The

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[91] ARET XI (59-68, v. II. 7-V.7) 58. [mu-DU]/ [en]/ [*wa*]/ *ma-li*[*k*]-*t*[*um*]/ *si-i*[*n*]/ é *ma-tim*... 59. ba_4-ti/ [^{d}Ku]-˹ra˺/ [*wa*]/^{d}*Ba-ra-ma*/*si*-˹*in*˺/˹é˺ [*ma-tim*]/ [*wa*]/ mu-DU/ ^{d}*Ku-ra*/ *wa*/ ^{d}*Ba-ra-ma/ si-in*/ 1 é-$duru_5^{KI}$ 60. *wa*/ ˹al_6˺-˹tuš˺ 61. *wa*/ mu-DU/ en/ *si-in*/ é-$duru_5^{KI}$-*sù* 62. *ap*/ *ma-lik-tum/ si-in/* é-$duru_5^{ki}$-*sù* 63. *ù-lu*/ ba_4-ti/ en/ *wa*/ *ma-lik-tum*... 64. zi-ga/ ti-TÚG/ en/ *wa*/ *ma-lik-tum*/ è-*ma*/ *wa*/ al_6-tuš/ *al_6*/ GIŠ-<<ušti(n)>>/ a-mu a-mu-*sù* 65. *wa*/ en-nun-ak/ u_4 è/ ^{d}Utu 66. ^{d}Utu-*ma*/ è/ KA.DI/ KA.DI/ balag-di [bal]ag-˹di˺/ balag-di/ *ša-ti*/ ^{d}TU/ sur-ak 67. *wa* [du_{11}]-˹ga˺/ [níg-mul$^{!}$-mul (AN.AN:AN.AN)]/ [níg-mul$^{!}$]-˹mul$^{!}$˺ ([AN.AN]:˹AN˺. ˹AN˺) 68. *wa*/ níg-mul$^{!}$-mul$^{!}$ (AN.AN: AN.AN)/ ^{d}TU/ ^{d}*Ku-ra* gibil/ ^{d}*Ba-ra-ma* gibil/ en gibil/ *ma-lik-tum* gibil

emphasis on territoriality, on placing these cult centres outside of cities helps construct a new form of political landscape—that of kingdoms, not isolated villages. The explicit link in ARET XI between kingship, ancestor traditions and landscapes of pilgrimage underscores the political and transformative nature of these cult centres, as well as their peculiarly Northern characteristics. At the same time, each of these unique Northern centres employs an iconography linking it to Southern Mesopotamia. The rise of these cult centres, along with the establishment of Northern Mesopotamian kingship, was part of a process that resonated far outside of the plains of Northern Mesopotamia.

IX. Conclusion: The Akkadian Empire and Northern Mesopotamia

At approximately 2300 BC, Sargon of Akkad and his successors conquered Northern Mesopotamia. Northern Mesopotamian settlement patterns, the erection of new palaces and temples and Akkadian epigraphic evidence reflect Akkadian imperialisation (Weiss & Courty 1993). Royal inscriptions record Sargon's conquest of Mari, Tuttul and Ebla; year names commemorate his conquest of Azuhinnum (probably Tell al-Hawa) and Subartu (Frayne 1995; Hunger 1976-1980). Sargon's son Maništušu either constructed or rebuilt the temple of Ištar at Nineveh, while his grandson Naram-Sin built a palace in Nagar, the bricks of which are stamped with his name (Gut et al. 2001; Mallowan 1944). Yet despite a century marked by the incursions of Akkadian kings and their attempts to turn Northern Mesopotamia into a productive imperial province, certain indigenous features persisted until the end of the third millennium BC. At Tell Leilan, Akkadian kings expanded the old palace on the Acropolis Northwest, carefully rebuilding the cultic platform in the local tradition (Ristvet & Weiss 2000). At Tell Brak, administrators continued to use old locally-made seals to perform some civic tasks, scorning to adopt Akkadian iconography in private transactions (Matthews 1997). The temple of Šamagan, the god of pastoralism, remained an important cult centre at Nagar during the Akkadian period. Rituals performed there, like the horse burials, suggest the survival of pre-Akkadian practices. At Tell Mozan, an independent Hurrian king married Taram-Agade, the daughter of Naram-Sin. This diplomatic marriage may have symbolised indirect Akkadian control of the piedmont, although the construction of the *abi*, the Hurrian passage to the Netherworld, showed that Hurrian religious and political traditions persisted (Buccellati & Kelly-Buccellati 2001).

Despite these signs of continuity, the Akkadian conquest of Northern Mesopotamia represented a major break with past traditions in one respect: the ritual landscape which had united this region for four centuries fell into ruins. Hazna, Banat and Jebelet al-Beda were

abandoned. Akkadian rule followed South Mesopotamian practice and emphasised the power of city-gods. One inscription credits Dagan of Tuttul with granting Sargon power over the banks of the Euphrates and Western Syria, while Nergal, god of the underworld, may have played the same role with respect to Subartu (Postgate 1994c).[92] This represents the transplantation of a South Mesopotamian religious tradition, where Enlil, god of Nippur, could grant kingship over Sumer and Akkad, to Northern Mesopotamia. Although second millennium North Mesopotamian traditions continued to emphasise ancestor ideologies (like the *kispum* rituals at Mari) and even pilgrimages (like the cultic journey of the goddess Belēt-Nagar in the land of Apum), no religious landscape, similar to the one described here, would appear again in Northern Mesopotamia.[93]

[92] Nergal, of course, is an underworld deity. His status as overlord of Subartu may echo the importance of death cults in Northern Mesopotamia.
[93] For Mari ritual see (Durand & Guichard 1997), for Belēt-Nagar's journey see (Guichard 1994, 1997).

Chapter 4: Tribalism and the Rise of the Tribalised State

I. Introduction

At approximately 2200 BC, settlements across Northern Mesopotamia were suddenly abandoned. For the following 300 years, only a few permanent, agricultural settlements marked the previously crowded plains of Northern Mesopotamia. When people resettled this region, they developed new tribal states that contrasted with earlier political forms. The capital of one such state, the Kingdom of Upper Mesopotamia, was Tell Leilan—Šubat-Enlil. Although this state did not survive Samsi-Addu's death, Šubat-Enlil/ Šehna continued to be the capital of a much-reduced kingdom, the land of Apum, roughly coinciding with the Tell Leilan survey area. We will consider the "tribalisation" of this area from 2200-1500 BC, through the lens of social relations of land, by focusing on transformations in economic, political, urban and ideological landscapes.

The new settlers redefined the economic, political and cultural limits of Northern Mesopotamia. A new pan-Mesopotamian ideology emerged, uniting Greater Mesopotamia from Babylonia to the Levant (Durand 1992b). Throughout this area, kingdoms stressed their tribal identities and pastoralist connections; treaties described states as constituting farms and pasturelands, farmers and nomads (Ristvet 2003). These policies emerged out of the new realities of the countryside. Settlement patterns reflect an almost total transformation in the small-scale geography of the area (fig. 4.1). The resettlement of many abandoned cities—including Tell Leilan—led to the invention of a new urbanism and a reconsideration of cities' political importance. The surviving cities from the third millennium BC—like Urkiš, Nagar and Mari—adopted the new practices of the tribalised kingdoms while stressing their unbroken links to earlier states. Combining archaeological, environmental and textual data from the early second millennium sheds new light on the resettlement of this region.

II. The Kingdom of Apum and Northern Mesopotamia

The surviving cuneiform corpus from both Northern and Southern Mesopotamia from 2200-1500 BC varies greatly both quantitatively and qualitatively. With the exception of a handful of inscriptions from Urkiš and a few references to Northern Mesopotamia made by the kings of the third dynasty of Ur, there is almost no textual evidence for phase 6.[94] In contrast,

[94] For Tell Brak/Nagar see the seal impression of Talpush-atili, "the sun of the country of Nagar," (Matthews & Eidem 1993). For Mozan/Urkiš see the Nergal temple inscription (Thureau-Dangin 1912; Wilhelm 1988: 47), the lion pegs in the Louvre (with associated tablet) and Metropolitan Museum of Art (Muscarella 1988; Parrot & Nougayrol 1948; Wilhelm 1998), the seal impressions from the royal palace at Urkiš (Buccellati & Kelly-

archives from Leilan, Rimah, Chagar Bazar, Shemshara and especially Mari provide a wealth of detail on the economic, political and ethnic landscapes of Northern Mesopotamia during phase 7.[95] Phase 8 is again poorly documented, with only the 26 "Early Hana" texts from Terqa providing any evidence for this period (Podany 2002).

The Akkadian kings probably ceded control of the Habur Triangle during the reign of Šar-kali-šarri (2175-2150 BC). Year names and letters record campaigns against the Amorites and Gutians, suggesting that social turmoil in the north both preceded and followed their departure (Frayne 1995: 183, 186). Soon afterwards, the kings of Urkiš seized power in Northern Mesopotamia, forming the "kingdom of Urkiš and Nawar" known from three inscriptions and a handful of references in South Mesopotamian sources (Frayne 1997: 457-464). Recent excavations at Tell Mozan, ancient Urkiš, have uncovered seal impressions from a daughter of Naram-Sin of Akkad, who was married to a Hurrian king (Buccellati & Kelly-Buccellati 2001). This evidence hints that Urkiš was a powerful Akkadian client-state. Its kings probably took advantage of the power vacuum left by the Akkadian withdrawal to establish limited hegemony over Northern Mesopotamia. The paucity of our sources allows us to determine neither this kingdom's extent nor duration.

A few references from Ur III administrative texts also testify to conditions in Northern Mesopotamia during phase 6. Around 2100 BC, Ur-Nammu united Sumer and Akkad under the third dynasty of Ur. Unlike the Akkadians, the Ur III dynasty did not seek to conquer Northern Mesopotamia, although it did maintain occasional diplomatic relations with kingdoms in the now depopulated north, including Urkiš and Nawar.[96] A handful of administrative texts from Drehem, ancient Puzriš-Dagan, record cattle presented to the rulers of "client states" that lay outside of Ur III territory proper and the defensive zone surrounding the state. The representatives of these states—including Ebla, Mari, Urkiš and Nawar—were described as envoys (lú-kin-gi$_4$-a), city-rulers (ensí), or simply rulers (lú) (For Nawar see Edzard & Farber 1974: 138; Maeda 1992: 143-148).

The sparseness of the epigraphic record from 2200-1900 BC contrasts with its richness from 1900-1700 BC. This phase witnessed a sea change in Mesopotamian attitudes

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Buccellati 1995-1996, 2001), and the inscribed evidence from the House of Puššam at Urkiš (Dohmann-Pfälzner & Pfälzner 2001: 121-128). All of this dates to early phase 6.

[95] For the Leilan texts see (Eidem 1990, 1991a, b, 1991c, N.D.; Ismail 1991; Van de Mieroop 1995; Vincente 1991, 1995), for Rimah see (Dalley et al. 1976), for Chagar Bazar see (Talon 1997; Tunca & Lacambre 2002), for Shemshara see (Eidem 1992; Eidem & Laessoe 2001), for Bi'a see (Krebernik 2001) for the latest publication information on the Mari texts (Charpin & Ziegler 2003: 4-7).

[96] References to Urkiš have been collated by Edzard and Farber in RGTC 2 (Edzard & Farber 1974: 224). Figure 6 in (Steinkeller 1987) illustrates the core, periphery and client states of the Ur III state. Note that the area west of the Tigris in Northern Mesopotamia rarely appears in Ur III documents.

towards the Habur triangle. Bertrand Lafont concluded a recent article on International Relations in the Mari age by emphasising the strategic importance of the *mātum elitum*, the present-day Habur triangle (Lafont 2001: 320). This area's potential agricultural wealth, lush pasture and position astride the Aššur-Anatolia trade routes combined to make it appealing to all neighbouring kings. The kings of Mari, Ešnunna, Ekallātum, Susa, Babylon and Aleppo jockeyed to establish hegemony over it.[97]

Our earliest references to the Habur triangle for this phase date to the 19th century BC and indicate that Apum was a stop on an Old Assyrian caravan route. Seven texts from Kültepe-Kaniš refer to a *kārum* at Apum (presumably Tell Leilan) where travellers between Aššur and Kaniš rested, equipped their caravans and sold iron to the locals.[98] Although none of the published texts are dated by *limmu*, they all come from Kārum II and thus date sometime between the reigns of Erišum I and Puzur-Aššur II. A treaty between Aššur and Till-abnû, king of Šehna, regulating contacts between Šehna and the Assyrian merchants proves that the *kārum* at Apum persisted until the end of the 18th century BC (Eidem 1991a).

Reconstructing the political situation in the land of Apum during this period is difficult. Later references suggest ongoing conflict between Yaggid-Lim of Mari and Ila-Kabkabbu in the land between the Tigris and the Euphrates (M3057+ MARI 4 296: 1'-4' in Wu 1994: 70). A few years later, Naram-Sin of Ešnunna, Yahdun-Lim of Mari and Samsi-Addu of Ekallātum all campaigned in Northern Mesopotamia. During the late 19th century, each king established a fleeting supremacy over part of the territory. Naram-Sin of Ešnunna, the first Amorite king with imperial pretensions, campaigned in the Habur triangle; one year name records his conquest of Ašnakkum and Tarnip, two cities in the Ida-maraṣ (Wu 1994: 84-6). The rulers of Mari and Ekallātum eagerly copied Naram-Sin's innovations in language, iconography and political terminology (Durand 1985: 168). Like Naram-Sin, they also spent time and resources securing the pasture and farmland of the Habur plains. Naram-Sin was the senior partner of an alliance with Yahdun-Lim of Mari, whose campaigns in the

[97] Several texts from Yahdun-Lim's reign attest to Naram-Sin of Ešnunna's presence in Upper Mesopotamia (Charpin 1994). For the campaigns of the later Ibal-pî-El during the reign of Zimri-Lim (Charpin 1992a, 1992b; Lafont 1992), for the Elamite adventure in the land of Apum (Charpin 1986, 1990d; Durand 1986; Vallat 1996), Babylon's control over Upper Mesopotamia is, for obvious reasons not directly attested at Mari, although dockets hint at their presence (Charpin 1995b), but is clear from the Rimah tablets (Dalley et al. 1976), as well as Old Babylonian year names (Hunger 1976-1980). Finally, evidence for the importance of Aleppo emerges comes from evidence from the reigns of Yahdun-Lim, Zimri-Lim, and the later Leilan kings (Mutiya, Till-abnu, and Yakûn-ašar) (Charpin 1992b, 1995a; Charpin & Durand 1985; Eidem 1991c, 1993, 2000, N.D.; Whiting 1995).

[98] See (Nashef 1991: 11-12) for the published and unpublished texts. Most of these tablets have been transliterated and translated in (Ulshöffer 1995), no. 179, 299, 597, and 599. One text is available in hand-copy in (Wiseman 1953), while the last two: C 17 and LB 1239 have not been published. See also (Charpin 1987b: 139-140) on this evidence.

Ida-maraş (the Western Habur Triangle) occurred at the same time (Charpin 1994; Charpin & Ziegler 2003: 39-40; Wu 1994: 84). Yahdun-Lim's hegemony was firmly accepted by kinglets from the Balikh to the Jaghjagh. Mari letters record that Mari's herds of sheep pastured near Kahat, free from danger (Charpin & Ziegler 2003: 38). Across the Jaghjagh, however, the land controlled by Samsi-Addu began. Following the establishment of his power in Ekallātum and his conquest of Aššur, Samsi-Addu probably annexed the small kingdoms located south of the Sinjar, before taking Šubat-Enlil and the eastern Habur (Charpin 1992a). Four of Yahdun-Lim's year names record his battles with Samsi-Addu in the area around Leilan: the year he destroyed the harvest of the land of Samsi-Addu (presumably the land of Apum), the year he defeated Samsi-Addu at the gate of Nagar, the year he took Paduhar and the year he went to the land of Ekallātum (Charpin & Ziegler 2003: 60-61; Wu 1994: 100-101). These successful campaigns allowed Yahdun-Lim to tour Upper Mesopotamia, travelling through area controlled by Samsi-Addu to Šubat-Ištar on the Tigris (Charpin 1994). Yet at some point, things must have turned sour, as letters found at Mari record that Yahdun-Lim lost territory to Samsi-Addu.[99] Yahdun-Lim's son, Sumu-Yamam, could not win the war his father had waged for so long. Šamši-Adad conquered all of Mari's former clients in Northern Mesopotamia and Mari itself (Charpin & Ziegler 2003: 48).

According to the Assyrian King List, Samsi-Addu's reign at Aššur lasted for 33 years (Grayson 1980-1983: 106, &12). It seems that his conquest of the Habur Triangle began soon after he ascended his father's throne.[100] The Mari Eponym Chronicle (MEC) records his defeat at the hands of the Lullum tribe at Lazapatum, a city in Apum, in the eponym of Aššur-imitti, two years after he ascended the throne (Birot 1985: 229, discussion 222). 12 or 13 years later, in 1792, following years of conflict with Mari, he conquered that city and the entire Habur region. For the following 17 years, Mari formed the Western frontier of his Kingdom of Northern Mesopotamia.

During the final ten years of his reign, Samsi-Addu organised his conquests, creating a tripartite administration for his kingdom. He placed his eldest son, Išme-Dagan, on the throne of Ekallātum, the principal eastern city (Charpin 1997a: 371-372) and his youngest son, Yasmah-Addu, on the throne of Mari, the principal western city. Samsi-Addu created a new capital for himself at Šubat-Enlil, a lightly populated town in the centre of Northern Mesopotamia. Yasmah-Addu probably ruled the entirety of the west, from the big bend of

[99] ARM 1 1,8'-9'=LAPO 16 305, Wu 1994: 106.
[100] We do not actually know where Samsi-Addu's family's power base was located, although Ekallātum is often assumed (Birot 1985: 222-23). The Mari team now argues that Agade is more likely, but they have yet to produce any new evidence to substantiate this claim (Durand 1998: 108-109; Ziegler 2004: 26, fn 54).

the Euphrates to Suhum, on the border of Babylon and the West Jezira, the Ida-maraṣ. Išme-Dagan ruled the banks of the Tigris and the region up to the Sinjar mountains. Samsi-Addu thus directly controlled only the land of Apum (Villard 2001: 14). After securing Mari and establishing a firm alliance with Qatna (sealed by his son's marriage to the princess Bēltum), Samsi-Addu campaigned in the east with the king of Ešnunna and in the west with the king of Qatna (Charpin & Ziegler 2003: Chapter 2).

In the eleventh or twelfth month of 1775 BCE (*limmu* Ṭab-şilli-Aššur), after a short illness, Samsi-Addu died (Charpin & Ziegler 2003: 137). A few months later his kingdom fell apart (Charpin & Ziegler 2003: 162-8; cf. Whiting 1990b) His son Išme-Dagan managed to hold onto Ekallātum and the districts along the Tigris, but not to the kingdoms south of the Sinjar. At Mari, Yasmah-Addu's realm collapsed almost immediately. Even before Samsi-Addu's death, he had lost Tuttul, a key religious capital along the Euphrates. A coalition of local powers—including Sim'alite nomads and petty kings deprived of their thrones—united against Yasmah-Addu and secured Mari and the Banks-of-the-Euphrates for Zimri-Lim, who promptly established control over the Ida-maraṣ (Charpin & Durand 1985; Charpin & Ziegler 2003: 144).

Following Samsi-Addu's death, the wealth of Šubat-Enlil and the rich agricultural land in Apum attracted hordes of raiders (Eidem 1994). For four years, Šubat-Enlil resisted Zimri-Lim, remaining in the hands of a high-ranking servant of Samsi-Addu named Samiya. Then the city fell to an alliance of Ešnunna and Andarig—a kingdom located south of the Sinjar. Turum-natki, perhaps a member of a local dynasty, ruled for a few months under the tutelage of Andarig, before his equally short-lived son, Zuzu (or Susû) ascended the throne. Haya-abum, perhaps Zuzu's brother, then came to power (Charpin 1990d; Durand 1986; Vallat 1996). A Leilan treaty, in which Haya-abum is a cosignatory along with Qarni-Lim of Andarig and Qarni-Lim's palace at Tell Leilan attest Andarig's control of Šubat-Enlil/Šehna for several years (LT-1). Haya-abum was killed five years later, when the Elamites invaded Northern Mesopotamia and seized Šubat-Enlil. After a short period, the new king of Andarig (and of Allahad), Atamrum, took the city. For two years, Atamrum's successor, Himdiya also ruled Šubat-Enlil/Šehna. At this point, Mari was destroyed by Hammurabi of Babylon and the kingdom of Apum fell under the influence of Aleppo to the west. The last three kings of Šubat-Enlil/Šehna—Mutiya, Till-abnû and Yakūn-ašar (ca. 1750-1728)— ruled a larger territory than any of their predecessors during the reign of Zimri-Lim (Eidem N.D.). In his 22nd regnal year, Samsu-iluna of Babylon, the son of Hammurabi destroyed "Šehna, the

capital of the land of Apum" and killed Yakūn-ašar, thus bringing to an end the history of this city (Horsnell 1999: vol. 2: 211-212).

Samsu-iluna's foray into the Habur plains did not result in lasting Babylonian hegemony in the north, although he managed to maintain control of the Middle Euphrates. The kings of Yamhad probably dominated this region politically during the next 125 years, until the destruction of Halab (Klengel 1997: 367). The following 200 years are poorly documented. After the destruction of Šehna there are no further references to the Habur plains in any written records until the rise of Mitanni. The only tablets from this period come from excavations at Terqa, a city north of Mari on the Middle Euphrates that inherited some of that city's prestige. Until recently, we had assumed that following Mari's destruction, Terqa immediately became capital of the "Kingdom of Hana", which included the Middle Euphrates and Lower Habur, the former territory of Mari. New textual data and an analysis of older tablets have shown that the Kingdom of Hana was actually a later phenomenon (Podany 1991-1993: 53-9; Podany 2002). After the destruction of Mari, the kings of Terqa were clients of Babylon. The last Babylonian king, Samsu-ditana, controlled the Middle Euphrates directly (Podany 1991-1993: 59). Hana only rose to prominence after the First Dynasty of Babylon ended in 1595 BC and remained independent for about a century (Podany 1991-1993: 61).

III. The Geography of Collapse and Resettlement

The abrupt aridification event at 4.2 ka BP has been recorded in more than forty palaeo-climate proxies from Kilmanjaro, Tanzania to Rajasthan, India. Across West Asia precipitation from the Mediterranean westerlies diminished by up to one-third of previous values during these 300 years (Bar-Matthews et al 2001). Adaptations to this climate change were constrained locally by environmental and social factors. An analysis of Phase 6 settlement patterns in Northern Mesopotamia show the wide range of possible responses.[101] In most of this area, agriculturalists responded with habitat tracking and abandonment. Some agriculturalists adopted pastoral nomadism. In North-eastern Syria, the interruption of agricultural revenues led to the collapse of most polities and the withdrawal of Southern Mesopotamian influence.

[101] Recent work on levels dating to this period at some of the few remaining occupied sites in Northern Mesopotamia have broadened our knowledge of the material culture of this period (McMahon & Quenet N.D.; Oates et al. 2001, 170-177), while the analysis of material retrieved from Mozan and Taya, the two sites where a continuous sequence between "Akkadian" and "Old Babylonian" levels have been exposed, are in progress.

By 1900 BC, climatic evidence shows that drought conditions prevailing in Western Asia during the previous three centuries had begun to ameliorate (Weiss 2000). Rainfall, however, never returned to its pre-4200 BP event highs and the semi-arid climate that characterises the region today was established (chapter 2). Surveys across Northern Syro-Mesopotamia suggest that divergent settlement dynamics ensued during phase 7 in response to these conditions. Areas of higher rainfall, or permanent rivers, like the East Jezira, Middle Euphrates, Upper Euphrates and Northwest Syria experienced a settlement boom. Areas of lower rainfall, like the West Jezira, which had been densely settled during the third millennium BC, became the haunt of nomads, empty of all but the largest settlements.

The early second millennium *oecumene* was short-lived in much of Syro-Mesopotamia. In the East Jezira, phase 8 witnessed a collapse of the pattern of shifting villages and empty centres characteristic of the Old Babylonian period, with the abandonment of much of the Leilan survey area. In the West Jezira, there was little change, or the abandonment of some of the large, remaining centres. Northwest Syria and the Upper Euphrates may also have experienced a decline in settled hectarage at this point, while villages along the Middle Euphrates disappeared following Mari's destruction.

Leilan Survey

Settlement Patterns

Phase 6 (2200-1900 BC)

The LRS shows that total population fell dramatically; 69% of sites were abandoned and total settled hectarage declined by 72% (fig. 4.2). All of the major urban sites were either abandoned or decreased dramatically in size, including Leilan (1), Mohammed Diyab (55), Farfara (186) and 'Aid (90). The average size of settlements decreased to 4.45 ha from 7.2 ha for Leilan IIb and nearest neighbour values increased proportionally. The remaining permanent settlements in the Leilan region either lay along wadis above the modern 400 mm precipitation isohyet, or in the Radd marsh, where the spring-fed, high water-table allowed a few permanent settlements to flourish (Ristvet & Weiss N.D.).

Phase 7 (1900-1700 BC)

The transition from phase 6 to phase 7 is the most dramatic in the archaeological sequence for this region (fig. 4.3). Phase 6 is a period of minimal occupation while phase 7 has the most recorded by the survey. The survey catalogued 157 settlements dating to period I. The total

number of occupied ha, 767, is more than 10 times that of the previous period. In contrast to third millennium patterns, however, most of this settlement occurred in villages, which formed over half of the occupied hectarage, as opposed to less than 1/3 for both phases 4 and 5 (see chapter 3). 121 settlements were smaller than five ha. The mean size of sites, when one excludes the largest cities, Leilan and Farfara from the calculation, is only 2.25 ha, 50% lower than the values during phase 5. At the same time, settlement continuity plummeted. 72% of settlements occupied during phase 4 were also occupied during phase 5; only 17% of settlements occupied during phase 7 were similarly occupied during phase 8. Applying Keith Kintigh's correction (Kintigh 1994) to the Leilan survey to overcome probabilistically the site contemporaneity problem shows that during this span only 28 sites were synchronously occupied.

These statistics underline the instability of the early second millennium, in contrast to the stability and growth during the second and third quarters of the third millennium BC. Villages may have moved regularly due to soil moisture constraints, in order to take advantage of previously uncultivated and thus more fertile fields. Alternatively, high settlement and abandonment rates suggest more fluidity between nomadic and settled lifeways—with different tribes investing in agriculture or pastoralism in response to environmental, economic and political conditions (Wilkinson 2000: 17-18)

We have followed Lyonnet in interpreting sites that produced small numbers of sherds as pastoral encampments (Lyonnet 2001) (fig. 4.4). Because Habur ware is well known and because most sites contain many diagnostics (>10 per hectare); low numbers may represent ephemeral settlements. Many of these campsites occur in areas better suited to grazing than to full-time agriculture. 29% of the sites found below the modern-day 300 mm isohyet may have been encampments (5 of 17). Additionally, eight possible encampments occur in the eastern part of the survey area, on a basalt, upland soil type which is better suited to pasture-land than to agriculture (Chapter 2). The remaining camps, with the exception of five sites, occur far from wadis. They might be the remains of either pastoral sites or temporary settlements by the fields, used during periods of heavy agricultural work (Schwartz 1994b: 511). Other villages, even if they were "permanently" settled may have maintained tribal structures (Weiss 1986, Eidem and Warburton 1996).

The number of urban (>10 ha) sites is also greater than expected (Meijer 1990). During this period, Tell Farfara (186) expanded to 90 ha, Tell Aid (90) expanded to 20 ha and Mohammed Diyab (55) expanded to at least 35 ha. The drier, southern part of the survey area supported two large sites: Hansa (201) and Dumdum (241) at 25 and 27.5 ha

respectively. In general, these sites are carefully distributed throughout the landscape. This pattern becomes particularly clear when the large sites along the Jaghjagh are taken into account. Large sites occur 15 km apart, as is the case for (from west to east) Hamidiya, Farfara and Qarassa, or (from north to south, along the Jarrah) Leilan, Qarassa and Khodr. Shorter distances separate major tells—Brak, Barri and Hamidiya—on the Jaghjagh. In certain cases, lines of sites might correspond to east-west or north-south trade routes. Other sites do not fit into the prevailing pattern so easily. Mohammed Diyab (55) and Dogir (12), for example, are both located close to Leilan—seven and eight km respectively. Their proximity and small size suggest that they were politically subservient to Tell Leilan during much of this period.

Meijer's analysis of his North-eastern Syria survey resulted in a markedly convex rank size graph due to the presence of so many large sites (Meijer 1986, 1990). This distribution is generally interpreted as indicating low levels of system organisation and integration. A histogram of the smaller Leilan survey shows a similarly convex distribution, clustered in a stepwise ranking (fig. 4.5), a pattern that occurs when centres of equivalent economic or administrative function are of comparable size (Falconer & Savage 1995). These settlement distributions suggest that the survey data represent several small settlement systems. Most of the urban sites of this region were thus probably semi-independent, a situation in accordance to the Mari evidence from Zimri-Lim's reign.

Another important innovation was the establishment of a system of urban-village dependence in the second millennium settlement pattern, characterised by the large number of satellite villages located within a 5 km radius of Leilan (fig. 4.6). During phase 5, only two small sites were located in this area of intensively cultivated fields. In contrast, during phase 7, 11 villages were located in this area, suggesting that a network of nearby villages subsidised this city.

The larger than expected number of large and small sites contrasts with the under-representation of medium-sized sites, those between 5 and 10 ha. Taken together this pattern could represent a "segmentary state". Segmentary states are characterised by "mechanical solidarity and a lack of internal functional differentiation" (Schloen 2001: 72). Settlements in segmentary states do not have well-defined roles; smaller sites "simply replicate at a smaller scale the powers of the centralised authorities, rather than having internally differentiated decision-making powers" (Stein 1994: 11) In such states, the urban centre has only limited authority in the hinterland, which declines over distance. This authority is also not mediated through smaller centres, but exercised directly by the dominant city. Segmentary states often

coincide with states organised on the basis of kinship and patrimonial states (Schloen 2001; Stein 1994: 12). Their borders and spheres of influence, can be flexible.

Phase 8 (1700-1500 BC)

The myriad villages, blanketing the plains of Apum during the early second millennium BC, disappeared soon after the destruction of Šehna. Only 73 late Habur ware sherds, occurring on 17 sites, were identified from all the pottery collected during the Leilan survey—as opposed to 5097 diagnostics for phase 8 (fig. 4.7). This regional settlement collapse corresponds with the almost complete abandonment of both Leilan (following its destruction in 1728 BC at the hands of Samsu-iluna) and Mohammed Diyab. At both sites only isolated graves and pottery kilns date to this phase, suggesting that they were no longer inhabited (Akkermans 1991; Castel 1996: 274; Durand and Nicolle 1999; Pulhan 2000). No sites from this period were located in the central and north-eastern area of the Leilan region. The centres to the west and to the south remained inhabited, as did the adjacent villages. The settlement data suggests that settled farmers either migrated from this area to elsewhere in the Habur plains or began using this area for pasture instead of fields.

Northern Syro-Mesopotamian Surveys

Settlement Patterns

Surveys in Northern Mesopotamia have revealed a variety of settlement patterns during the early second millennium BC. With the exception of the Turkish Euphrates, these plains witnessed a precipitous decline in settlement at ca. 2200 BC (phase 6). It is more difficult, however, to generalise about this region's resettlement. Generally, the East Jezira experienced a rapid resettlement similar to that outlined for the LRS. The Middle Euphrates, Upper Euphrates and Northwest Syria also underwent resettlement, although marginal regions saw no increase in habitation. In contrast, settlement in most of the West Jezira did not recover in the same manner during phases 7 or 8. Semi-nomads probably used this area as pasture throughout this six-century span (fig. 4.8). Indeed, this area was only truly resettled in the late second or early first millennium BC as part of an Assyrian project to reclaim the steppe.

East Jezira

Other surveys undertaken in the Syrian and North Iraqi Jezira reveal a similar pattern of collapse followed by massive resettlement. In the Eastern Habur Basin generally, Meijer

noted a decrease in EBA IV sites (corresponding to phase 6) compared to the previous phase.[102] For phase 7, he recorded more sites than for any other period (Meijer 1986: 50). The area around Hamoukar also recorded eight small-medium sites for the period (Ur 2002, fig. 14). In Iraq, the North Jezira survey shows the proliferation of small sites around Hawa, reduced in size from its third millennium extent (Wilkinson and Tucker 1995, 53-54). As at Leilan, where the early second millennium witnessed the first extensive settlement of the Radd marsh, the dry, south-western region of the North Jezira survey area was first occupied by small, perhaps transient villagers (Wilkinson and Tucker 1995, fig. 37). This period also experienced a high point in the settlement along the Turkish Tigris. Algaze found three 12 ha mounds and subsidiary settlements, spaced six km apart along a tributary of the Tigris in the Cizre-Salopi plain (Algaze 1989: 247). The Batman Su survey area upstream also saw a slight recovery from its abandonment during the entire previous millennium with the occupation of two sites (Algaze 1989: 245).[103] Bernbeck's survey of the steppe surrounding the Wadi 'Ağīğ has tentatively identified 43 sherds from these phases, spread out over 17 sites, probably the remains of nomadic campsites (Bernbeck 1993: 63-68).

West Jezira

Survey around the Jebel 'Abd-al-Aziz (Hole and Kouchoukos N.D.: 6), Brak (Eidem and Warburton 1996: 55), Beydar (Wilkinson 2000b: 11) and the western Habur Plains (Lyonnet 1997) show that settled area decreased substantially from the third to the second millennia BC. Unlike in the Eastern Jezira, settlement patterns show little recovery during phase 7. Most of this recovery occurred at town sites; few villages were reoccupied. This suggests that populations were concentrated in towns like Chagar Bazar surrounded by plains empty of villages, but full of nomads.

In the West Habur, scant Habur ware has been recovered from areas beyond the modern 300 mm isohyet (Lyonnet 2001). The few sherds that were found on tells along the Habur River from Ras al-'Ain to Hasaka have been interpreted as the remains of pastoral campsites (fig. 4.9, Lyonnet 1996: 371-72). The Beydar survey found only two permanently occupied settlements and two campsites (fig. 4.10). As Wilkinson concludes, "at least some 400 sq. km of terrain in the western Habur (and probably significantly more according to the

[102] It should be noted, however, that Meijer's published EB IV diagnostics do not correspond to the excavated pottery for this period from the Jezira and thus do not provide an accurate guide to settlement. Compare Meijer 1986: fig. 19 and (Oates et al. 2001: fig. 404-05, 414-49)

[103] No settlements dating to this period were found in either the Bohtan Su area or the North Tigris (Algaze 1989).

results of the Lyonnet survey) were uninhabited or lightly inhabited during the early second millennium BC" (Wilkinson 2002: 363). A survey around Brak did not recognise any material from phase 6, although the surveyors suggest that some sites were occupied at this time. They uncovered 19 sites dated to the early second millennium BC (both phases 7 and 8) 25% less than during the late third millennium BC. In contrast to Leilan, Eidem and Warburton suggest that these sites are probably late in the period (phase 8); only three sites had clearly early Habur ware types (Eidem & Warburton 1996: 55-57).

No permanent settlements were found to the south, in the 'Abd-al-Aziz, where the abandoned *Kranzhügeln* were not reoccupied (Hole & Kouchoukos N.D.). Ta'aban may have been the only settlement along the Middle Habur, which was probably dominated by pastoralists (Monchambert 1983; 1984a; 1984b). Along the Balikh, population was concentrated into nucleated communities, while rural settlement was sparse (Wilkinson 1998: 72). Nevertheless, ceramics from these phases were retrieved from 36 sites, indicating a slightly different pattern than in the Western Habur triangle (Akkermans 1984: 190).

Middle Euphrates

The early second millennium BC saw the first settlement peak on the Middle Euphrates (Geyer 2001b: 113). A survey recorded 27 sites dating to these phases, which were not subdivided. This is more than double the number recorded for the EBA, but fewer than attested in the texts. The Mari archives record 114 toponyms along the Middle Euphrates (Geyer 2001b: 256). The survey did not recognise any permanent canals dating to this period, the canals mentioned in the texts may have been temporary ones that have left little geoarchaeological record (Geyer 2001b: 111). Environmental evidence, collected as part of this survey, suggests a slightly drier climate than during the third millennium BC, with steppe vegetation replacing the forest steppe vegetation of the previous period (Geyer 2001b: 253).

Northwest Syria and Upper Euphrates

In general, settlement patterns along the Upper Euphrates and in North-western Syria mirror the pattern in the East Jezira of collapse followed by resettlement. Although not as many settlements were abandoned as in the East Jezira during phase 6, the evidence reflects an urban decline (Cooper 1997; 1999). Cities like Hadidi, Sweyhat, Titriş, Kurban Höyük and Banat contracted in size and lost urban institutions, becoming small, undifferentiated village communities (Cooper 1999: 323; Meyer 1996: 138; Peltenberg 2000: 184). By phases 7 and 8, occupation in this area had rebounded. A survey along the Upper Euphrates identified 36

sites for this period, the second largest peak in settlement for the region (Conteson 1985: 111-112). The resettlement of the dry-farming plains east and west of the Euphrates followed the same pattern. North-east of Sweyhat, Berthold Einwag notes that MBA sites are numerous (Einwag 1993: 37). To the west, the Jabbul plain survey shows abandonment during phase 6, with clear occupation only recognised at four sites. Although settlement rebounded—33 sites date to the following two periods—the drier eastern half of the plain was not reoccupied (Schwartz et al. 2000a: 451). A survey of the arid high-plateau east of Sweyhat found no clear sites for this period (Danti 1997).

The Turkish Euphrates, however, presents an exception to this general pattern. The Birecik-Carchemish Dam survey showed a significant increase in sites during phase 6, in contrast to settlement patterns elsewhere in Northern Mesopotamia (Algaze et al. 1994: 14-17). The survey recognised a general lack of phase 7-8 (MBII) occupations in the survey region, with the exception of Carchemish itself (Algaze et al. 1994: 17). Settlement patterns around Sweyhat parallel this trend, with a settlement peak at the end of the third millennium BC and a period of slow decline in the early second millennium BC (Wilkinson 2004: 141-144).

IV. Urban Traditions in a Non-Urban Landscape

The survey evidence implies that the East Jezira, Middle Euphrates and North-west Syria experienced phenomenal population growth during the second millennium BC (Wilkinson 2002). The number of settlements and their size indicate higher population densities than during the late third millennium BC. Yet excavations at several of the largest sites during this period suggest that intra-site settlement practices were as divergent from the late third millennium experience as inter-site settlement patterns. Excavations in areas that experienced population growth have revealed "hollow cities"—Leilan, Rimah, Mari and Ebla—containing only administrative buildings (such as palaces, embassies and temples) and little domestic architecture (Akkermans & Weiss 1991; Oates 1982; Pinnock 2001).[104] Subordinate towns feature densely packed neighbourhoods, with little administrative architecture of a local character (Castel 1996; Durand & Nicolle 1999). Excavations in areas that exhibited population decline, like the West Jezira, have revealed smaller closely-packed cities with dense domestic quarters and substantial administrative precincts at Chagar Bazar

[104] Disembedded capitals are created for government administration and removed from more plural sites of social and economic activity, modern examples include Washington D.C., Brasilia and Canberra, ancient ones include Dur-Kurigalzu, Kar-Tukulti-Ninurta and Maškan-Šapir (Joffe 1998b; Margueron 1994; Smith 2003b: 2; Stone & Zimanksy 2004: 374; Vale 1992).

(Ašnakkum?) (McMahon et al. 2001: 214), Mozan (Urkiš) (Dohmann-Pfälzner & Pfälzner 2000) and Arbid (Bielínski 1998). In general, these trends suggest high population densities in small towns, contrasted with low population densities at the largest sites.[105]

In the Eastern Habur triangle, excavations indicate that the major capital cities were administrative shells, lacking the close-packed urban neighbourhoods of the late third millennium cities (Oates 1985). This is especially true for Leilan, which did not become the capital of Apum organically, but was purposefully established as a disembedded capital. Samsi-Addu's Šubat-Enlil recreated the urban political geography of a Southern Mesopotamian city, complete with a temple decorated with foreign "palm column motifs" on the Acropolis and palaces in the lower town (fig. 4.11). Šubat-Enlil, however, lacks the large domestic populations of Old Babylonian Southern Mesopotamian capitals (Woolley et al. 1976: 12). Leilan, like Rimah, seems to have been a "hollow city", filled with administrative and religious buildings. Eight seasons of excavations at Leilan have uncovered several administrative complexes—the Acropolis temple, two palaces in the lower town and another public building on the acropolis—but only a few houses adjacent to the city wall (fig. 4.12).[106] Tablets dating to the reign of Šamši-Adad have been found in the initial building phase of the Acropolis temple, with its column-ornamented facade. Sealings of the same king and of his son, Išme-Dagan date both the earliest building phase and the expansion of the Eastern Lower Town palace, which probably covered at least 1.25 ha and was the administrative heart of this city for nearly a century (Akkermans & Weiss 1991). Epigraphic evidence suggests that the Northern Lower Town palace was constructed by Qarni-Lim after the death of Šamši-Adad (Pulhan 2000). At Leilan, only the sparse domestic remains along the eastern city wall may pre-date Šamši-Adad's building project (Stein 1990). An analysis of the topography of the site suggests large, open spaces between these administrative complexes. It is unlikely that many people, apart from government officials, actually lived in Šubat-Enlil. The survey and excavations undertaken at the site of Hawa in the Iraqi Northern Jezira in the 1980s also imply dispersed settlement within that city (Ball et al. 1989: 35). Other capital cities may also have been essentially hollow, including Mari (Aynard & Spycket 1987-90; Fleming 2004a: 2) and Ebla (Pinnock 2001) (fig. 4.13).

[105] Carol Kramer concluded based on a sample of Iraqi data and Iranian Zagros towns, that density increases with settlement area (Kramer 1980: 324; Kramer 1982: 178-179); a conclusion that is often cited (Schloen 2001: 168). Yet other authors have assumed the opposite, that population density decrease as area increases (Sumner 1979; Wenke 1975-1976: 90). Although all authors believe that whatever pattern they have uncovered is independent of chronological constraints; the archaeological variation attested argues otherwise.

[106] For Period I Leilan excavations see (Akkermans 1991; Akkermans & Weiss 1991; Pulhan 2000; Weiss 1983, 1985a, b, 1990b; Weiss 1991; Weiss 1997b).

Letters from Mari and Leilan describe the conditions of the countryside around Apum, indicating that most people lived outside the city's walls. A fragmentary letter from Mari portrays General La-awil-Addu's strategy for capturing the city of Šehna. In order to control the city, he will isolate its inhabitants from the zone of villages lying just beyond its walls. As a result, he and Zimri-Lim will hold "the city in our hands".[107] Letters from Leilan give orders to gather the rural population—both pastoralists and farmers—into fortified cities when the countryside is under threat:

> Now you must give firm orders about the grain, so that they take the grain immediately from the villages to a (fortified) centre. Not even 1 litre of grain must be left in the villages.[108]

Gathering the countryside in a fortified city during war is a trope in Mesopotamia, as well as elsewhere. The empty nature of the excavated hollow cities, where large expanses of green land provided a location for refugee tents, grain storage and the country's herds illustrate this situation.[109] A line from a *kispum* ritual also testifies to Mari's hollowness. The ritual is to be performed, in the city (uru) and in its surroundings (á-dam), which describes the archaeologically attested situation at Mari, where most of the population lived in small villages surrounding the city, not the city itself (Durand & Guichard 1997: 63).

Excavations undertaken since 1987 at Mohammed Diyab (Azamhul?) reveal the spatial organisation of a dependent town (Durand 1990e, 1992a; Durand & Nicolle 1999). Excavations on the south lobe of the Acropolis exposed a long-occupied domestic quarter dating to this period, along with a simple temple. Five houses, of varying sizes, were ranged along alleyways (Castel 1996: 275-277). The houses were closely packed together, implying dense domestic settlement.

West of the Jaghjagh, thickly packed neighbourhoods dominated the occupied tells. At Chagar Bazar, a crowded domestic quarter (McMahon's Area G; Mallowan's area BD) and three administrative precincts (McMahon's I and A; Mallowan's BD) have been excavated, illustrating this town's dense population (Mallowan 1936; 1937; McMahon et al.

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[107] ARM 26/2, 320: "Atamrum and Hammurabi {gave] this order. General La-awil-Addu establishes a camp by the gate of Sehna [together with] 2 thousand troops. he (said), "The cultivated zone must not let the inhabitants [exit, nor] enter, and must no [ ] life, [] we [ ] the city in our hand...." (Heimpel 2003).

[108] LL 81: 15-21: *i-na-an-na at-ta dan-na-tim*/ *a-na še-em šu-ku-un-ma*/ *še-em ma-ah-re-em-ma*/ [*i*]*š-tu kap-ra-tim*/ ⌜*a-na*⌝ *re-bi-tim li-še-ri-bu*/ 1 sila *i-na kap-ra-tim*/ *la-a in-né-ez-zi-ib* See also LL 138 and 139. J.-M. Durand has noted that *kaprum*—translated here as village—is especially at home in a tribal context and may indicate nothing more than "un campement plus permanent que le rassemblement de simples tentes" (Durand 1998: 519).

[109] ARM V 36, 37 and 43 describe how Hasidanum, the governor of Karana, gathers the population of the countryside into a few fortified centres (Oates 1985: 585-589). (Dossin 1972) publishes several letters that refer to the nature of settlement in the "*kirhum*" (acropolis) and *adaššum* (lower town) of several North Mesopotamian cities. (Weiss 1985a: 277-278) also discuss the nature of settlement within these hollow cities.

2001: 210-219) (fig. 4.14). At Arbid, pisé retaining walls were built to level the mound and maximise space. A neighbourhood of attached houses was then constructed on the mound (Bielínski 1998: 211-213). At Mozan, Pfälzner has underscored the increasingly crowded nature of the domestic quarter in C2. Here, as at Mohammed Diyab, both small, low-status houses, as well as larger residences occur together (Dohmann-Pfälzner & Pfälzner 2000: 209). Outside of the Habur, at Hammam et-Turkman on the Balikh, this general pattern continues to hold true (Van Loon 1988). Similarly, a recent discussion of city-planning at MB Munbaqa also stressed the diversity of house-types (Heinz 1997: 294).

V. Landscapes of Field and Pasture

Environmental conditions rendered dry-farming uncertain across Northern Mesopotamia. People responded by diversifying agriculture and increasing their reliance on pastoralism. In phase 6, low rainfall translated into low yields across the plains, resulting in the abandonment of all but the best fields. In phase 7, when villages returned to the Eastern Jezira, settlement patterns reflect a new type of semi-pastoral economy. People lived in farming villages part-time and migrated with their herds part-time. This situation contrasted with that of the third millennium, when cities like Leilan had little contact with pastoralists to the south. By phase 8, this situation had been interrupted and the vast majority of permanent settlements in Northern Mesopotamia were abandoned again. We will address the textual evidence for the organisation of pastoralism, agriculture and land-ownership in Northern Mesopotamia and the archaeological evidence for changing economic strategies.

Kings, Tribes, Villages and Land Ownership

Excavations at Tell Leilan have produced ca. 1500 tablets from four separate archives—a wine archive, a beer archive, an "international relations" archive and an administrative archive—dating to the 18th century BC.[110] Although none of these archives are explicitly concerned with the administration of agricultural land, they contain texts that record

[110] These are divisible into four main collections: 80 complete tablets and 58 tablet fragments, all administrative texts dating to the reign of Samsi-Addu, were found in the Acropolis temple (Whiting 1990a). 651 tablets all belonging to the beer archive of Qarni-Lim were found in ceramic jars in the Northern Lower Town palace (Van de Mieroop 1995). 92 tablets found in room 2 of the Eastern Lower Town palace belong to Yakun-ašar's wine archive (Ismail 1991). Finally, the main archive in rooms 17/22 consisted of 679 fairly complete tablets and 140 tablet fragments (four other tablets were found in other rooms of the Northern Lower Town Place). This archive contained letters, treaties and administrative texts from the reigns of the last three kings of Šehna: Mutiya, Till-abnu, and Yakun-ašar, along with a copy of the Sumerian King List (Eidem N.D.; Ismail 1991; Vincente 1991, 1995).

agricultural and pastoral phenomena in Apum.[111] Letters from Apum found in the Mari archives provide further information on agricultural affairs. We will use these sources to reconstruct the prevailing social relations of land in Apum. We will also consider contemporary evidence from Rimah (ancient Qaṭṭara), Chagar Bazar, Shemshara and Mari in order to illuminate the connection between land-ownership, pastoralism, dry-farming and settlement in Northern Mesopotamia.

Pastoralists in the Kingdom of Apum

According to textual evidence, the kingdom of Apum included both settled townspeople and nomadic pastoralists. Treaties explicitly recognise Apum's dual foundation. When Hazip-Teššup of Razamâ swore not to break the provisions of a treaty with Mutiya of Apum his oath was directed not just to the king, but also to the people of Apum: "I have sworn this oath by the gods to Mutiya, son of Halun-pî-mu, the king of the land of Apum, his sons, his servants, his troops, his pastoral camps (*nawû*) and his kingdom".[112] The term *nawû* (sg. *nawûm*), which I have translated pastoral camp, also occurs in the letters and describes both a herding group that migrates seasonally and the areas where they pasture (Durand 1998: 515). Apum's *nawû* generally grazed in the Ida-maraṣ, the region now located in the West Jezira and the area surrounding the Sinjar Mountains. Their seasonal migration brought Apum into constant contact and sometimes conflict with distant kingdoms, hence their presence in the treaties.[113] As a result, the largest component of the Leilan letters on agricultural matters provides details about the negotiation of grazing rights in Apum and beyond.

Texts emphasise that the assignation of grazing rights to the *nawû* concerned not just the personal herds of each king, nor of the state, but the herds of the king's tribe as a whole. The term *hallatum* in the diplomatic correspondence designates a transhumant group consisting of both animals and people from a tribal milieu (Durand 1987: 171 c). Letter 138 cautions Mutiya not to let out the "*hallatum*", which were quartered in fortified cities during

[111] A large percentage of texts (21) from the Acropolis document the delivery or disbursement of grain or flour. A fragmentary field plan has also been discovered in this archive. Nearly 80 tablets from the beer archive in the Qarni-Lim palace record the receipt of barley or malt for making beer, although they give little information about their sources. A few letters and administrative texts from the last kings of Apum also discuss the intersection between diplomacy, agriculture and pastoralism and provide some hints as to the management of these pursuits in Apum.

[112] LT 2, V: '40-'44: *ni-iš* dingir-*meš an-ni-im*/ *ša a-na mu-ti-ia* dumu *ha-lu-un-pí-mu*/ lugal *ma-a-at a-pí-im*^{ki} dumu-meš-*šu*/ ìr-meš-*šu ṣa-bi-šu na-we-š*[*u*]/ *ù nam-la-ka-ti-šu-ma áz-ku*-r[*u*]. I have translated this into English using English syntax, not Akkadian (as Eidem does in his translation). The exact same phrase occurs in LT4, col. ii: 3-6 (when Till-abnû is king) and has been partially reconstructed in LT 1, 19-21 when Haya-abum and Qarni-Lim are the negotiating partners.

[113] Several Mari letters indicate conflict between Mari's pastoral authorities and client-kings see (ARM 28 48: 3'-8'; ARM 27 105: 36'; ARM 27 70:17-29).

times of threat (Eidem N.D.: 175). In some cases, tens of thousands of sheep are involved. An official reporting on a threat from marauders (*habbātum*) advises Mutiya to send 30,000 sheep to the interior of the country, where they may be protected (Eidem N.D.: Letter 22).

The kings of Apum controlled access to extensive pasture. They used this pasture for Apum's own sheep, apportioned it to their clients and occasionally granted it to allies for political purposes. A letter from Niqmi-Adad, probably a client of Apum, to the king, Till-Abnû shows the political stakes involved in determining pasture:

> Previously I wrote to you about my sheep and you said: Place your sheep in Ahanda, let (them) go there". This my "elder brother" told me. The sheep (were ready) to be led to Ahanda, but the god struck my sheep [with illness] and until I appeased the god, I held them back. The sheep of Nilibšinnum were placed in Ahanda [instead]. Afterwards, when I had appeased the god, Yaqbiya, the chief shepherd indicated the town Kuzāya for the sheep; the sheep were placed in Kuzāya, but the sheikh of Kuzāya chased my sheep away. Now will my elder brother please send his retainer with my retainer, so they will not chase my sheep from Kuzāya.[114]

The places mentioned in this letter all occur in the neighbouring kingdom of Kahat, along the Jaghjagh. If Till-abnû could grant pasture rights to his clients in an area supposedly controlled by another kingdom, then Apum's status during this period probably derived from its control of pasture, not just agricultural surplus. Another letter from Šepallu, the king of Karana/Qaṭṭara, gives us further evidence of Apum's extensive pasture:

> My brother previously wrote to me saying, "Send me 4000 sheep and I will divide them between the four towns Šunâ, Nawali, Azamhul and Urpan. I sent these sheep to my brother; will my brother please write to [the towns], that they must not drive the sheep from grazing, nor trouble the shepherds. Let them move around together, just like the sheep of your own country. (Let) him who wishes stay in Urpan and let him who wishes drive [his sheep to the pasture] beyond".[115]

Till-Abnû has dispensed grazing rights to a foreign king to pasture located in the Land of Apum "proper" (Azamhul and Urpan) and in nominally independent territories (Nawali and Šunâ).

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[114] LL 85: 5-30: *i-na pa-ni-tim aš-šum* udu-há-*ia*/ *a-na şe-ri-ka aš-pu-ra-am-ma*/ *um-ma at-ta-ma* udu-há-*ka*/ *i-na* uru *a-ha-an-da*^{lki} *i-di-ma*/ *aš-ra-nu-um li-ir-di-e-a*/ *an-ni-tam a-hi* gal *iq-bé-em*/ udu-há *a-na* uru *a-ha-an-da*^{ki}/ *a-na re-di-im-ma*/ udu-há-*ia* dingir-*lum*/ *il-pu-ut-ma a-di* dingir-*lam*/ *ú-ša-al-li-mu*/ *ma-ah-ri-ia-ma ak-la-ma*/ udu-há *ša* uru *ni-li-ib-ši-ni*/ *i-na* uru *a-ha-an-da*^{ki}/ *id-du-ú wa-ar-ka-nu*/ *ki-ma* dingir-⌜*lam*⌝ *ú-ša-al-li-mu*/ ^{l}*ia-aq-bi-ia ú-tu-lu*/ uru *ku-za-a-ia*^{ki} *a-na* udu-⌜há⌝/ *iq-bi* udu-há *a-na ku-za-*⌜*a-ia*⌝^{ki}/ *id-du-ma* lú *sú-ga-gu*/ *ša ku-za-a-ia*^{ki}/ udu-há-*ia uk-ta-aš-š*[*i-id*]/ *i-na-an-a a-hi* gal/ 1 lú-tur-*šu it-ti*/ lú-tur-*ri-ia li-iṭ-ru-ud-ma*/ udu-há-*ia i-na* uru *ku-za-a-ia*^{ki}/ *la ú-ka-aš-ša-du*

[115] LL10: 6-22: *i-na pa-ni-tim a-hi ki-a-am*/ *iš-pu-ra-am um-ma-a-mi*/ 4 *li-mi* udu-há *ṭu-ur-dam-ma*/ *a-na* 4 uru^{ki}-meš *šu-na-a-*<<x>>^{ki}/ *na-wa-li*^{ki} *a-za-am-hu-u*[*l*^{ki}]/ *úr-pa-*⌜*an*^{ki}⌝/ *lu-zu-u*[*z-zi-na-ti*]/ udu-há *ši-na-ti* ⌜*a*⌝-*n*[*a şe er*]/ *a-hi-ia aṭ-ṭar-da-am* ⌜*a*⌝-[*na* uru^{ki}-meš]/ *a-hi li-iš-pu-ur-ma* udu-há *ši-na-ti*/ *i-na ri-tim la-a ú-sà-ak-ka-/pu/ ù* lú-sipa-meš *la-a ú-sa-ah-ha-lu*/ *ki-i-ma* udu-há *ma-ti-ka-a-ma pu-hu-ur*/ *li-ik-ta-ab-ba*/ *ša-a li-ib-ba-šu i-na úr-pa-an*^{ki}/ *ù ša-a li-ib-ba-šu ul-li-iš*<<x>>/ *li-še-ti-iq*

The letters hint that the majority of Apum's pasture lay along the Jaghjagh, the Middle Habur and around the Sinjar. Letter 84 indicates that Apum's sheep grazed in the central Habur Triangle, while letter 99 mentions problems with the *nawûm* in the district of Kahat specifically. Letter 55, from the king of Ṭabātum warns Till-abnû not to neglect the *nawûm*, implying that Apum's sheep grazed along the Middle Habur. Finally two letters imply the presence of Apum sheep and herding groups in Numhâ, south of the Sinjar (perhaps the area around Tell Khoshi, Joannès 1996). Letter 171 reports that due to the presence of *habbātum* (raiders) in Numhâ "the sheep of the country" are being sent from Kurda to Ewri in Šurnat (a city in Apum), probably Qal'at al-Hādi, just east of the Leilan survey area (Eidem N.D.: 27).

Other documents mention Apum sheep or sheep from foreign locales grazing within the land of Apum, suggesting that the countryside was a patchwork of land used for agriculture and pasture. Two of the locales where Šepallu's sheep graze at the invitation of Till-Abnû lie in Apum. Azamhul has been tentatively identified with Mohammed Diyab (Charpin 1990a). This is the only extant reference to a town of Urpan, but given the geographic orientation of the other towns (north-west to south-east), it may be located south or south-east of Mohammed Diyab. The soil survey undertaken in 1987 around Tell Leilan had suggested that the eastern plateau beyond Mohammed Diyab was an attractive location for pasture; similarly, the foothills of the Tur 'Abdin, adjacent to Nawali and Šunâ may also have served as pastures.

Nevertheless the majority of the evidence suggests that Apum's largest pasture-land lay to the south, near the wadi Radd. Although dry-farming can be practised in this area, which today receives between 250 and 300 mm of precipitation, it is better suited for pasture. A letter from Mašum, a client of Apum, whose kingdom was located on the southern/south-eastern border of Apum, between the wadi Radd and the Jebel Sinjar, writes that the sheep are in danger and must be moved into multiple walled cities (Eidem N.D.: letter 18). He is likely referring to Apum's sheep, grazing immediately to the north of his kingdom. Another letter reports that a messenger from Halab, *en route* to Andarig with 6000 men, has requested free passage through the area of the Bedouins (ha-na-meš) and the sheepfolds (*hāṣirātum*) in Apum (Eidem N.D.: 150).[116] Since this messenger is leaving from Kahat, south-west of Leilan, his route will take him through the southern part of Apum (and of the Leilan survey

[116] See (Durand 1990c) for this translation of *hāṣirātum*. See fn. 121 and 131 for Haneans in Apum.

area). Finally, letter 171 cited above provides further evidence for Apum sheep grazing in the area north of the Sinjar.

Letters from Mari also describe the use of the southern half of Apum for pasture and the conflicts provoked by the demands of farmers and herders. In ARMT XXVI/ 358, the Bedouin from south of the Sinjar are threatening the villagers of this area:

> The nomads of Yankudum occupy the entire region of [both] the lake of Halaba and [the area] between the two Saphums. They are encroaching on the pasture and they continually send spies to Kasapa. Now, there are towns on the margins of the canebrakes, where [the nomads] have placed themselves, which are inhabited. Their population is assembled in the fortified towns. And at night the nomads go about....[117]

The lake of Halaba probably refers to the Radd, which was a perennial body of standing water prior to the twentieth century irrigation projects undertaken in North-eastern Syria. Water still flows in the Radd today, even during summer when the other wadis run dry. The two Saphums are located north and south of the Sinjar, in Apum and on the border between Ekallātum and Karana respectively (Charpin 1990d: 94).

Anthropological literature has emphasised that pastoralists are never truly separate from settled society, for they rely on grain for their subsistence (Khazanov 1994). The identification of two new terms in the Mari letters gives us some notion of how pastoralists exchanged sheep for grain in the early second millennium. The first term is *šê'um šepâtum.* It describes regular grain delivery to the Bedouins from the towns, probably exchanged for sheep deliveries (Durand 2004: 191; Guichard 2002: 154-165). The clearest occurrence of this term explicates the operation of this institution in Apum (A.350, LAPO 16 333).[118] In this letter, from the time of Zimri-Lim, the Sim'alite Bedouin are waiting for their promised delivery of grain from the towns of Apum. A servant of Qarni-Lim, at this moment the *de facto* ruler of Apum, is in charge of transporting 100 donkey-loads of grain from Azamhul to Saphum, as part of this delivery. The second term is *laqtum*, a state-levied tax on the increase of both sheep and cattle. Durand explains it as a Mari dialect term, used specifically for a tax on animals, which is partially synonymous with *biltum*—a general tax owed to the state (Durand 2004: 191-194).

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[117] ARMT XXVI/2 358 3-14: [lú-meš *ha-nu*]-⌈*ú ša ia*$^{?}$⌉-*an*$^{?}$-*ku*$^{?}$-*di*$^{?}$-*im*^{ki}/ *i-na- te-em-tim ša ha-a-la-ba-a*^{ki}/ *ù bi-ri-it sa-*[*a*]*p-hi*^{ki} *ki-*[*l*]*a-al-li-in/ qé-er-bé-tam ka-*[*la-š*]*a sa-ak-nu-ma/ aş-şe-er ri-*[*tim ú*]*-ba-az-za-*[ʿ]u_5/ *ù a-na ka-a-ia-*[*an-tim*] *na-aş-ra-am/ a-na ka-sà-pa-a*^{ki} [*u*]š-[*t*]e-*né-şe-şú-ú/ ù i-ba-aš-se-e a-la-nu* [*š*]*a a-ah qa-né-e/ ša sa-ak-nam-ma wa-aš-ba ù* lú-lú-meš-*šu-nu/* [*i-n*]*a a-al dan-na-tim ka-mi-is/ ù i-na mu-še-tim* lú-meš *ha-nu-ú i*[*t-t*]*a-na-a*[*l-la-k*]*u-ma/ ..... tim*

[118] See also (Charpin 1990a; Sasson 2001) for the transliteration and a photograph of this letter.

Land Ownership and Farming Practices

No documents from Tell Leilan address land tenure specifically. However, evidence from Mari letters describing this region and analogies to other regimes in Northern Mesopotamia allow us to delineate three types of landed property: non-state property (the land of the *muškēnum*), state-distributed property and state-owned and managed property. A letter from an administrator in Suhûm to Yasmah-Addu distinguishes these three property types in terms of their relationship to the state:

> The barley of the *šibšum*-tax has been completely collected. The barley of the threshing floors is collected and half of it has been transported. But the transportation of the barley for rations (constituted by) the production obligation of the farmers of the upper district has not yet begun (ARMT 26/1 265: 20-25, Van Koppen 2001: 463).

Frans van Koppen has reconstructed agriculture at Mari and argues that the *šibšum* tax derived from non-state owned properties, while state-distributed (but individually managed) property-owners paid what they owed to the state "on the threshing floor". Finally "barley for rations", or še.ba, is the institutional designation for barley harvested from state lands. Although these categories describe the administration of Mari's land during the Kingdom of Northern Mesopotamia, there is no reason to suppose that land was administered differently in the area around Šubat-Enlil. We will outline the evidence for agricultural practices on non-state, state-distributed and state-owned property.

All of the texts—sales contracts, legal documents and letters—describing land tenure in Northern Mesopotamia during this period detail situations involving the state (Durand 1998: 522). This point has been rarely recognised. Unfortunately much of the discussion of land tenure at Mari has focused on the existence of "private property." Even if land was normally alienable at Mari, which is not definite, the use of the Western terminology of "private property" with its Whig connotations obscures actual land tenure practices (Renger 1994). Both Batto and Kuyper ague that the sales contracts from ARM VIII confirm the existence of private property (Batto 1980: 210-211; Kuyper 1988: 75). However, neither these documents, nor the one other published land sale document (M. 10556) (Durand 1982b), concern private buyers or sellers. Rather, they document the state purchase of land from tribal leaders. The presence of these documents in the royal archives of Mari and not in private archives supports this argument, as does the terminology in the contracts themselves. Of course, in practice, a certain individual or family probably "owned" or at least had use-rights to a field within the communal holdings. Such land may even have been bought and sold. However, firm evidence for this is currently lacking. In stark contrast to Southern Mesopotamia, no private archives have been discovered in any of the areas under

consideration. As a result, our evidence for non-state-owned land is sparse. At Mari, this land is attributed to the "*muškenum",* the element of the population not employed by the state.[119]

Our evidence suggests that land-ownership was organised by tribal affiliation for both sedentary and semi-sedentary villages.[120] Such a situation has long been posited for the towns along the banks of the Euphrates, but a recently published letter from Mari describing events in Apum suggests that villages here also maintained tribal affiliations. The letter describes a situation where two rulers, one located within the land of Apum (Ili-Addu of Kiduh) and one on its border (Ili-eštar of Šunâ), both claim possession of a certain village. They appeal to Zimri-Lim, king of Mari, to resolve their quarrel. He appoints a judge and orders the two kings and the elders of their cities to assemble before him. The judge adjudicates the case in time-honoured Mesopotamian fashion by appealing to the judgement of the river god. Two men and two women from each village must go to the disputed town, take a handful of earth and plunge into the river, saying, "I swear that this town is my town". The people from Šunâ must claim it as part of the "share" of the Yabasum tribe, "which was given to them of old", while the people from Apum must claim it as the share of the Hana tribe, "which was given to them of old".[121] It seems that in 17th century Apum, towns as well as mobile pastoralists had tribal identities governing their rights to fields and pasture.

Elsewhere in Northern Mesopotamia there is strong evidence that a town's tribal identity translated into tribal ownership of the land (Durand 1998: 516-520). A document records the transfer of 150 iku of land from 13 leaders of the Sons of Awin, part of the larger tribe of the Rabbean Awin, to a royal official (ARM VIII 11). The sellers are described as "five sons of Awin living in the town of Appan" and "eight sons of Awin, the pastoral group of the steppe".[122] These sons of Awin allot an inheritance share of this land to Yarim-Addu,

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[119] See ARM II 55 29ff.=LAPO 705; ARM II 61=LAPO 703; ARM X 151 18-20; ARM XIV 81 37-39= LAPO 752. This term does not appear at Leilan.

[120] Fields and towns specifically described as Yaminite are ARM II 55=LAPO 705 ARM XIII 39=LAPO 781.

[121] ARM XXVIII 95: 22-32: [*šu*]*m-ma* uru^{ki} *šu-ú a-al-ka* 2 lú-meš 2 munus-meš lú *šu-na-a*^{ki}/ [*e-p*]*é-er* uru^{ki} *ša-a-ti li-il-qú-ma* ^{d}i-id *li-iš-lu-ú*/ [*ke-e-e*]*m li-iq-bu-ú um-ma-a-mi* uru^{ki} *šu-ú lu-ú a-li*/ *ù i*[*š-tu a*]*q-da-mi a-n*[*a*] ha-la [*y*]*a*(*ia*$_8$)-[*b*]*a-si-im*^{ki} *lu-ú* [*n*]*a-di-in*/ lú *a-pa-a-yu*$^{[k]i}$ *a-na qí-iš*$_7$*-tim la id-di-nu-šu an-ni-ta*[*m*] *li-iq-bu-ú*/ [*l*]*i-iš-lu-ma* uru^{ki} *ša-a-ti li-il-qú-ú ú-la-šu-m*[*a*]/ [2 l]ú 2 munus lú *a-pí-i*[*m*]^{ki} *e-pé-er* uru^{ki} *ša-a-ti li-il-*[*qú-ma*]/ [^{d}i-i]d *l*[*i-i*]*š-lu-ú um-*[*m*]*a-mi* uru^{ki} *šu-ú lu-ú ša šub-ub-r*[*a-am*]/ [*ù i*]*š-tu aq-d*[*a*]*-m*[*i*] ⌜*a*⌝*-n*[*a*] ha-la ha-na^{ki} *lu-ú na-di-*[*in*]/ [*an*]*-i-tam li-iq-bu-ú li-*[*i*]*š-lu-ma* uru^{ki} *ša-a-t*[*i*]*/ li-il-qú-ú...* Please see discussion of this below, section VI, 2.

[122] ARM VIII 11: 9-10: 5 dumu-meš *A-wi-in wa-aš-bu-ut*/ *Ap-pa-an*^{ki} and 20-21: 8 dumu-meš *A-wi-in*/ *hi-ib-ru-um ša na-wi-im*. See also the new collations by Durand, (Durand 1982a). The translation of *hibrum* relies upon Fleming's commentary taken from A. 981: 32-42, "The *hibrum* appears to be the nomadic component of the Yaminite population... This is the part of the tribal people who live with the flocks, outside the settled villages and towns of the kinsmen they support (Fleming 2004a: 63).

whom they describe as their brother.[123] The verb that I have translated as "to allot an inheritance share", *nahālum,* occurs in the majority of land sales contracts from Mari. It usually denotes inheritance and might be best translated as "to bequeath a share of tribal or communal property" (Durand 1997: 100-101; Durand 1998: 452b; Durand 2004: 176). In Biblical Hebrew, a cognate sees it as part of "the inheritance language of nomadic or semi-nomadic tribes" (Batto 1980: 227; Boyer 1958: 190-197; Falkenstein 1960: 176-177; Kuyper 1988: 75). Generally, this verb concerns not a sole right to a plot of land, but a right to a lot within a larger allocation of land belonging to a tribe. Although some prefer to link this verb to "feudal practice" and thus royal land grants (Batto 1980: 227-229; Forshey 1973: 43-67), the tribal context better fits our recent understanding of the Mari material, as reflecting a series of "tribalised states".

Although none of the other sales documents testify as clearly to the existence of tribal ownership, they contain other information that links these sales to a tribal milieu. First, in 12 real-estate transactions, the seller is described as the "king" of the house or the field in question. In these transactions, the West-Semitic word for king, *malkum and* LUGAL, the Sumerogram for king, occur.[124] Although *malkum* occurs infrequently at Mari, when it does occur it generally refers to a tribal leader (Durand 1997: 475). Evidence of a tribal connection here is strengthened by the second singularity of these documents, particularly ARM 22 328, a five-column tablet detailing the land purchases of Warad-Sin, a palace official. In the entries in this text where Ilalakam, the *malkum*, is the seller, the same names are frequently repeated in different contexts (as witnesses, neighbours etc.). Several of these people receive payment for different fields, with Ilalakam receiving the largest amount. The payment to Ilalakam is described as *nebehum* and references in the letters suggest that it was a fee paid so that the seller would relinquish all future rights to this property. Kuyper has hypothesised that all of these sales had a tribal context and that Ilalakam was the head of a semi-nomadic community whose members were involved in these land-sales (Kuyper 1988: 74).

One other legal text also documents tribal land-ownership in a town on the Euphrates downstream of Mari. Pulsi-Addu of the clan of Yabusûm and 37 of his "brothers" (fellow tribe members) claim a certain field held by the palace (Charpin 1997b: 342-347). The case is referred to the heads of the Yabusûm clan in the city of Sapirâtum who are both tribal and

[123] cf. (Fleming 2004a: 95) who believes this is a transfer between the first five sons and the second eight sons, an interpretation which I can only suspect is a mistranslation as it ignores lines 24-26 which clearly cite Yarim-Addu as the object of the verb *in-hi-lu*, as well as the presence of Samsi-Addu in line 29.
[124] ARM VIII 2-5; ARM 22 328: 1, 3, 9, 10, 13, 14, and 16.

civil authorities. They issue a ruling in support of the king, against Pulsi-Addu and his clan, with a further stipulation that anyone who [falsely] claims "a field of the king in the town of Sapirâtum and of the kinsmen of Lahmumu, must pay 10 minas of silver to the palace" (Fleming 2004a: 202). The doubling of tribal and civic authority in this text mirrors the terminology in the Leilan treaty cited above. The multiple clans, tribal divisions and actors in this legal text referring to one city attest to the complexity of social divisions of the countryside in the early second millennium BC. Their collective presence, however, attests to the critical role that tribal affiliation played in access to farmland.

This evidence suggests that tribal ownership of property was the abiding reality in Northern Mesopotamia during these three phases. Although kings claimed to own all of the land, this claim rested on three bases: their status as chief of a tribe and thus a recipient of tribal land, their status as king of a city possessing its own land and finally, their military prowess, which allowed them to appropriate other land. It is this last situation that allowed Zimri-Lim to claim territory from the Yaminites, an enemy tribe (ARM II 55).

Kings carefully chose when to assert their authority over land controlled by the tribes. Zimri-Lim, for example, never forced any changes in land ownership among his own tribe, the Sim'alites; but after putting down their revolt, he redistributed land among the Yaminites as part of a census (*tebibtum)* (Durand 1998: 347-353). Such censuses were performed "for purposes of military conscription". They had the secondary purpose of allowing the king to redistribute land in accordance with the status of an individual or a family's role in service to the state (Batto 1980: 216-7). The redistribution of tribal land thus asserted the authority of the state and the head of a rival tribe, over the conquered population, firmly tying them to the new state apparatus. A decade previously, Samsi-Addu and Yasmah-Addu had performed a census of the Sim'alites, including the nomadic population (ARM V 51; ARM IV 7+; ARM 1 37, 14); but decided that land distribution among the Yaminites could cause too much trouble:

> Concerning the fields on the banks of the Euphrates... you wrote to me as follows, "Should the Bedouin of the steppe take fields along the banks of the Euphrates or not? I asked Išar-Lim and other people who know. They convinced me to neither allocate, nor even examine current fields along the banks of the Euphrates. If you allocate these fields and examine them, there will be numerous complaints... The fields must be on no account a cause for trouble. Just redistribute the fields of the dead and fugitives. Give them to those who do not have fields.... (ARM I 6. Translation follows Durand, LAPO 17 641).

The kings of this area could also allocate land to other communities, like villages of deportees. Samsi-Addu instituted a policy of deportation following his eastern campaigns and perhaps otherwise as well. He resettled members of the Turukkean tribe—probably a Hurrian-speaking population—in the area around Šubat-Enlil, Kahat and elsewhere in the Habur Plains. This resettlement policy failed and the deported Turukkeans revolted, threatening Šubat-Enlil and many of the towns in the Habur plains (Eidem 1992: 20-21; Eidem 1993; Eidem & Laessoe 2001: 52-55). Documents found at Mari show that deportees could either be assigned a palace-owned field for them to work (ARM IV 4, LAPO 758), or granted rations:

> Divide [the land] into shares... Find fields for them so that they may cultivate them. All those [deportees] who do not find themselves equipped and thus cannot cultivate should be assimilated (lit. turn towards urgently) to the reserve troops. These are truly members of the reserve troops; they may receive rations of barley, oil and clothing from the palace. (ARM IV 86, LAPO 772: 30-36)

Apart from the letters concerned with the Turukkean revolt, we have only a very fragmentary letter about sending deportees to Šubat-Enlil (ARM 26/1 91).

One letter refers to the *dumâtu*, "the villages" located in the Eastern Habur triangle, possibly in Apum itself, which given the evidence for Samsi-Addu's policies of resettlement, could have housed these deportees (Durand 1990a; Durand 1998: 19, 523): "As for me, I will send a troop of 10,000 men, a troop from the land, which is both a troop of the villages and a troop of the 'land...'" (ARM I 42, LAPO 448). 10,000 troops is the largest levy raised from any part of the kingdom; double what Yasmah-Addu has levied from the district of Mari and the Bedouins. This suggests that the "land" and the "villages", the dry-farming area directly controlled by Samsi-Addu in the district of Šubat-Enlil, comprised the most populous area of the Kingdom of Northern Mesopotamia.

The state also distributed land directly to its employees. In general, this land remained the property of the state and could not be disposed of according to the wishes of its proprietor (ARM XIV 17 11'-13'). The recipients of royal land grants owed the palace taxes in kind (ARM IX, ARM XI and ARM XXIII). Such taxes were occasionally characterised as *šibsum*, although sometimes receipts simply note the name of the estate from which it was received (Batto 1980: 220; Ellis 1976: 100-05). Certain fields could also be "released" to servants of the king or members of the nobility, who would then be free to cultivate the land (Batto 1980:222-227).

As a result of such policies, high-ranking servants in Northern Mesopotamia possessed multiple agricultural estates and herds in different locations, similar to the situation

at Ebla (Chapter 3). The Mari evidence testifies that Yasmah-Addu possessed "houses"—manorial estates (Renger 1994: 184)—in Šubat-Enlil, Ekallātum, Mari and Dūr Yasmah-Addu (Villard 2001: 100-11). Each of these establishments possessed fields and herds (Durand 1997: 39, ARM XII 139). Likewise, Zimri-Lim kept a house in Aleppo with a skeleton staff, where he stayed when he had business in Yamhad (Durand 1997: 151, XXVI/3, A.2933). Recent excavations at Tell Leilan show that Qarni-Lim of Andarig owned a house, complete with a brewery and barley fields, in Šubat-Enlil in addition to his palace at Andarig (Pulhan 2000).

Each kingdom also owned fields that were directly cultivated by palace dependants. With the exception of a few documents relating to these fields—or their workers—found in the archives at Rimah, Leilan and Chagar Bazar, we have little direct evidence of how the palace administered state-owned lands in Northern Mesopotamia. In contrast, Mari provides letters and administrative texts recording the practice of irrigation agriculture in its three provinces (Birot 1993; Durand 1990d; Lafont 2000a; Van Koppen 2001); while Archive 2 at Tell Shemshara is almost exclusively concerned with "the circulation of agricultural products and the movement of personnel"(Eidem 1992: 26). Large sections of both Iltani's archive and the Rimah temple archive also relate to agricultural affairs (Dalley et al. 1976: OBTR 88, 145, 156-7, 163, 171-194, 223-243, 278-335). The Rimah evidence is most analogous to the situation at Leilan, given the environmental and probably ethnic, similarities between these two regions. In the following account, the basic organisation of agriculture at Mari will be sketched and then modified according to the information from Rimah and Leilan.

The "plough team", designated by the Sumerogram for plough, ^{giš}apin, was the basic work-unit on state-owned agricultural fields (Talon 1983: 47). Such a team included from 10-16 members (Van Koppen 2001: 470-471). The personnel included "a handle-holder" who directed the plough and the other team-members, a "seeder", three or four ox-drivers, up to five "weeders", two grinders or millers and occasionally a "lubricator", responsible for the upkeep of the plough. At Mari these teams also included "an irrigator", although his services were presumably not required on the dry-farming estates of Northern Mesopotamia. 7 to 8 oxen were also assigned to each team. A "farmer", a high-ranking individual who was probably an entrepreneur, under contract to fulfil a pre-calculated production quota on state farms, oversaw the entire team (Van Koppen 2001: 478-482) but cf. (Sasson 1976: 10). Each team was expected to work 150 iku, probably about 54 ha, which was expected to yield—in the irrigated alluvium of the Middle Euphrates—1500 gur of barley (Van Koppen 2001:

485).[125] The sector of the Mari administration concerned with agricultural activities, the *kidum*,[126] issued tools and rations to the plough teams (see Van Koppen 2001: 478, for references). Rations for agricultural workers and their animals are also attested at Chagar Bazar and Tuttul.[127] Five Shemshara tablets note the issue of pulse seeds to village fields, soldiers' fields and palace fields (Sh2: 4, 6, 10, 12 and 14 in Eidem 1985; Eidem 1992: 27-28), while a large tablet from Rimah records barley and *burrum* for planting palace owned fields in four districts (OBTR 322). At harvest-time, a general *corvée* often supplemented this workforce. A Leilan letter notes that one of the governors of the land had assembled the workers of the district at Azamhul for the harvest, as his lord had instructed (LL 135).

A letter from Samsi-Addu to his son suggests that state agriculture in the district of Šubat-Enlil also relied upon plough teams. Samsi-Addu complains that despite having numerous ploughs at his disposal, he lacks workers:

> I have manufactured many ploughs at Šubat-Enlil, but there are no handle-holders for these ploughs. Take five farmers from the pool of farmers that are in your employ and conduct them [here].[128]

A letter found at Tell ar-Rimah also refers to plough-teams as the basic agricultural unit in the dry-farming zone (OBTR 280 in Hawkins 1976: 205).

Administrators sent ration-barley harvested from crown states throughout the region to the capital. During the period of the Kingdom of Northern Mesopotamia, many towns sent agricultural surplus to Šubat-Enlil. A text excavated at Tuttul records oil given to a "wagon, which a man was bringing to the land of Šubat-Enlil" (Krebernik 2001: KTT 75: 4-7). Similarly, a dispatch statement from Chagar Bazar logs deliveries of flour, sheep and nanny goats for Šubat-Enlil (Talon 1997: CB 87). Following the fall of Samsi-Addu's and Zimri-Lim's kingdoms, the kings of Apum continued to receive agricultural deliveries from their estates in Apum (LL 164).

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[125] The high yields attested at Mari, in comparison to Southern Mesopotamian regimes, has puzzled Assyriologists (Lafont 2000a: 141-142). These unusual results may be explained by either higher seeding rates (Van Koppen 2001: 484), a larger *iku* (Van Koppen 2001: 484-485), or the fact that many of the texts record unrealisable production goals, not actual yields (Van Koppen 2001: 483).

[126] The office of the *kidum*, which means "outside" in Akkadian is one of the two main offices in the Mari administration, as described in ARMT 26/2 300: 8'-19', the *libbi alim* is the other. The *kidum* is responsible for "fields, plough teams, and grain silos," while the *libbi alim* is responsible for "the storage facilities, administrative quarters, craftsmen, workshops..." (Van Koppen 2001: 456-457). Since the records of officials concerned with activities outside the heart of the city were rarely kept within the city, we have recovered few of them and do not have a great idea of the agricultural underpinnings of the economy.

[127] For Tuttul: KTT 135 lists rations for 60 oxen in the charge of three farmers; KTT 137 lists rations for plough teams and their oxen; and KTT 165-167 are partially broken but also record rations for plough teams and their oxen, as is KTT 321 (Krebernik 2001). For Chagar Bazar: CB 53, 57, and 60 are rations of gu_4.hi.a *e-re-ši* "ploughing oxen," while farmers are given rations along with their families in CB 66 and 70 (Talon 1997).

[128] ARM I 44: 1-12 = LAPO 753, I have followed Durand in his reconstructions.

The letters also caution us from drawing too strict an analogy between agricultural practices elsewhere and at Šubat-Enlil. In one document, an official whose recent promotion made him the overseer of Yasmah-Addu's estate in that town asks Yasmah-Addu to write to the agricultural manager so that the manager can instruct him in the proper customs of the land, which differ from those in Mari (ARM XII 142: 24-46=LAPO 832). We do not know, unfortunately, how the customs differed; tribal and environmental differences meant that not all Mari practices were suitable to Apum.

Archaeological Signatures of Semi-Pastoralism

Palaeobotanical and zooarchaeological data from the Habur triangle and North-west Syria suggest that the subsistence strategies of settled towns and villages changed from the third to the second millennium BC. Evidence from the Habur triangle indicates the emergence of an increasingly diversified agricultural economy and increased ovicaprine herding in the steppe. In contrast, studies undertaken in North-western Syria and along the Upper Euphrates accentuate diversified cropping and decreased emphasis on sheep herding. The inhabitants of this area exploited the wild resources of the steppe instead.

The palaeobotanical samples from Brak suggest an intensification of animal herding and a diversification of agricultural products in all three phases and perhaps increased use of irrigation in phase 6. The majority of botanical samples analysed resulted from burnt animal dung, informing us about pasturing and foddering strategies (Colledge 2003: 406). The composition of the cereal, pulse and steppe weed taxa in second millennium assemblages are clearly distinct from earlier assemblages (Colledge 2003: figure 11.10). In general, these reflect an economy geared towards animal production. Most of the barley remains are rachis internode fragments, probably crop-processing residue fed to animals as fodder. The greater number of pulses, many of which are fed to livestock today, may signal increased foddering (Colledge 2003: 400). The high number of grass seeds indicate that herds grazed extensively in the steppe, while the high number of taxa is "an indication of a greater use of fallowing, of the expansion of fields into the steppe or of the degradation of the land at this time" (Colledge 2003: 411). This contrasts to the late third millennium BC, when palaeobotanical analysis suggests a focus on barley mono-cropping. Such a strategy may have been an attempt to compensate for the increasingly marginal environment around Brak (Halstead & O' Shea 1989). The higher frequency of the water-loving plants *Scirpus maritimus* and *Rumex conglomeratus* in phase 6 samples imply that increased irrigation was another response to drought conditions (Charles & Bogard 2001: Table 33).

Although quantitative data from Mozan have not yet been published, the preliminary data similarly suggest a diversified agricultural regime. A wide variety of cereal and pulse taxa were present in the second millennium (Riehl 2000: 232). The large numbers of weeds from wet environments may suggest that the inhabitants practised some type of irrigation agriculture or were subject to seasonal flooding (Riehl 2000: 234).

Faunal analyses at Brak and Chagar Bazar shows that the relative proportion of exploited animals changed little from the third to the second millennium. At Tell Brak, the ratio of ovicaprids to pigs increased from the third to second millennium, although the early second millennium still had a high proportion of pigs (Dobney et al. 2003: Table 12.2). Similarly at Chagar Bazar, sheep and goats were only marginally more numerous than pigs when the MNI (minimum number of individuals) was calculated (Pritchard 2000: 42). The remains from Tell Brak did suggest, however, that the provisioning of the second millennium settlement had shifted from earlier times; as the types of bones represented in the refuse from sheep and goats are quite different. This may result from a situation where the permanent residents at Brak and Chagar Bazar raised pigs at a household level for their meat and received certain cuts of lamb and goat as part of a system of institutionalised exchange like the *šê'um šepâtum*.

In contrast, states located along the Upper Euphrates and in North-western Syria switched from sheep and goat pastoralism to onager hunting. At Umm el-Marra, the percentage of equids doubled from phase 5 (15%) to phase 6 (28%) and increased still further by phase 7 (41%). Indeed, by the final phase, the percentage of equids in the sample is only slightly lower than the percentage of caprids (Weber 2000: 435-436). Jill Weber explains this change by emphasising the increasing importance of the steppe to the inhabitants of this ancient city (Weber 2000: 435). A study of the faunal remains of Tell Hadidi also attests to a high ratio of wild to domestic fauna in phase 6 (MB I), 1:3.9, although this decreased by phase 7 (MB II), 1: 9.9, suggesting that hunting was extremely important to the survival of the residents of this site in the early second millennium BC (Buitenhuis 1979).

Palaeobotanical evidence from these kingdoms implies that the steppe was used less frequently for sheep and goat pasture in the west. At Umm el-Marra, the ratio of wild plants to domestic cereal decreased from 14:1 during the third millennium to 5:1 in the early second millennium, showing that sheep and goat were foddered rather than pastured (Miller 2000: 446). The evidence reveals a three-fold reduction in tree cover over the same period. This data reflect a new focus on the steppe for hunting and a decline in its use for pasture, along with an intensification of foddering practices. The evidence from Umm el-Marra also shows

a slight increase in diversified crops, with the percentage of barley decreasing from the third to the second millennium BC and the incidence of other cereals and pulses increasing (Miller 2000: 439 and Table 4). Palaeobotanical evidence from nearby sites during this period (Hadidi on the Euphrates and Hammam et-Turkman on the Balikh) indicates that a wide-range of cereal and pulses were grown, perhaps reflecting diversification strategies (Van Zeist 1995: 544; Van Zeist & Bakker-Heeres 2001).

The floral remains from Sweyhat, located in a more marginal area, provide an exception to the prevailing pattern of decreased animal herding (Miller 1997a: 128). Here, high ratios of wild plants to cereals and barley to wheat, imply that animals were grazed in the steppe and rarely foddered (Miller 1997a). Such evidence coincides with that of the Habur triangle during this period.

VI. Tribalisation and the Rise of a Tribalised State

Many ethnographic and historic approaches to the modern Middle East have been grounded in the relationship between tribe and state—their opposition, interaction and intersection (see Khoury & Kostiner 1990b for bibliography). The Mari letters—with their discussion of nomads, pasture and tribes—have encouraged archaeologists and historians to apply this anthropological research to the early second millennium BC.[129] Unfortunately, confusion over terminology has plagued many of these studies. Ancient historians and archaeologists have supposed that pastoralists are coterminous with tribes and that the latter are opposed to, or evolutionarily more primitive than, states. As a result, studies have described the interaction between Mari and the various "nomadic" groups in their sources as conflictual, with hostile nomads besieging an urban centre (Kupper 1957), or have claimed that the Mari evidence represents nomadic tribes in the process of sedentarisation (Rowton 1967: 115; Rowton 1973: 254-255; Rowton 1974: 17), or agricultural villages in the process of nomadisation (Buccellati 1990: 99). Although each of these theories is descriptive of some of the evidence; they are too restrictive to explain the dynamic of early second millennium BC "tribal society" *in toto.*

Following Ira Lapidus, when I refer to tribes:

> I am not talking about small-scale family groups, cooperative herding, or village communities but about political entities that organise fragmented rural populations—be they small kinship or clientele groups or ad hoc alliances of individuals conceived as an extended family—into large-scale alliances. Such

[129] For a selective biography see (Fleming 2004a, b; Liverani 1997; Luke 1965; Matthews 1978; Rowton 1965, 1967, 1969, 1973, 1974, 1980, 1981).

> large-scale political entities may be conceived by their members in terms of a common mythic ancestry, but usually the leadership is defined in terms of patriarchal, warrior, or religious chieftaincies (Lapidus 1990: 26-27).

More specifically, I will use "tribal confederacy" for the major extra-urban societal divisions in Mari society—specifically the Ben-sim'alites, Ben-yaminites, Numhâ and Yamutbâl (Fleming 1998: 47), while I will use "tribe" to translate the "Sim'alite" word *gayûm* and the Yaminite word *li'mum*, both of which refer to a component of such a confederacy (Fleming 2004b). I will term any lower order phenomenon clan. Furthermore, I follow Tapper in concluding that: "the state is sufficiently defined by the existence of territorial frontiers (however vaguely defined), a central government (however weak and limited in its aims) and a heterogeneous population" (Tapper 1990: 50), all characteristics that the kingdoms of the early second millennium BC share.

In the Mari documentation, sedentary, semi-sedentary and nomadic populations shared a tribal identity. Prior to the domestication of the camel during the following millennium, true nomadic desert pastoralists did not exist (Khayyata & Kohlmeyer 1998). Instead, all of the pastoralists in the Mari record combined sheep and goat-herding with farming, either as semi-pastoralist or as semi-sedentary communities (Liverani 1997). A letter at Mari—probably fictional—celebrates the life of the nomadic warrior, deriding settled luxury (Marello 1992; Sasson 2001). Nonetheless, all Northern Mesopotamian tribes had an important sedentary and even urban aspect that affected their long-term strategies. Tribes and states in the Mari period were rarely opposed institutions, instead they were facets of one political and social system (Tapper 1983: 8).

Tribes as a politically organising principle are an innovation in Northern Mesopotamia that appear following the collapse of most states in the area during the beginning of phase 6. Although isolated kin-based nomadic groups or villages probably existed during the third millennium, the extent of the tribal organisation of Amorite society during the early second millennium BC has no parallel with earlier practices. When states appeared again in Northern Mesopotamia in phase 7, they merged traditions from the few surviving urban centres with tribal traditions. In these tribal states, a tribal elite adapted urban and tribal elements to rule a settled and pastoral population.

Migration and Geography

The Mari letters describe the vast terrain that herding groups traversed during their annual migrations (Durand 2004). As in the modern Middle East, tribal affiliations crossed long distances. Warad-Sin, the king of Larsa, titled his father, Kudur-mabuk, "the father of the

Emutbal" (Fleming 2004a: 124), while Andarig was the capital of the kingdom of Yamutbâl , another form of this tribal name.[130] In Uruk, the kings Sin-gamil and Sin-Kašid both call themselves, "the king of the Amnanum", a Yaminite tribe whose members are also attested on the Middle Euphrates (Fleming 2004a). Seasonal migrations encouraged the spread of certain aspects of material culture. Carol Kramer has argued that many factors were responsible for the widespread distribution of Habur ware during the early second millennium BC, but highlights the role of nomads. She has noted that "until recently, the Ushnu valley in Iranian Azerbaijan was occupied during the summer by Iraqi (Hadhbani) Kurds who wintered in the plain of Erbil" (Kramer 1977: 101). The presence of Habur ware at Dinkha Tepe in Iranian Azerbaijan may have resulted from a similar situation in antiquity.

Both environmental and human geographical factors explain the different settlement patterns in Northern Mesopotamia during the early second millennium BC. Although all the small kingdoms of the Habur Plains practised a combination of dry-farming and stock-raising, usually in the form of semi-sedentary agriculture, the different micro-environments of the plain and diverse social framework in which these practices were embedded produced different settlement patterns. The Mari texts can contextualise our survey data, by providing information on the character of these lands (*mātum*) during the 18th century BC. Areas where sedentary population declined, like the West Jezira, the Middle Habur and the steppe-areas west and east of the Upper Euphrates, correspond to areas of traditional pasture, while areas where sedentary population increased, such as in the Eastern Jezira, the Balikh, the Euphrates and North-west Syria contained textually-attested cities.

Most of the regions where population declined lie in marginal dry-farming areas, beneath the present 300 mm isohyet. The Western Habur Triangle corresponds roughly to the Ida-maraş, a coalition of small kinglets that included settlements along the Jaghjagh and further west. Although the Western Habur triangle receives only slightly less precipitation today than the east, evidence indicates that the differential was greater during the second millennium BC. Computer modelling of the 4.2 ka BP event suggests that by 1900 BC humid winds from southern Iraq travelled along the Tigris, providing extra-spring moisture to the area east of the Jaghjagh (H. Weiss, personal communication). As a result, the inhabitants of the drier Ida-maraş practised pastoralism, while the inhabitants of the East Jezira stressed dry-farming (Ristvet & Weiss N.D.). Indeed, the Mari texts inform us that the grazing lands of the Sim'alites were located in the Ida-maraş (Charpin & Durand 1986: 155-

[130] Kudur-mabuk's Elamite name, ties to an Amorite tribe, and use of Akkadian titulary underscores the polyvalence of ethnicity in the Old Babylonian period.

156). One letter (A.1098) from the time of Yahdun-Lim, speaks of the "fathers" of this land—using a tribal title attested for the leaders of the Sim'alites, rather than "kings" with its more sedentary nuances (Fleming 2004: 126). The archaeological evidence for a number of medium towns, good candidates for the fractious kingdoms of the Ida-maraṣ and wide-stretches of open pasture corresponds to the epigraphic evidence. Outside of the provincial capitals, pasture land lined both sides of the Middle Habur. Durand interprets most of the known toponyms in this area as names of temporary encampments, or tribal territories, rather than settled towns (see also Charpin 1990c; Durand 1992b; cited in Lyonnet 2004). Finally, the steppe west of the Euphrates and east of the Jabbul plains probably formed part of the traditional pasture of the Ben-yaminites, the other main tribal confederacy whose villages were located along the river (Durand 2002).

In contrast, the Eastern Jezira corresponds to the tribal states of Apum, Razama of Yassan, Razama of Yamutbâl, Eluhut, Kurda, Karana and Andarig. All of these kingdoms were major grain producers, whose own herds grazed either in the Western Jezira or in areas unsuited for agriculture in their own or neighbouring lands. Texts list Yaminite and Sim'alite villages in other areas, like the Middle Euphrates and Balikh, where settlement archaeology attests a large settled population. The area around Umm-el-Marra and along the Upper Euphrates, probably belonged to the kingdom of Yamhad, where texts attest to multiple farming villages that experienced rich yields (Ristvet & Weiss N.D.).

Nomads, messengers, spies, armies and traders are always on the road in the Mari letters, feverishly reporting on developments as they travel without cease across Mesopotamia. This constant movement and the dual sedentary-nomadic nature of the inhabitants of these kingdoms, is critical to understanding these states. Given the importance of summer and winter pasture for the herds, located far from the capital city, these kingdoms were nearly always territorially non-contiguous. The Leilan letters imply control of the area around this site and east to Šurnat (Qal'at-al-Hādī), as well as control of Ilan-ṣura, which the letters located west of the Jaghjagh, beyond the independent kingdom of Kahat (Eidem N.D.). Additionally, the correspondence of Till-abnû shows that not only did the Leilan kings have grazing rights in towns nominally belonging to the kingdom of Kahat, they could even extend these rights to other kings (Eidem N.D.: letter 10). The complications of this situation caution us from drawing firm borders. The term border in our documentation never represents a line drawn on the ground, but a much more ambiguous separation (Lafont 1999). As Susanna Murphy states:

> The historical and archaeological evidence tells us that the frontier is not immutable geographical fact, but "historical" fact, defined by the actions and control which the state was able to exercise in the confines of what is defined as its territory. (Murphy 2004: 76).

The stock phrase used to describe Apum in the Leilan treaties (cited above), which lists groups of actors, sedentary and nomadic, present the emic understanding of a kingdom (Eidem N.D.). Kingdoms, as they emerge from the Mari and Leilan documentation, are a collection of people initially and of places secondarily—whether those people be the king's servants—or the seasonal camp of the city.

In his seminal studies of Mari, Rowton used the concept of "enclosed nomadism" to describe the relationship between urban centres and pastoralists. Along the Middle Euphrates, "pastoral land was encircled by urban settlement... the grazing lands visited by the nomads constituted enclaves partly or completely within the sedentary zone" (Rowton 1973: 249; 1974). For Rowton, the urban centres were an enduring reality, defining the area used by the nomads. Yet the settlement patterns attested during phase 6 and 7 deny the assumption of urban strength and continuity. Neither 2nd millennium tribes nor cities were enduring realities, but rather historical creations. The textual evidence published by the Mari team during the last two decades coupled with the archaeological evidence for the abandonment of urban centres during phase 6 encourages us to turn Rowton's concept on its head and talk of "enclosed urbanism" (Porter 2000: 422). In this system, the tribal affiliations of pastoralists, villagers and urban leaders affected all spheres of life, including settlement, land tenure, international relations, religion and ritual. We know that Zimri-Lim, for example, saw himself primarily as the king of the Sim'alite confederacy and only secondarily as the king of Mari (Charpin & Durand 1986: 151-156), while both the evidence of the toponymy and of archaeological survey testifies to the recent nature of many of the early second millennium cities. The cities of the early second millennium in Northern Mesopotamia had tribal identities; tribes and towns are not always antithetical. We must revise our notions of the archaeology and history of Northern Mesopotamia accordingly, so as to accept the complex interaction between "city, state and pastoralist" that our primary sources illustrate (Porter 2004: 74).

King of the Land of Apum; King of the Land of Hana

How did the land of Apum fit into this tribal framework? A letter discussed above, ARM 28 95 (V.1.2), suggests that if a village belonged to the land of Apum then it was also the "share of the Hana-tribe", which may indicate Apum's identity. In the Mari texts, *ha-na* is usually

translated as the generic word for nomad, or "Bédouin" and not as an ethnicon (Durand 1992b: 113 ; Durand 1998: 418; cf. Heimpel 2003). Although this noun may refer to the nomadic segment of any tribe, in the Mari letters it is usually applied to members of the Ben-sim'alite confederacy. Indeed, Durand translates this letter according to this logic. Since it is clear from other Mari texts that Apum had no Ben-sim'alite connection, he restores the key line as a question. Rather than reading, "This town indeed belongs to Šubram and from of old it was duly assigned to the inheritance of the Hana", as the original editor and others have (Fleming 2004a: 90; Kupper 1998), he reads, "This town indeed belongs to Šubram, how could it have been given of old as the inheritance of the Bedouins?" This translation is not based on a better reading of the tablet, but is given so that Durand's interpretation of Ben-Sim'alite society will make sense (Durand 2004: 147, fn. 189).

If this were the only ambiguous occurrence of Hana in relation to the land of Apum, I would happily accept Durand's translation and leave the question of Apum's tribal identity for future discussion. However, other documents from Leilan and Mari also mention Hana in conjunction with Apum in a suggestive manner. In LT-3, when Till-abnû swears an oath to the king of Kahat he does so using a different formula than the one we have examined above. He took this oath as king of both the land of Apum and of the entire land of Hana, "Till-Abnû, son of Dari-Epuh, king of Apum, his servants, his elders, their sons and the whole of the land of the *Hana*".[131] Indeed, throughout this treaty, Till-Abnû is alternately given the title "king of the land of Apum" and king of the land of Hana.[132] The repetition of the phrase "king of the land of Hana" in this legal context strongly encourages us to identify Apum with Hana.

This designation of Till-abnû as king of the land of Apum on one hand and king of the land of Hana on the other finds a parallel in a small tablet, perhaps a draft of a treaty between Zimri-Lim and Hammurabi of Babylon, where Zimri-Lim's title is given as Zimri-Lim, son of Yahdun-Lim, king of Mari and the land of the Hana (M.6435+M.8987: 25-6 in Durand 1986; Fleming 2004a: 148-150). The *Hana* in this case are Ben-Sim'alite nomads. The

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[131] LT 3, i: 20-22, Akk. [I]*ti-la-ab-nu-ú/* [dumu *da*]-*ri e-pu-uh* lugal *ma-a-at a-pí/*[ìr-*d*]*u*-meš-*šu* lú-šu-gi-meš-*šu* dumu-meš-*šu/*[*ù ma*]-*a-at ha-na ka-*ˈ*lu*ˀ-*šu*.. I have left Hana as a proper name and not translated it as Bedouin. Although I agree with Charpin and Durand's general analysis of this term in the Mari texts, its meaning within the context of Apum can vary. As Fleming has recently convincingly argued in his analysis of ARM XXVIII 95, in Apum, the generic term Hana had become a proper name for the tribal people living in Apum (Fleming 2004a: 90). We will analyse this letter further below.

[132] For example, LT 3, col. V, 17-19 "Till-Abnû, son of Dari-Epuh, his servants and the land of Apum", neatly parallels, col. V. 24-25), "Till-Abnû, son of Dari Epuh, his servants and the entire land of Hana." Also, LT 3, v. 7-10 is very broken but seems to read... Till-Abnu, son of Dari-Epuh,/..... his elders and the whole of the land of Hana, while LT 3, v, 26'-28' reads "Till Abnû, son of Dari-Epuh/ his servants, his elders, their sons/ and the entire country of Apum".

Hana in LT-3 also probably represent the nomadic section of Apum's tribal population. The opposition between Apum and Hana in this treaty parallels the opposition of *nawûm* and kingdom in other Leilan treaties. But if these *Hana* are not Ben-Sim'alite, then to which confederacy do they belong? I suspect that Apum's *Hana* belongs to the Numhâ, most of whose members live south of the Sinjar. The evidence for this is a letter, the upper half of which was cited above, where a Mari official explicitly notes that the Hana in the Land of Apum are hostile to Zimri-Lim and consider their "brothers" to be the Numhâ across the Sinjar:

> We shall enter among our brothers, the Numhâ." This the Haneans answered. Their words were not favorable. Now, I am afraid the Haneans will send out a secret agent when we dispatch an expedition to the land of the Numhâ and they will lay ambushes for the troops that we dispatch and do harm.[133]

Samsi-Addu's main tribal affiliation was also to the Numhâ. A text describing his performance of the *kispum* ritual, an offering for the dead, lists the Numhâ and the Yarâdum as recipients along with sedentary kings (Charpin & Durand 1986: 166-7; Durand & Guichard 1997: 66-70). A proposed tribal affiliation between the Numhâ and the land of Apum explains why Samsi-Addu established his capital there and why it was one of the first places he secured after coming to the throne. It also clarifies the cordial relationships that Kurda, the capital of Numhâ and Šehna shared during the reigns of the later kings of Apum (Eidem N.D.: 30). As Aštamar-Addu, the king of Kurda describes it: "Numhâ and the land of Apum are like one finger, forever. One brother must not offend the other".[134]

Tribes and Politics

In a recent discussion of tribal states, Richard Tapper delineates three types: 1) states where a tribal elite rules a conquered, heterogeneous population, 2) states where a non-tribal dynasty comes to power through and continues to rely on tribal support, 3) states where the elite promotes "a nationalist ideology of integration that resembles a tribal ideology" (Tapper 1990: 69). During the 18th century BC, we have examples of many tribal states in Northern Mesopotamia: states where an "Amorite" king ruled a diverse population including members

[133] ARM 26 358: 6'-12': *a-na li-ib-*[*bi a*]*h-hi-ni nu-ma-hi-im*^{ki} *i ni-ru-rub/ an-ni-tam* lú-m[eš] *ha-nu-ú i-pu-lu a-wa-tu-šu-nu ú-ul ṭà-ba/ i-na-an-na as-ṣú-ur-ri i-nu-ma gi$_5$-ir-ra-am/ a-na ma-a-at nu-ma-hi-im*^{ki} *ni-ṭà-ar-ra-du/* lú-meš *ha-nu-ú na-aṣ-ra-am ú-še-ṣe-ṣú-ma/šu-šu-ba-tim a-na gi$_5$-ir-ir-im ša ni-ṭà-ar-ra-du/ i-na-ad-du-ma ú-gal-la-lu.* Translation follows Heimpel 2003.

[134] LL 37: 6-8: *a-na ša ma-te du-ri-im nu-um-hu-um* ⌜ki⌝ */u ma-at a-pi-im u-ba-nu-um iš-te-et/a-hu-um a-na a-hi-im hi-ṭam la ú-ša-ab-šu-ú*

of his own tribe, members of other tribes and urban citizens with no certain tribal identity.[135] In some cases, like Zimri-Lim of Mari, such a king had closer ties with his tribe than with his settled capital and directly employed tribal political forms to govern his kingdom (Fleming 2004a, b). In other cases, like Samsi-Addu, such a king carefully manipulated his tribal affiliation as well as his urban, non-tribal identity to create a kingdom that integrated both worlds.

Zimri-Lim was first and foremost the leader of the Sim'alite coalition. When he captured the city of Mari, he did so with the help of a tribal leader, the *merhûm* Bannum, whose title is best translated "chief of pasture" (Fleming 2004a: 76). The *merhûm* governed the nomadic segment of the Sim'alite tribe and answered to the king, although he also had considerable authority outside of the Mari state. Once Zimri-Lim came to power, his first task was to establish himself as the sole leader of the Sim'alites. We must understand his conquest of the Ida-maraş, the traditional grazing territory (*nighum*) of the Sim'alites, in this light.[136] The second major event of Zimri-Lim's reign was his war against the Ben-yaminites, which was "a conflict between competing tribes, rather than between an urban king and a tribal people resistant to state control" (Fleming 2004b: 200). Once Zimri-Lim clearly established his authority over both the tribes and the urban centres (many of which had tribal identities), he adapted both existing tribal and urban institutions to the administration of his entire kingdom. The governors of the three main districts of Mari under Zimri-Lim were equal in rank to the *merhûm*. Under the authority of both the district governors and the *merhûm* were the rulers of specific "tribes" or "tribal divisions", the *sugāgum*, a word sometimes translated as sheikh (Fleming 2004a: 51-54; Fleming 2004b: 203-205; Villard 1994). Ben-yaminite sheikhs ruled from towns, while Sim'alite sheikhs were often located among the nomads, although they also had an urban base. In order to become a *sugāgum*, an individual had to make a payment to the king. Those *sugāgum*s identified by their town pay in silver, while those identified with their *gayum* pay in sheep (Fleming 2004b: 204-205).

Under Zimri-Lim the military was another tribal institution. Here, two major divisions of the Sim'alite tribes (beneath the confederacy) appear, the Yabasu and the Ašargayum (A. 486+M.5319 in Fleming 2004b: 206-207). Zimri-Lim's army was organised

[135] Texts from the second millennium BC list personal names and patronymics derived from at least three languages: Hurrian, Akkadian, and "Amorite," nicely illustrating the heterogeneity of the population of the second millennium BC (Kamp & Yoffee 1980; Ristvet 2000).
[136] A.2730: 37-38: *ù iš-tu da-ar-ka-tim ni-ig-hu-um/ ša ha-na*^{meš} *i-da-ma-ra-aş*... "depuis l'aube des temps, le *nighum* des Bédouins, c'est l'Ida-maraş (Durand 2004: 120-1)

according to these divisions of the Sim'alite confederacy; military leadership also took advantage of this tribal structure (Durand 2004: 180-184). In terms of politics, the military and even economics, Zimri-Lim used tribal practices to administer his kingdom.

Samsi-Addu manipulated his tribal connections more subtly. Although like Zimri-Lim, he maintained links to one of the main Northern Mesopotamian confederacies, the Numhâ, unlike Zimri-Lim he did not impose Numhâ strictures on his kingdom. Instead, Samsi-Addu used his tribal affiliation to legitimate his rule over the nomadic segment of North Mesopotamia society, while simultaneously stressing his connection to old urban institutions. Samsi-Addu sought to legitimate his reign by casting himself as the heir of both the Akkadian kings and his tribal ancestors and by adopting the local trappings of power from each kingdom that he conquered. After his conquest of Mari, for instance, he adopted the Akkadian titulary, calling himself *šar kiššātim,* king of the universe (Villard 2001: 13). He modelled his new capital at Šubat-Enlil on Southern Mesopotamian cities (above, IV). Similarly, he made *kispum* offerings to Sargon and Naram-Sin, as though they were his ancestors. Šamši-Adad even titled himself "king of Agade" in a votive dedication to Ištar at Mari (Kupper 1985: 148). At the same time, Samsi-Addu appended his own, Numhâ genealogy to the Assyrian King List and made *kispum* offerings to his tribal ancestors (Durand & Guichard 1997; Finkelstein 1966: 99). Yet the titles Samsi-Addu assumed, the gods he invoked and even the name he called himself varied according to the specific urban identity of each city. At Aššur, Samsi-Addu styled himself as the prefect of the god Aššur (Kupper 1985); at Mari he claimed that the city-god Itûr-Mêr granted him power; at Tuttul, he thanked the god Dagan for awarding him the city. Similarly, seals of his servants from Mari, Šubat-Enlil and Chagar Bazar use the Akkadian form of his name, Šamši-Adad (Parayre 1990; Talon 1997), while a seal from Tuttul and letters from Shemshara, use the Amorite form, Samsi-Addu (Eidem & Laessoe 2001; Otto 1992: 70; Ristvet 2000: 29-30).

The Invention of Greater Mesopotamia

The tribal principles under which these kingdoms operated help explain both the cultural unity of Northern Mesopotamia as well as its political fragmentation. Durand has written extensively on the unity and diversity of the Mari world, arguing for a common Amorite *oecumene* that united this disparate region (Durand 1992b). Both Hammurabi and Samsi-Addu recorded the names of twelve common ancestors, indicating a shared tribal heritage from Babylon to Šubat-Enlil. The Amorite kings and most of the Amorite population probably recognised their common cultural identity (Durand 1990b; Durand 1992b: 114-

120). Old Babylonian and Old Assyrian cuneiform archives reveal a world united by a shared written language, extensive diplomatic contacts and ongoing trade relations. This is the case despite the obvious ethnic and tribal differences, between Yaminites and Sim'alites or Hurrians and Amorites. Kings from Haşor in the Southern Levant to Larsa in Southern Mesopotamia wrote in Old Babylonian and made common military cause (Horowitz & Wasserman 2004). In the same year, Samsi-Addu's army campaigned with Qaṭna's troops in the Beqaa valley of Lebanon and with Ešnunna's in the Zagros mountains of eastern Iraq (Charpin & Ziegler 2003: 97-102). During the reign of Zimri-Lim, all of the Amorite kings—Zimri-Lim of Mari, Hammurabi of Babylon and Išme-Dagan of Ekallātum—put aside their rivalry to unite against the Sukkalmah of Elam, after he conquered Ešnunna and Šubat-Enlil (Charpin 1990d: 109).[137]

These tribal states were also the heirs of the few urban societies that survived the collapse of the third millennium. The Akkadian incursion into Northern Mesopotamia during the latter half of the third millennium BC effectively transformed the landscape of Western Asia and created the notion of a Greater Mesopotamia. Although little regular contact occurred between the north and south during phase 6, the Akkadian experience remained a potent symbol of political legitimacy for the remaining urban societies of Northern Mesopotamia. At Mari, the reign of the Šakannakus, originally a title given to a high Akkadian official, continued for three hundred years (Durand 1985). The names of the Assyrian kings Sargon and Naram-Sin (as well as his more-famous Ešnunnean contemporary)[138] attest to the mystique of the memory of the Akkadian kings. Both Naram-Sin of Ešnunna and Samsi-Addu self-consciously adopted the titulary of the Akkadian empire, calling themselves "king of the universe", *šar kiššatim* (Grayson 1987: RIMA 1 A.0.39.1, 2; Simmons 1959: 76, o), or even "King of Akkad" (Grayson 1987: RIMA 1 A.0.39.6) In a building inscription from the Emenue of Nineveh, Samsi-Addu boasted that he was restoring a temple constructed by the Akkadian king Maništušu (Grayson 1987: RIMA 1 A.0.39.2). Samsi-Addu actively promoted this ideology to appeal to the settled population. Even Zimri-Lim was forced to acknowledge his position as "king of the Akkadians" on occasion—and as the famous letter goes—not canter on a horse, but ride in a mule-drawn cart instead (ARM 6 76).

[137] (Charpin 1986: A. 4308+: 4-11; See Durand 1986 for an edition of this treaty).
[138] The discovery of a sealing of Naram-Sin of Aššur shows that this king was not identical to Naram-Sin of Ešnunna as had long been supposed (Charpin 1994: FN 75).

As a result of this dual heritage, the Amorite states of the early second millennium BC actively constructed a shared culture, often adapting Southern Mesopotamian imagery to a Northern Mesopotamian, or Syrian milieu. The use of the Old Babylonian dialect dates to the hegemony of Naram-Sin of Ešnunna over Northern Mesopotamia (Durand 1985). This shift in language probably occurred alongside the adoption of other "Babylonian" cultural traits, like Old Babylonian cylinder seals (Parayre 1990: 566). Southern Babylonian influence was also felt in temple architecture, generally considered a realm that witnessed little innovation. The temples at Rimah, Leilan and Bazmusian all have similar spiral columns, echoing temple architecture at Larsa and Ur (Oates 1982:95; Weiss 1985:278; Eidem 1992:54) (fig. 4.15).

Yet within this unified cultural framework, political fragmentation was the norm. With the exception of the Kingdom of Upper Mesopotamia in the North and the First Dynasty of Babylon in the south, unified states were rare and short-lived. The great powers campaigned extensively, but rarely established a firm control over their conquests. Instead, they relied on a series of client kings, who also jockeyed for power. A famous Mari letter sums up this situation:

> There is no king who is strong on his own: Hammurabi of Babylon has a following of 10 to 15 kings, Rim-Sin of Larsa the same, Ibal-pi-El of Ešnunna the same, Amut-pi-El of Qatna the same and Yarim-Lim of Yamhad has a following of 20 kings (Postgate 1994a: 46).

The frenetic settlement patterns of phase 7, with their evidence for multiple large centres and shifting villages in the east Habur, Middle Euphrates and North-west Syria and nomadic camps in the west Habur reflect this world of shifting alliances, frequent migration and continually expanding and diminishing political borders.

VII. A Failed Experiment?

The evidence from the Leilan survey and the written record suggests that the tribalised states of Northern Mesopotamia failed sometime during or after the reign of Samsu-iluna of Babylon. Their capital cities and subordinate regional centres were either abandoned or changed in character. This collapse of urbanism in Northern Mesopotamia paralleled a similar development in Southern Mesopotamia, where, due to a breakdown in the canal systems, possibly caused by political chaos, most cities south of Nippur were abandoned (Stone 1977). Another collapse occurred on the Middle Euphrates, where, following the destruction of Mari, a much smaller settlement system developed around Terqa. Van Driel believed these collapses represented the end of a long period of urbanism in Greater Mesopotamia (Van Driel 2001: 117). Even the Assyrian King List recalls that the period

following Samsi-Addu's reign was a time of confusion, when they describe its rulers as "six kings, sons of a nobody" (Grayson 1980-1983: 106, &15).

Yet for the most part, this collapse has gone unrecognised by both historians and archaeologists. One of the problems is that phase 8 is poorly known archaeologically, particularly in the Habur plains. Two soundings at Tell Leilan have produced graves, a pottery kiln and a possible squatter's occupation in the ruins of the Eastern Lower Town palace, but no other evidence (Pulhan 2000; Weiss & Ristvet N.D.). Similar data characterise this phase at Mohammed Diyab (Nicolle, personal communication). At Brak, excavations have revealed a lone house standing atop a hill, dating to this period (McDonald & Jackson 2003). To the north, excavations at Barri have uncovered corbelled tombs atop the Old Babylonian houses (Pecorella 1998a). Outside of the Habur triangle, excavations at Rimah suggest that the temple remained in use during this phase. A kitchen, related to a large building with associated platform, also dates to phase 8 (Postgate et al. 1997: 37).

Additionally, the diagnostic pottery—Habur Ware—for phases 7 and 8 overlap substantially, making these two phases difficult to discern archaeologically. The survey material was subdivided into phase 7 and phase 8 based on a statistical analysis of the pottery from the two periods at Leilan corresponding to this phase, period I and period 0. In terms of other studies of Habur ware, these two periods fall into "Early" and "Late" Habur ware; or phases 1-2 and 3-4 of Oguchi's categorisation (Oguchi 1997). Despite the large quantity of Habur ware which was coded in the course of my study, very little typically period 0 pottery occurred anywhere. Although the long time-span of the use of many period I diagnostics may mean that figure 4.7 over-states the extent of the collapse, the very small amount of late Habur Ware found in this study still needs to be explained.

What explains the differences between phases 7 and 8? Anthropologists and historians have often noted the frailty of tribal states (Khoury & Kostiner 1990a: 10). Unless kings could replace the precarious foundations of an expansionary state with a solid administrative structure, such a state rarely outlived its founder. This seems to have been the case in Northern Mesopotamia, where all of our evidence for tribal states disappears in the final quarter of the 18th century BC. It seems unlikely that tribes, whether nomadic or rural, disappeared at this time, but powerful states almost certainly did.

Chapter 5: Becoming a Province

During the last half of the second millennium BC, after the collapse of Šubat-Enlil, the area around Tell Leilan became a province of two kingdoms: Mitanni and Assyria (fig. 5.1). Unlike the earlier states that we have considered, Mitanni and Assyria maintained a continuous, large-scale, centralised political system for multiple generations. For the first time, the Tell Leilan region became integrated into a large, long-lived political entity. Due to the lack of Mitanni documentation for the administration of the Habur triangle, this study will focus on Middle Assyrian evidence. The Middle Assyrian state combined "the commercial traditions of merchant houses", aspects of Mitanni administration and a policy that emphasised governing from the centre in a bureaucratic framework in order to administer their newly acquired territory in Northern Mesopotamia (Jakob 2003: 7; Postgate 1992: 252). The application of the Middle Assyrian administrative apparatus to Northern Mesopotamia created new settlement types and led to shifts in systems of land-tenure and land-use. Deportation and resettlement policies affected the ethnic composition of the territory (Freydank 1975, 1980) and may have supplied some of the staff of the institutional *dunnu*s, manorial estates owned by prominent Assyrians (Jas 1990; Wiggermann 2000). An Assyrian economic institution, *bīt hiburne*, set up a new standardised system of weights and measurements throughout Northern Mesopotamia (Jakob 2003: 25). The material culture reflects this system; standard-sized pottery vessels, perhaps rations bowls, are found in Assyrian provincial centres and other institutionalised settlements (like the *dunnu*) (Pfälzner 1995: 243; Pfälzner 1997a: 338). Yet certain settlements remained outside of the loop of Middle Assyrian administration, using local pottery and probably retaining local customs. This chapter will analyse the effects of provincialisation on how and where people lived.

I. Hanigalbat and Assyria

Writing an historical outline of the late second millennium BC is fraught with difficulty, due to the paucity of sources regarding Mitanni (phase 9)[139] as well as the chronologically inconsistent Assyrian sources (phase 10).[140] Mitanni was a Hurrian-speaking state, although

[139] The only Mitanni documents from this area are a letter, two administrative texts and two legal texts from Tell Brak (Finkel 1985, 1988; Illingworth 1988; Oates & Oates 1991; Wilhelm 1991), a letter, a lexical list and an administrative tablet from Tell Barri (Salvini 1998), a legal text from Umm el-Marra (Schwartz et al. 2000b: 349-351) and a legal text that probably comes from Tuttul (Meyer 1983). The other documentation comes, of course from Nuzi and the nearby sites of Kurruhani (Tell el-Fakhar) and Arraphe (Kirkuk) in the east, and from Azu and Alalah to the west (See Pedersén 1998 for bibliography).

[140] The Middle Assyrian texts are not equally distributed throughout this period. The majority of the sources from Sheikh-Hamad/Dur-Katlimmu (Cancik-Kirschbaum 1996; Röllig 1978, 1983a, b, 2004) , Chuera/Harbe

its people also used Akkadian in legal and administrative contexts. Our difficulties understanding Hurrian sources also complicate this exercise (Wilhelm 1996). Our first sources with regard to the predecessors of Mitanni come from Hittite documents and refer to the "kings of the Hurrian people", a designation which subsequently became part of the Mitanni titulary (De Martino 2004: 35-36). These documents date to the end of phase 8, prior to the Hittite destruction of Babylon. Hittite sources record conflicts between several Hurrian kings, rulers of small cities in Northern Mesopotamia and Syria, as well as the Hittites and the kingdom of Aleppo. Stefano de Martino has proposed that the kingdom of Mitanni emerged from "the situation of ferment, conflict and political change" that followed the capture of Aleppo and the destruction of Ebla, Uršum, Hahhum and Haššum at the beginning of the century (De Martino 2004: 36).

The first evidence for the Mitanni kings comes from an autobiographical sketch inscribed on a statue of Idrimi, the king of Alalah dated rather insecurely to ca. 1550 BC. In this inscription Idrimi proudly proclaims that he is a vassal to the great king of Mitanni, Parattarna (Kuhrt 1995: 289-291; Smith 1949). Since the Habur triangle forms the heart of Mitanni, it seems likely that its history in the Leilan survey area predated the reign of Parattarna. A few names of early Mitanni kings are known, but there is not enough evidence to reconstruct their order or date their reigns. The next important king of Mitanni is Sauštatar, who reigned around 1500 BC. Sauštatar's kingdom stretched from Aššur in the south-east to Cilicia (Kizzuwatna) in the west. Two later Mitanni kings imprint Sauštatar's seal on legal documents, suggesting that their relationship to this king was a source of authority. The 15th and early 14th centuries were the high-point in the history of Mitanni, when its influence peaked. In the mid-14th century, however, the situation rapidly deteriorated. A series of assassinations and power-sharing arrangements led to chaos in the government (Harrak 1987). Both the Hittites and Assyria profited from these conditions and actively supported different factions within the Mitanni court. Mitannian weakness allowed Aššur-uballiṭ, the king of Assyria, to capture several former Mitanni provinces, including both Nineveh and the area around Rimah. As a result of shrewd political manoeuvring,

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(Kühne 1995a, 1996, 1997, 1999), Amida/Kulišhinaš (Aynard & Durand 1980; Machinist 1982) and Sabi Abyad (Wiggermann 2000)) date to the 13th century BC, as do the texts from the Urad-Šerua archive, Aššur 14327 which document some aspects of the administration of the provinces of Nahur, Ta'idu, and Amasakku, all located in the Habur Triangle (Postgate 1988). Aššur 18764, the archives of the *ginā'u* offerings to the Aššur temple, including agricultural products from the Habur Triangle, mostly dates to the 11th century, although one text dates to the 13th century (Freydank 1992, 1997a; Freydank 2001: MARV IV 127; Postgate 1990). We also consider royal inscriptions of Assyrian kings throughout this period (Grayson 1987, 1991) and the recently discovered inscriptions from Tell Bderi (Maul 1992, 1999).

Aššur-uballiṭ may have established himself as a "great king", on par diplomatically with the rulers of Egypt, Babylonia, Hatti and Mitanni, although this is not definite.

From the mid-14th to the early 13th century, the kings of Mitanni became veritable vassals of either the Hittites or the Assyrians, with the Hittites most frequently having the upper hand. Aššur-uballiṭ's two successors achieved little, but probably continued to occupy most of the territory they gained during his reign. They seemed to have controlled the "Assyrian triangle" and Katmuhhu—probably the Iraqi North Jezira (Kühne 1995b: 74). The situation shifted during the reign of Adad-nārāri I, due to a series of "revolts" by Mitannian kings. By the end of his reign, Adad-nārāri I laid the ground-work for direct rule over "Hanigalbat"—the Assyrian term for Mitanni. After capturing (and destroying) all of the major Mitanni cities, Adad-nārāri I began to rebuild the capital, Ta'idu. There is evidence that this project was never finished (Harrak 1987: 131). Perhaps uncertainty following Adad-nārāri's death allowed the final king of Mitanni to ascend the throne. Adad-nārāri's son, Shalmaneser, decisively defeated Šutarrna II, the last king of Mitanni. Rather than ruling Hanigalbat indirectly by means of a vassal king, the Assyrians proceeded to integrate Hanigalbat into Assyria. Shalmaneser's brother became the *sukallu rabi'u*, the grand vizier, whose other title, "king of Hanigalbat" names his main area of concern. Sources for the Assyrian provincial system from Syria and Aššur indicate that it endured for at least 60-70 years on the Habur Plains. Evidence from Aššur suggests that this area also remained under Assyrian control during the 11th century. However, few texts from the 12th century confirm this. By the reign of Aššur-bēl-kala, Assyria had lost control of the Habur plains. The Assyrian communities settled there for centuries fled into the mountains and back to Aššur in the face of famine and hostile Aramean tribes (Kuhrt 1995: 396-397).

II. Geographies of Provincialisation

Leilan Survey

Settlement Patterns

In the Leilan area, the pattern of generally sparse population established during phase 8 continued for the rest of the second millennium, although some settlement growth occurred. Apart from Farfara, where Mitanni and Middle Assyrian pottery has been retrieved from collection areas over the entire 164 ha of this site, little later second millennium pottery has been identified from the Leilan survey—only 157 sherds (phase 9) and 181 sherds (phase 10) (Ristvet & Weiss N.D.). This pattern is not a result of focusing on tells to the exclusion of

lower sites, as more than half of the sites identified in the Leilan survey were less than five meters tall and large numbers of low sites related to other periods were recorded. Nor is it the result of a lack of understanding of the material culture of this period. The excavation of phase 9 and 10 levels at Mohammed Diyab (Sauvage 1997), Brak (Oates et al. 1997), Barri (Pecorella 1998b), Hamidiya (Eichler & Wäfler 1985; Eichler et al. 1990; Wäfler 2003a), Fakhariya (McEwan et al. 1958; Pruss & Bagdo 2002), Bderi (Pfälzner 1995), Ta'aban (Ohnuma & Numoto 2001; Ohnuma et al. 1999; Ohnuma et al. 2000) and Dur-Katlimmu (Pfälzner 1995), means that we have a good idea of the range of pottery used during both phases. The results of the Tell Leilan survey, where minor (<5 sherds) occupations were recorded on the majority of sites, echoes the pattern along the Balikh, where only six definite Middle Assyrian occupations and six possible occupations were recorded (Lyon 2000: 100). Excavations at Sabi Abyad and Hammam et-Turkman have produced a definite corpus of Middle Assyrian forms, which was used while studying the material from these sites and indicated that the settlement pattern from the survey is real and not a reflection of a poor understanding of the ceramics (Lyon 2000: 93-4). Instead, the small numbers of confirmed Mitanni and Middle Assyrian sites represent a new settlement pattern, one that reveals certain insights about the processes of provincialisation underway during this five-century span.

Phase 9: (1500-1300 BC)

The Leilan survey identified 34 sites definitely dating to this period and seven other sites that might, equalling 340 settled ha (fig. 5.2). Only 13 sites, however, contained more than five sherds in one collection unit, suggesting that the occupations on the other 20 sites were quite minor (fig. 5.3). It is possible that these sites were either temporary camps of some kind, or had an extremely small Mitanni presence. We may be under-reporting Mitanni sites, given the continuation of both early and late Habur ware types into the late second millennium and the profusion of phase 7 sites dated with this pottery.

Surprisingly, given the use of late Habur ware in Mitanni sites, there was a significant shift in population between phase 8 (characterised by the presence of late Habur ware, but no other Mitanni diagnostics) and phase 9. Nearly 54% of phase 8 settlements were abandoned before the start of phase 9. The large number of new foundations during this phase, meant that the surviving phase 8 settlements represented only 18% of phase 9 sites. Nonetheless, most of these new settlements were village sites that were occupied during phase 7, or were old prehistoric tells. Very few sites were founded on virgin soil.

Although a small Mitanni occupation remained atop the Leilan "Ziggurat", the settlement system was reconfigured around Tell Farfara (186). This site, already 80 ha in both phases 5 and 7, nearly doubled in size during this phase to 150 ha, with the construction of substantial lower towns to the north, south and east. Mohammed Diyab (55) and al-Andalus (212), both large walled cities in the early second millennium BC, were probably the two main secondary centres. Both were as large as 40 ha during this phase and were located approximately 30 km from Farfara. Farfara is a good candidate for a Mitanni capital, either Ta'idu or Waššukanni.[141] This site was located between 15 and 30 km from a number of large Mitanni sites, including Hamidiya, Barri (Kahat) and Brak (fig. 5.4). Five sites, all approximately 10 ha in area, were probably arrayed beneath these centres. Each of these sites was located from 10-15 km away from either Farfara or one of the secondary centres. Two sites, Leilan and Abu Farah, were approximately five ha. The presence of Nuzi ware on the Leilan "Ziggurat" suggests that it remained a cult centre.

Only a few fragments of white and black Nuzi ware were discovered during the survey, on Farfara (186) (fig. 5.5), Hilwet beni Seba (311), Tell 'Aid (90), the Leilan Ziggurat (1), Mohammed Diyab (55) and Abtakh Fawqani (279). Nuzi ware is a rare decorated pottery, only found in elite, usually "palatial" contexts (below, IIIa). As a result, its presence on two small sites, in addition to the primary and secondary centres in the region, is intriguing. Hilwet beni Seba is a 2.04 ha site located just 3.5 km south of Farfara and may represent a subsidiary settlement with a special relationship to this major centre. Abtakh Fawqani, on the other hand, is a 3.53 hectare site six km east of Qarassa, which may be another subcentre.

In general, villages are under-represented and medium sites over-represented in the settlement patterns. Given these statistics, it is unsurprising that the average site size is 8.8 ha if Farfara is included and 4.7 ha if it is excluded from the calculations.

Phase 10: (1300-1000 BC)

[141] Neither Mitanni capital has been definitively located yet. Fakhariya is often assumed to be Waššukanni, an assertion that the new Dur-Katlimmu texts support, but there is no proof and this capital may be anywhere within the Habur plains (see Pruss & Bagdo 2002 for bibliography). The location of Taidu is also heavily debated. Kessler has tentatively located this city on the Upper Tigris, based on its associations with other toponyms in Neo-Assyrian texts (Kessler 1980). Radner follows this hypothesis in her recent edition of the texts from Giricano, with no further reference (Radner 2004). However, the majority of the Middle Assyrian texts associate Taidu with toponyms in the Habur. The Dur-Katlimmu itinerary, our best evidence for historical geography, places it a day's travel from the Jaghjagh and two days from Magrisi (Röllig 1983a). Wäfler locates it at Hamidiya (Wäfler 1985, 1995, 2003b), but Guichard suggests—based on evidence from Mari—that Farfara is a more likely candidate (Guichard 1994: 244).

Settlement numbers changed little during this period, 32 as opposed to 33, however, settled ha decreased substantially, from 340 to 235 ha. This is assuming that the maximum number of sites was occupied (fig. 5.6). Once again, as for phase 9, very few definite (>5 sherds) Middle Assyrian settlements were identified: 12 versus 19 sites with fewer diagnostics (fig. 5.7). Almost 50% (15 out of 31) of sites were less than one ha. As a result, average site size decreased dramatically, from 7.6 if Farfara is included in the statistics and 2.8 if it is excluded.

Farfara continued to be the dominant site of the region, and may have even grown to 167 ha, including a possible occupation on Tell Maha in the east (fig. 5.8). Many phase 9 secondary centres, however, were abandoned or diminished drastically in size. Both Mohammed Diyab (55) and Al-Andalus (212) decreased in size from about 40 ha to 10 (Castel 1992). Dumdum (241) and Qarassa (49) both remained at about 10 ha, but Hameid (125), Hansa (201) and ‘Aid (90) were all abandoned. Given the archaeological and textual evidence for Middle Assyrian administrative strategies in the Upper Habur, this pattern could be the result of official policy. The disappearance of secondary centres could reflect the imposition of another layer of settlement hierarchy, i.e. Aššur, the royal capital, atop the local, Mitanni hierarchy.

Pfälzner’s analysis of Middle Assyrian pottery from Dur-Katlimmu and Tall Bderi has identified “official” Middle Assyrian pottery, the manufacture, distribution and use of which correlates with Middle Assyrian administration (Pfälzner 1995: 241-2). Such pottery has been found in the Assyrian capitals, as well as in administrative buildings in provincial centres and other official installations like the *dunnu* of Sabi Abyad (Pfälzner 1997a) (see below, V.3). It occurs alongside the local pottery, which is a continuation of forms and motifs (like red-painted rims) that were popular during phase 9. At Dur-Katlimmu, for example, the excavation of the palace produced official pottery, while the excavation of local houses from the same era produced local pottery (Pfälzner 1995; Pfälzner 1997a: 337).

Figure 5.9 shows the distribution of official Middle Assyrian pottery within the Tell Leilan survey area. Official pottery was discovered on a number of sites, all of which are situated above the modern 300 mm rainfall isohyet, with the exception of Sultan et-Tellul (223), located immediately south of this boundary. Although survey of some primary and secondary-centres, including Farfara, Qarassa and Mohammed Diyab revealed this pottery as expected, other large sites, like Dumdum, al-Andalus and Abu Farah had no official pottery. Official pottery was found on a number of very small sites. Four of these were less than one

ha in area (11, 74, 187, 280) another five were between one and two ha (62, 155, 279, 283, 285) and finally two were between two and five ha (308, 223).

Some of these small settlements were probably *dunnus*, fortified estates owned by high-ranking Assyrian officials. Their small size and the presence of official pottery may mirror the situation at the settlement atop Tell Sabi Abyad on the Balikh, where excavation and the discovery of an archive of Middle Assyrian tablets confirm that this site was a *dunnu*. These small, official settlements are concentrated in two regions of the survey area: 1) between the modern 400 and 500 mm isohyets and 2) in a line south of Farfara and Qarassa. The first sites probably exploited the high yields possible in the best-watered part of the plains, while the second sites may have provisioned Farfara and Qarassa and provided a boundary between these two centres and the pastoralist settlements in the southern steppe. Sultan-et-Tellul (223), the southernmost site with official pottery, probably had some role in securing the Radd marsh or administering the agricultural and pastoralist settlements located to the south.

Northern Syro-Mesopotamian Surveys

In some ways, settlement patterns during the second half of the second millennium in Northern Mesopotamia reverse the trends of the first half. On one hand, all of the regions—the East Jezira, the Balikh, the Middle Euphrates and North-west Syria—that experienced an increase in settlement during the first half of the millennium saw a diminution of both settlement numbers and occupied ha (Wilkinson 2002). On the other hand, areas that contained few sites during the first half of the millennium—the West Jezira, the Lower Habur and the Middle Habur—saw a rebound in settlement during these two phases. In many areas the number of very small sites—less than one hectare in size—increased, while the number of sites between one and five ha decreased. The increase in the number of small sites may well reflect a change in the exploitation of the countryside and a shift from centralised villages to dispersed farmsteads (Kolinski 2001). Finally, the foundation of these small sites either on virgin soil or on low, prehistoric tells may mark the beginning of the "great dispersal" from tell sites to low settlements, which characterised the Iron Age in Northern Mesopotamia (Barbanes 1999: 9-25; Wilkinson & Barbanes 2000).

Settlement Patterns

East Jezira

Most of the East Jezira experienced a decline in settlement during phases 9 and 10. In general, marginal areas were not settled or sparsely settled.[142] Two contrasting settlement patterns have been uncovered in this area. First, Kolinski argues that over the course of the second millennium in the Rania/Dokan Plain and in the Balikh, extremely small sites (under one hectare) came to dominate settlement patterns in Northern Mesopotamia instead of 1-2 hectare sites, which had been prominent during the early second millennium BC (Kolinski 2001: 74-75). In contrast, the Eastern Habur triangle, Leilan, Brak and "North-eastern Syria" surveys all saw a decline in settlements under 1 hectare between the first and second halves of this millennium (Kolinski 2001: Table 23).

In the Eastern Habur triangle, Meijer found 38 LBA sites, a decline from previous levels, which correlates well with trends seen in the more intensive Leilan survey (Meijer 1986: 51). He found no Nuzi Ware during his survey (Meijer 1986: 49). Like the Leilan survey, the Eastern Habur survey found fewer small sites than expected, given the large number of centres. Around Tell Brak, the number of Late Bronze Age sites decreased slightly, from 19 to 14 sites (Eidem & Warburton 1996: 58).[143] Similarly, in the Northern Jezira, Wilkinson notes that although the overall pattern differs only slightly from the early second millennium, it thins out: "This sparse but generally rather stable pattern is indicated by a decline in the total number of sites from 43 to 28 (Habur and MA respectively) and a decline in the number of centres. Substantial voids of unoccupied land had appeared" (Wilkinson & Tucker 1995: 59).

The one exception to this pattern of settlement decline was the establishment of a small centre, Tell Umm ʻAqrēbe, in the middle of the eastern steppe along the wadi ʻAğiğ. This site consists of both a low tell, probably a single fortified building and the surrounding settlement, spread out over 12-14 ha (Bernbeck 1993: 70-71). A ceramic analysis of the settlement dates it to the latter half of the Middle Assyrian period, perhaps to the reign of Tukulti-Ninurta and his successors (Bernbeck 1993: Tab. 37). The tell is in a good ecological setting—with three nearby wadis, one of which has standing water in summer and several wells with sweet water (Bernbeck 1993: 70). Middle Assyrian standard ware is found in very great percentages at this site; 73.9% of the collection is official pottery (Bernbeck 1993: 81). INAA analysis shows that the majority of this pottery was made on the site, although a small number of vessels were imported from Sheikh Hamad (Dur-Katlimmu) (Bernbeck 1993: 85-

[142] But see below for the foundation of Tell Umm ʻAqrēbe (Kühne 2000).
[143] J. Eidem and D. Warburton believe that more sites existed but were not recognised because of the limited diagnostics used for this period.

6; Pfälzner 1997a: 339). In contrast to the pottery at Sheikh Hamad, the highest percentage of these vessels were used for transport or storage (Bernbeck 1993: 89). Given these results and Umm ʻAqrēbeʼs position in an area where dry-farming is not practicable, Pfälzner has hypothesised that the site was used both as a desert centre for livestock breeding and as a way station along a Middle Assyrian road connecting Dur-Katlimmu and Aššur. This site is located 1/5 of the distance between the two sites. The presence of desert wells along the entire route suggests that such a direct road was in use (Bernbeck 1993: 90-6). Based on the excavated Middle-Assyrian texts from Dur-Katlimmu, Pfälzner proposed that this city was Duara, which contained a palace and a herding industry and belonged to the province of Dur-Katlimmu (Bernbeck 1993: 96; Pfälzner 1995: 173).

West Jezira

Surveys in the West Jezira show two conflicting trends. The western Habur triangle and the area along the Middle and Lower Habur experienced a revival of sedentary occupation, while the Balikh experienced a continuous decline in settlement more in line with the evidence from the East Jezira.

In the Beydar survey area, 45 sites in this small area had evidence of Late Bronze Age occupation (Wilkinson 2000a; Wilkinson 2002: Table 1). This represents a high point in settlement for the region and contrasts greatly with the situation elsewhere in Northern Mesopotamia. Nonetheless, the majority of these sites (31) only had a minor occupation, with less than three or four good diagnostics. Moreover, the majority of the LBA sites appeared on small low mounds, surrounding Chalcolithic or EBA tells (Wilkinson 2002: 363-4). Wilkinson notes that most of the ceramics are "plain utilitarian" forms, with few fine painted wares attested. He suggests that this, along with the small, unfortified nature of the majority of the settlements shows "a marked difference in the character of the settlements during the Late Bronze Age... it seems likely that the small sites recorded lacked any significant administrative function" (Wilkinson 2002: 370). Such a pattern was also corroborated by the Western Jezira survey. However, since this survey considered late second millennium and first millennium pottery together, it is difficult to date this revival precisely (Lyonnet 1997: 246 and fig. 10).

Surveys along the Middle and Lower Habur also illustrate a clear recovery from the settlement collapse of the first half of this millennium. Unlike the Beydar survey, a finer chronological resolution, which separated phase 9 from phase 10 sites, allows us to see the development of settlement patterns in the LBA. Here, a great number of sites have Mitanni

occupations, while a rank-size curve for Mitanni settlements suggests they approach a log-normal distribution, perhaps representing a well-integrated regional state (Morandi-Bonacossi 1996b: 126). The Middle Assyrian conquest of this area led to a great decrease in the number of settlements, as well as the establishment of Dur-Katlimmu as the dominant site in the area (Compare Morandi-Bonacossi 1996a: 19 and fn. 13; Morandi-Bonacossi 1996b: Tav. 3 and 4). Geomorphological survey and textual sources have also dated the construction of a canal east of the Habur to this phase (Ergenzinger 1991: 177). No settlements were located in the more arid region south of Dur-Katlimmu. Similarly, nearly all of the small settlements dating to this period south of Bderi were abandoned, leaving only the provincial centres Sheikh Hamad (Dur-Katlimmu), Fadgami (Qatni), Tell Ağağa (Šadikanni), Ta'aban (Ṭabēte), Bderi (Dūr Ketti-lešir), Hasaka (Magrisi). The only small sites recorded by the survey were located north of Bderi, where higher precipitation made dry-farming practicable (Morandi-Bonacossi 1996a: fig. 4). Hartmut Kühne interprets the survey results as indicating a three-tiered settlement hierarchy, with Dur-Katlimmu occupying the highest position, the capital of Hanigalbat, the other named sites serving as provincial capitals and all other sites representing villages or small towns (Kühne 1994: 56; Kühne 1995b: 72).[144]

Finally a survey along the Balikh recorded a declining number of sites throughout the late second millennium, from 50 sites dating to phase 7 to 41 sites for phases 8/9 to 12 (at most) for phase 10 (Akkermans 1984: 190; Lyon 2000: 98-100). Geographical analysis of the settlement pattern shows little change from phases 7-9. The construction of Thiessen polygons around the sites indicates eight hypothetical territorial divisions, which remain the same during both the early and mid-second millennium BC, but no longer exist by phase 10 (Lyon 2000: 99-100). In phase 10, most of the sites are located north of the 250 mm isohyet and may represent an attempt at agricultural colonisation (Lyon 2000: 101). The distribution of the majority of the settlements in the better-watered part of the plain mirrors a similar shift in the settlement pattern in the Leilan region. The low degree of settlement continuity between phases 9 and 10 also reflects the situation in the Leilan survey. In the Balikh, excavated data "provide evidence of abandonment or hiatus between the two phases marked by conflagration in some places and packing up and moving in others" (Lyon 2000: 103). Moreover, unlike in the Beydar area, many Middle Assyrian settlements were located at the

[144] This reconstruction relies upon the assumption that the King of Hanigalbat ruled from Dur-katlimmu, as the texts suggest. However, the majority of the Dur-Katlimmu texts date to one month, suggesting that Assur-Iddin's stay in the city was an exception, and that Dur-Katlimmu was not the capital of Hanigalbat (Cancik-Kirschbaum 1996: 43).

highest points of the mound—a pattern seen at Jittal, Sabi Abyad and other sites east of the Balikh (like Chuera) (Lyon 2000: 103).

Middle Euphrates

In accordance with trends elsewhere, the Middle Euphrates experienced a decline in settlement during the Late Bronze Age. No effort was made to subdivide the data into multiple phases, so we can only summarise trends for the entire five hundred year period. Few large settlements were recorded during this period. Most of the ones located by survey were small villages; only Terqa and Jebel Mashtala were 10 ha or larger (Geyer et al. 2003: 259-260). At some point during phase 8 or at the beginning of phase 9, the hydrology of the Euphrates changed. The Euphrates switched from an incised to a braided channel, making canal construction easier, but also making the river plain susceptible to devastating floods (Geyer et al. 2003: 257). Probably as a result, a canal was built which allowed settlements to move from the flood-plain to the Holocene terrace (Geyer et al. 2003: 259).

Northwest Syria and The Upper Euphrates

In Northwest Syria and on the Upper Euphrates, phases 9 and 10 witnessed a clear decline in both settlement numbers and settled ha. In the Birecik dam area only one site was occupied—Cisri Hoyük, which has Middle Assyrian material. Otherwise, neither typical Late Hittite ceramics nor Syrian-type LBA material was found on any of the sites in this region, despite the historical evidence proving that Carchemish was an important settlement. The lack of such sites may reflect "the concentration of population at a single central site (Carchemish)... explained by defence considerations resulting from the city's role as the centre of Hittite imperial power in Syria" (Algaze et al. 1994: 18) Although no quantitative information was given, Berthold Einwag notes a decline in settlement numbers in the West Jezira during these phases (Einwag 1993: 37). In the Tabqa dam area, sites decrease in number from phase 8 to phases 9 and 10. The majority of the sites were fortified, suggesting an emphasis on defence in this border region (Wilkinson & Barbanes 2000: fig. 7). In the Jabbul plain, the Late Bronze Age sees a serious reduction in the number of sites, with only 11 sites dating to this period (Schwartz et al. 2000a: 451). The drier steppe east of Umm el-Marra was almost totally devoid of sedentary population. Schwartz notes that this is a common pattern for LBA Syria, which is "perhaps associated with increasing nomadic pastoralism" (Schwartz et al. 2000a: 451).

Conclusion

Surveys across Northern Mesopotamia record declining settlement during the Late Bronze Age. In general, this decline increased over time, with Mitanni settlements better represented than later Middle Assyrian ones in the East and West Jezira. One exception to this general pattern comes from the West Jezira, the area around Tell Beydar, where high numbers of small sites date to this period. In both the East and the West Jezira, the percentage of small, low sites increased during this period, perhaps reflecting a policy of rural production.

III. Provincialisation, Administration and Standardisation

Mitanni and Middle Assyria were both larger and less ephemeral states than we have previously considered. Both of these factors suggest that government decisions could—although did not necessarily—affect settlement patterns. These centuries represent the first protracted period since the Akkadian imperialisation of the Habur Plains during which a site outside of the Tell Leilan region controlled it. This shift of the centre affected the entire region, changing the status of existing cities and towns. Governing these kingdoms posed new challenges and led to the adoption of standardised administrative procedures over a wide area. Although material dating to the Mitanni period has been excavated at a number of sites in North-eastern Syria and Northern Iraq, few either textual or archaeological studies have examined how Mitanni administration operated. In contrast, the investigation of the Middle Assyrian provincial system has been a major research frontier for both archaeologists and historians (Cancik-Kirschbaum 2000; Jakob 2003; Kühne 2000; Machinist 1982; Pfälzner 1995). In this section, the archaeological and textual evidence for Mitanni administration will be evaluated, with particular attention to evidence for attached craft production and agricultural administration. We will then examine how the Assyrian conquest of Northern Mesopotamia transformed this system, by considering the Assyrian provincial system, its administration and its effects on the material culture. We will argue from this evidence that the Mitanni state emphasised wealth finance and local control, while the Assyrian state emphasised staple finance and centralisation. Finally, the possible implications of these alternate systems on the settlement patterns of Northern Mesopotamia will be considered.

Wealth Finance and the Mitanni Administration

Mitanni administrative buildings have been excavated in North-eastern Syria and Northern Iraq at Brak (Oates et al. 1997: 1-13), Barri (Pecorella 1990; 1998b), Hamidiya (Eichler et al. 1990; Wäfler 1990), Hammam et-Turkman (Meijer 1996; Van Loon 1988), Rimah (Oates

1966; 1967; 1968) and perhaps Mohammed Diyab. Private houses have been excavated at Mohammed Diyab (Sauvage 1997), Brak (Oates et al. 1997: 18-23), Bderi (Pfälzner 1988), Rimah (Postgate et al. 1997: 37 and fig. 12), Arbid (Bielínski 2000, 2001) and Umm el-Marra (Schwartz et al. 2003: 348-353; Schwartz et al. 2000a: 429-431). Excavations at Nuzi (Starr 1937-1939) and Tell al-Fahar (al-Khalesi 1976) in the region around Kirkuk provide information on a Mitanni client kingdom of this period, as do excavations at Alalah in the Antioch plains (Woolley 1955), but they cannot directly inform us of the administration of Mitanni. Only a handful of cuneiform texts have been retrieved in excavations from the centre of this empire.[145] Perhaps as a result, no reconstruction of the economic basis of this kingdom, nor of Mitanni administrative practices, using either the results of excavations or of texts, has been offered.

The data from the excavated palaces, particularly at Brak and Hammam et-Turkman, as well as studies of Mitanni pottery (particularly Nuzi ware) imply an economic focus on wealth finance, as opposed to staple finance. No granaries or food storage areas have been found in Mitanni palaces, in contrast to palaces from every other period. Instead, these buildings consist of monumental reception quarters and attached craft-production workshops, where metal was smelted, glass manufactured and jewellery crafted. Similarly, Nuzi ware vessels—the pottery of the Mitanni court—are best understood as luxury goods (Stein 1984: 30-31). Excavated Mitanni palaces also contained large quantities of imported goods, originating from distant locales like Egypt and the Aegean (see essays in Oates et al. 1997). The presence of such imported goods correlates nicely with the emphasis on exchange of luxury goods in the Amarna letters (Liverani 1990: 214-215). Moreover, excavated Mitanni graves are generally richer in manufactured goods than graves from other periods in Northern Mesopotamia—further evidence for an elite focus on luxury goods in this society (Bielínski 2000, 2001).

The eastern wing of the Mitanni palace at Brak comprised a craft production workshop with associated storage rooms (fig. 5.10). Room 7, the workshop, contained an array of hearths and ovens. These were probably used for metallurgy and smelting, "as slab fragments of iron-rich copper as cast from the smelting furnace" were recovered nearby (Oates et al. 1997: 28). A baked-brick pavement and elaborate drain led from this room, through a corridor into the courtyard (Oates et al. 1997: 7). Room 7 included a variety of glass, frit, ivory and bronze " works in progress", tools—stone polishers and needles—and

[145] See fn 139.

raw materials—sheet copper and glass ingots. The adjacent storage room, room 5 contained more raw materials including copper, glass ingots and unworked stone ("including a massive piece of bright red jasper weighing several kilos") associated with storage vessels (Oates et al. 1997: 29). Tools found in this room include grinding slabs, chisels and stone polishers. All three rooms contained several potstands, perhaps used in the production process (Oates et al. 1997: 28-29). Glass and copper ingots, along with fragments of metal slag were also found in the corridors adjacent to these two rooms (Oates et al. 1997: 28). Lead-isotope analysis of the glass fragments suggest that the majority were manufactured in Northern Mesopotamia, while one fragment greatly resembles Egyptian samples (Brill & Shirahata 1997: 93). Further chemical analyses revealed that two different processes were used to manufacture the glass found at Tell Brak, supporting the suggestion that ingots found here came from multiple foreign sources (Henderson 1997: 99-100).

The eastern wing of the phase VIII:1b palace at Hammam et-Turkman, roughly contemporary to the Brak palace, may also have housed industrial production (fig. 5.11). Unlike in the Brak palace, however, very few objects were found *in situ* in the Hammam palace, so there is much less evidence for the use of this area (Meijer 1988: 90-91). Additionally, much of this wing remains to be excavated. The east wing contained three rooms furnished with a hard, water-proof floor, sunken pottery basins, drains and ovens (Meijer 1988: 89-90, pl. 47a, b). During a later sub-phase much of this area was paved with baked brick and more drains were added (Meijer 1988: pl. 46). Six shallow circular depressions in the southernmost room contained "red coloured powdery material" which has not been analysed (Meijer 1988: 90). Like the Brak production wing, this suite of rooms also contained a large number of potsherds (Smit 1988: 459). Although it is possible that this wing was merely used for domestic activities, the furnishings of the room and some of the finds also suggest that it was a workshop.

The origins of Nuzi ware have received quite a lot of attention, but much less has been devoted to their function within Mitanni society (Stein 1984; Zimanksy 1995). In her review of the evidence, Diana Stein confirmed that this decorated pottery was a form of "palace ware", since it has been found largely "in temples, palaces and residences of wealthy merchant families" (Stein 1984: 30). The high quality and individuality of the designs of this pottery, as well as its occurrence in elite contexts, suggest that Nuzi ware was a prestige good. The possible influences on the white painted designs of this pottery—from the Aegean, the Levant, Egypt and Mesopotamia also suggest its elite status (Stein 1984: 27) (fig. 5.12). The wide-range of influences echoes the findings of Nuzi Ware in the Mitanni palace

at Brak along with Levantine faience scarabs (Oates et al. 1997: 88), an Egyptian alabastron (Oates et al. 1997: 107) and a Mycenaean stirrup jar (French 1997: 79). The time-consuming manufacture of these ceramics contrasts greatly with the standardised, mass-produced, time-saving manufacture of "official Middle Assyrian pottery", their corollary during phase 10 (Pfälzner 1995: 248-256).

The collected evidence for the importance of wealth finance in Mitanni society is only a first attempt at investigating factors related to this state's administration of the Habur plains. Of course, Mitanni could not have relied upon wealth finance alone; like any state it must have combined both wealth and staple finance in order to maximise stability. Funding these artisanal studios, let alone long-distance trade, required Mitanni to produce and administer an agricultural surplus. The excavated legal texts from Brak and Tuttul indicated that the Mitanni elite carefully controlled access to land (below). No doubt they directly cultivated large estates and received agricultural goods in taxes from their provinces, although we have no direct evidence for these activities. Nonetheless, the focus of the Mitanni elite in the Habur plains on craft production, contrasts highly with the later Assyrian imperialisation of this area (phase 10), where the focus shifted to intensifying agricultural production. The sketch above may help to explain some of the differences in phase 9 and phase 10 settlement patterns. The number of Mitanni craft production centres in small towns and cities, like Brak, Hammam et-Turkman and even Nuzi, that were abandoned by the later Assyrians, is striking and may reflect a basic economic difference between these two states (Starr 1937-1939).

The Assyrian Provincial System

Becoming a Province

During the late-14th century, although Aššur was often the major power in Northern Mesopotamia, it probably only directly governed a small kingdom on the banks of the Tigris and part of the Jezira to the west, including Nineveh, Kalhu, Kilizu, Arbail and the area around Rimah (Machinist 1982; Postgate 1992: 247). The last Mitanni kings, although severely restricted in their ability to conduct independent relations with other states, continued to direct the affairs of the Habur region. In the 13th century, however, Aššur's relationship with Hanigalbat underwent a sea change. No longer content with a policy of indirect rule, Assyria directly incorporated the entire area between the Tigris and the east bank of the Euphrates into one political entity.

The new land, the former kingdom of Hanigalbat, became the western provinces of the Assyrian empire. Like the areas that Aššur had conquered during the 14th century, these new provinces sent regular offerings to the Aššur temple. A province's delivery of grain and fruit to this temple illustrated its acceptance of Assyrian centrality and its inclusion in the land of Aššur (Postgate 1985: 70; Postgate 1992: 251-252). More than 650 documents from the Aššur temple administration documenting these offerings were uncovered during the excavations in Aššur in the early 20th century (Pedersén 1985: 43). Our earliest evidence for this system comes from the end of Tukulti-Ninurta's reign (Freydank 1992: MARV III 45), while scattered texts (archive 18764) document the continued operation of this system during the 12th century (Freydank 1992; see texts cited in Jakob 2003: 176-177). The clearest evidence, however comes from the archive of Ezbu-lēšir, "the regular offerings administrator", during the reign of Tiglath-Pileser I (Freydank 1997a; Pedersén 1985: 44-47; Postgate 1980, 1985). These five column texts record quantities of barley, honey, fruit and sesame oil along with the names of the provinces from whence they came (Postgate 1985: MARV II 23). The district governor was responsible for making these deliveries; receipts documenting the fulfilment of these obligations were filed both in the Aššur temple and in the provincial capital (Jakob 2003: 131, MARV III 36: 17-20).

The tablets documenting the *ginā'u* are important, as they record the survival of the Middle Assyrian provincial system for at least 200 years. Moreover, they are useful for reconstructing the system's administrative structure. A recently published document from Kār Tukulti-Ninurta contains the same geographical names as later provincial lists (Freydank 2001: MARV IV 127). This text may also relate to the *ginā'u* system, but it is too broken to be sure. Nonetheless it clearly shows the inclusion of the Habur plains provinces (Ta'idu, Amasakku and Kulišhinaš) in the Assyrian state, as do other texts referring to these *pāhutu* from the 13th century.

The Assyrians relied on coordinated deportation and colonisation policies to discourage revolt and ensure the loyalty of these new provinces. In one of his royal inscriptions, Shalmaneser I boasts of deporting Hurrians—the local population from Hanigalbat—before incorporating this area into Assyria:

> I butchered their hordes, (but) 14,400 of them (who remained alive I blinded and carried off. I conquered nine of [the king of Hanigalbat's] fortified cult centres (as well as) the city from which he ruled and I turned 180 of his cities into ruin hills.... At that time, I captured their cities (in the region) from Ta'idu to Irridu, all of Mount Kašiyari to the city Eluhat, the district of Sūdu, the distict of Harranu to Carchemish which is on the banks of the Euphrates. I

> became ruler over their lands and set fire to the remainder of their cities. (Grayson 1987: Shalmaneser I A.0.77.1 lines 73-87).

Administrative texts from Aššur and Kār-Tukulti-Ninurta prove that the Assyrian deportation strategy was not false propaganda. Three texts dating to Shalmaneser's reign record the provisioning of deportees in the provinces of Nahur, Ta'idu, Šuduhi and Amasakku (Postgate 1988:29, 34 and 35), all of which are located in the Habur Triangle and at least one of which (probably either Amasakku or Ta'idu) coincides at least in part with the Leilan survey area. Where the quantity of grain is preserved, it is quite large (360 homers and 926 homers respectively), suggesting a correspondingly large deportee population. One text lists more than 200 people, Hurrian builders and their families, together with their possessions and a subsistence field, who came from the foot of the Kašiyari mountains—the present Syrian-Turkish border, just north of the Tell Leilan survey area. Other texts list rations for deportees employed on building projects in Aššur and Kar-Tukulti-Ninurta (Freydank 1975: 60-61, VAT 17999, VAT 18007, MARV 1 3). Some of these deported Hurrians probably became "unfree" *šiluhlu*-workers.[146] In most attestations, male-*šiluhlu* are farmers, while female-*šiluhlu* are either "workers" or "textile producers". *Šiluhlu* were common in large private and state households. Hurrian *šiluhlu* appear in the lists of agricultural workers at Sabi Abyad and Dur-Katlimmu. Texts from Aššur record the existence of *šiluhlu*-workers, farming state land in the cities Rēs-nēbere, Hiššutu, Nēmad-Ištar, Tarbašhe, Turšan and Sira (see below for these texts, Jakob 2003: 39-40).

The other side of this coin was the colonisation process. Colonists from Aššur and from the older Assyrian provinces streamed into the deserted territories of the land of Hanigalbat. A quick glance at the changing onomastics of this area shows how quickly it became "Assyrian". In two texts from Rimah which date to the Mitanni rule, Hurrian names predominate, yet in the 13th century, names—and patronymics—are all Assyrian (Machinist 1982: 19, fn. 45).[147] All of the names attested in the recently published letters from Dur-Katlimmu are Assyrian (Cancik-Kirschbaum 1996: 230), as are the names in the texts from Fakhariya (Uššukanni?) (Güterbock 1958: 90) and Amida/Kulišhinaš (Machinist 1982: 18). As Peter Machinist comments, "our documentation, in short, appears to point to fairly self-contained Assyrian communities in the thirteenth-century provinces, governing but not integrated into the native or deportee populations" (Machinist 1982: 19).

[146] Note that there is also evidence for Assyrian *šiluhlu*-workers at Dur-Katlimmu, so these workers are probably not just deportees (Jakob 2003: 39).

[147] The Mitanni and Middle Assyrian texts from Rimah may come from two different social sectors—government and commercial respectively—thus this replacement may not be total (Postgate, personal communication).

Assyrian Administration

The Assyrian administration of Hanigalbat, the former Mitanni kingdom, emphasised centralisation. The new Assyrian provinces may have roughly coincided with Mitanni provinces. An administrative document from Tell Brak notes that this city lies in the province of Ta'idu, which remained a province under the Assyrians (TB 8002) (Illingworth 1988: 105-108). Similarly, the Assyrians adopted Hurrian administrative terminology; the terms *halşuhlu/hassihlu*, used for governor in certain provinces and *šiluhlu*, used for dependent workers, have clear Hurrian proveniences (Jakob 2003: 142-143 and 39). The term *sukallu*, "vizier" although originally Sumerian, was probably also taken from the Mitanni administration, since texts indicate that this official served similar functions within the two states (Jakob 2003: 57-58). Within this provincial framework, however, the Assyrians completely removed the Hurrian governing class, employing Assyrians, often from the Aššur elite, instead (Postgate 1992: 252). The archives of the provincial palaces of Dur-Katlimmu and Harbe, as well as the archive of the Urad-Šerua family, found at Aššur, illustrate the direct ties between Aššur and Assyrian officials in the provinces.

The Dur-Katlimmu and Harbe archives date to the reign of Tukulti-Ninurta and inform us about the activities of the "grand viziers" who were the high officials responsible for the affairs in the western half of the empire, between the Habur and the Euphrates. Four grand viziers are known from these texts and others found at Aššur, at least three of whom are from the same family: Qibi-Aššur, Aššur-iddin and Ilī-padâ . The fourth vizier may also be related to this family, but since his patronymic is never attested, this is unclear. Qibi-Aššur may have been the grandson of King Adad-nārāri (Freydank 1991: 60), or perhaps the brother of King Shalmaneser. In any case, the family had important ties to the Assyrian royal family; several members of the family were also eponym-officials, stressing again their importance in Aššur itself (Cancik-Kirschbaum 1996: 21). At least two of these officials also possessed the title "King of Hanigalbat". This royal title was recognised outside of Assyria, as the address used in a letter from the Babylonian king Adad-šuma-uşur to both Ilī-padâ and Aššur-nērarī III indicates (ABL 924 cited in Jakob 2003: 63). Within Hanigalbat, the grand viziers and their subordinate viziers could interfere in all manner of civil and military affairs and were in charge of the western and southern borders (Cancik-Kirschbaum 1996: 29). Like most Assyrian officials, they also took advantage of their position in Hanigalbat to enrich themselves by loaning out grain from the state barley stores (DeZ 2527, DeZ3358 cited in Jakob 2003: 60, fn). The letters indicate that these officials took a special interest in agricultural affairs, underlining the importance of the Habur region as a breadbasket for the

rest of Assyria (Cancik-Kirschbaum 1996: 44-45). Beneath the rank of vizier were the provincial governors. The correspondence from Harbe, between Sin-mudammeq, probably a vizier, and the governor of Harbe vividly illustrates the higher rank of the former, who writes to the latter in the most condescending of tones (Jakob 2003: 61; Kühne 1995a: TCh92.G.143).[148] Despite the high rank of the grand viziers, they were still clearly subordinate to the king, who took a close interest in their affairs and could intervene in all matters (Cancik-Kirschbaum 1996: no. 9).

The archive of the Urad-Šerua family, found at Aššur, indicates the same mix of private and public activities, as well as further evidence for the involvement of an elite Aššur family in provincial affairs. The archives record both the family's private dealing in Aššur and Nineveh and their public and private activities in the Habur plains (Postgate 1988: xxiv-xxv). The presence of *šulmanu* texts, documents detailing gifts given to an official so that a case will be heard, in this archive naming Aššur-aha-iddina, his son Melisah and his grandson Urad-Šerua, indicate that all three held government posts. We do not know what titles Aššur-aha-iddina or Urad-Šerua may have held, but Melisah, Urad-Šerua's father, was the governor of Nahur, a province located somewhere in the western Habur triangle, during Shalmaneser's reign (Postgate 1988: xii, no. 34: 8-10). A number of texts that name Urad-Šerua as a principal actor also detail activities in the Habur plains region. Urad-Šerua acts along with his father, when Melisah held the post of governor of Nahur, in the transfer of barley to deportees in the Habur region in two tablets (Postgate 1988: 28 and 34) and alone in one (Postgate 1988: 35). His role as indicated by these three tablets has led Claudio Saporetti to propose that Urad-Šerua was the "superintendent of the royal granaries" for the entire Habur area, although Nicholas Postgate does not follow him in this interpretation (Postgate 1988: 73-74; Saporetti 1970: 437-441).

The Assyrian administration thus emphasised centralised rule from Aššur and a flexible system. The accounting procedures used by provincial governors were a simple adaptation of that used by merchants (Postgate 1983-1984: 231-232). This was true within the city of Aššur as well and is responsible for a lot of the apparent mixing of personal and

[148] Eva Cancik-Kirschbaum argues that the region between the Habur and the Euphrates was in Assyrian hands from the time of Tukulti-Ninurta, but did not yet form part of the provincial system. Such a situation may well explain the broad powers of the grand viziers and viziers in this area. Similarly, she notes that this area was not yet fully "Assyrianised." Instead she uses the model of a network empire (Liverani 1988) to argue that the Assyrian presence was concentrated in "way-stations" set up for military and communication purposes. These way-stations included the series of *dunnu*s along the Balikh, (discussed above) as well as *birtu*s, from the Akkadian word for fort, at the foot of the Kašiyari mountains (Cancik-Kirschbaum 1996: 23-25, no. 7; Cancik-Kirschbaum 2000: 6).

state matters in these archives. The explanation that Postgate offers for this is entirely plausible, that the expansion of the Middle Assyrian kingdom created the need for "an administrative hierarchy capable of communicating decisions" and that "it was a natural step to adapt the commercial structure of the society of Aššur to the task of government" (Postgate 1986: 27). As a result, private merchant debt-notes were transformed into administrative documents. The deployment of merchant families as Assyrian administrators gave the public sector great flexibility, as did the fluid hierarchy. How did Assyrian administration differ from what came before? Perhaps the most obvious difference was the imposition of direct rule, rather than a reliance on client kings. Postgate has conceptualised this as a "single-tier system of provinces" versus the "pyramidal structures of the Hittite and Mitannian empires" and sees it as an innovation (Postgate 1992: 252).

Standardising the Material Culture

The "Assyrianisation" of the Habur Plains had clear implications for material culture. The appearance of a series of mass-produced standardised bowls, of distinct sizes, probably resulted from the introduction of a standardised ration system. Similarly, the abandonment of the administrative precincts of second-level regional centres, like Tell Brak or Hamman et-Turkman indicates a new Assyrian policy of streamlining provincial administration. Finally, the construction of a series of palaces that emphasise agricultural and pastoral production and storage reflects the Assyrian focus of imperialising grain production in this region, which emerges so clearly from the Dur-Katlimmu letters and the Sabi Abyad *dunnu*.

By comparing pottery from "official" and "non-official" contexts from all excavated Middle Assyrian sites, Pfälzner clearly showed the difference between Middle Assyrian "official pottery" and other contemporary pottery (Pfälzner 1995: 241-2). Besides their findspots in administrative buildings, three characteristics of this official pottery argue for some state control over pottery production. First, they were mass-produced, in a context stressing quantity over quality; the clay is often unsmoothed, the vessel shape is carelessly executed. Second, a limited number of standard forms from a limited number of wares were produced. Three vessels—the carinated bowl, the carinated dish and the standard jar—made out of six different wares represent almost 2/3 of the Middle Assyrian ceramic assemblage. These forms are also produced in a range of standardised sizes: carinated dishes have a diameter of about 20 cm, carinated bowls of about 9 cm and standard jars of about 13 cm. Third, these vessels are clearly made to be stacked, suggesting that great quantities of them were meant to be used and stored (Pfälzner 1995: 245-246). INAA analysis of the pottery

found at Tall Umm ‘Aqrēbe and Sheikh Hamad /Dur-Katlimmu has clearly established that each city manufactured its own official pottery. Local centres presumably produced these highly standardised ceramics at the behest of state institutions (Pfälzner 1997a: 339).

The carinated bowls and carinated dishes probably represent ration bowls. These two types dominate the assemblage recovered in building P at Dur-Katlimmu, the Middle Assyrian palace. Pfälzner hypothesises, based on the pottery assemblage and the Dur-Katlimmu tablets that the redistribution of agricultural products was an important function of this building (Pfälzner 1997a: 338). Similarly, the presence of the *sūtu* measure of the *bīt hiburne* in texts from Aššur, Dur-Katlimmu, Chuera and Tell Sabi Abyad shows the use of administrative norms for measurement. Other measurements were also used by the central government for taxes and the delivery of the *ginā’u* offerings (Jakob 2003: 25, fn. 185 and 186).

Pfälzner has outlined the borders of the Middle Assyrian provincial system, based upon the distribution of “official” Middle Assyrian pottery. Despite hyperbolic Middle Assyrian claims that their empire stretched to the Euphrates, for instance, he finds that these ceramics do not occur in assemblages from sites beyond the Balikh (Pfälzner 1997a: 339-340). The Dur-Katlimmu and Harbe letters also depict the Balikh as the militarised frontier of this empire (Cancik-Kirschbaum 2000: 7). The distribution of official pottery can also highlight the change in status of certain sites. Although many of the Mitanni provincial centres remained Middle Assyrian provincial centres, the second tier in the hierarchy was removed. For example, the small amount of Middle Assyrian official pottery at Tell Brak, along with the small size of the Middle Assyrian occupation of this site, argues that this site lost its administrative function and experienced a settlement hiatus during the 13th and 12th centuries BC (Pfälzner 1995: 183). As a result, the province of Ta’idu clearly lost one of its significant administrative centres. Similarly, the pottery and the excavated evidence both point to a constriction of settlement at Mohammed Diyab (Pfälzner 1995: 189).

Finally, the large storage capacities of excavated Middle Assyrian provincial palaces argue for an emphasis on grain storage and distribution. Middle Assyrian documents use several terms for agricultural storage areas; suggesting an administrative focus on grain storage. Grain stored in palace storehouses could be distributed to urban workers and their families, while grain stored in the countryside, close to the fields, probably provisioned farmers and their animals (Jakob 2003: 320-328). One text from Dur-Katlimmu describes the location of the *bīt karme*, the granary, as “on the terrace, to the left, while entering”, (DeZ 2518 cited in Jakob 2003: 323). This description corresponds well with the location of room

A in Building P. Burnt grain, probably the remains of burnt sheaves of barley (see below), covered the floor of Room A, attesting to its function as a granary (Pfälzner 1995: 105-106) (fig. 5.13). At Sabi Abyad, a large amount of cleaned barley and wheat was found within the buildings of the *dunnu*, but the texts indicate that a large granary existed in the countryside (Wiggermann 2000: 175, 195-196).

IV. Villagers and Nomads

Middle Assyrian evidence for the organisation of the countryside clearly indicates that the Assyrian state emphasised agricultural production. Data suggest the imposition of a new standardised system where all arable land belonged to the king, but was held by individuals who owed *ilku*-service to the king (Garelli 1967; Postgate 1971, 1982). The palace managed some land directly, employing a chief farmer and a combination of dependent and free labourers to work it (Jakob 2003: 338-341). The produce of such land went to the province and its governor, although a set proportion was sent to the Aššur temple (Freydank 1997a: 47; Jakob 2003: 177-181). "Manorial estates" called *dunnu* in Assyrian or *dimtu* in Babylonian were agricultural production units often owned and managed by important officials, providing their owners with agricultural surplus (Jakob 2003 38; Kolinski 2001; Wiggermann 2000). Archaeobotanical and faunal evidence attests to the centralised control of the state. State farms grew a limited number of crops, perhaps to increase yields (Van Zeist 1995 545-8) and kept herds of sheep and goat. There is decreasing evidence for diversified crops and land holdings, hunting and pig-raising (Buitenhuis 1979). Yet despite the textual and archaeological evidence for state standardisation, there is also evidence that some land and settlements remained outside of the control of the Middle Assyrian state. Surveys have shown that few Middle Assyrian settlements were located in marginal areas. The Tell Leilan survey has documented that villages located on the basalt plateau or south of the Wadi Radd were local settlements with little Middle Assyrian pottery. Such settlements were probably the abode of semi-pastoralists, who remained only marginally subject to the state.

Farming the Kingdom of Hanigalbat

Reconstructions of land tenure and agricultural exploitation during the Middle Assyrian period rest upon the analysis of tablet B of the Middle Assyrian Laws (Roth 1995: 176-182) and an archive of land sale tablets from Aššur (M 9) that document the purchase of land in various villages "across the Šiššar", probably the Wadi Tharthar (Pedersén 1985: 89-99; Postgate 1971). It is unclear how applicable the Aššur evidence is to land holdings and

agricultural practices in the Assyrian provinces. It seems likely that the Middle Assyrian state relied heavily on former Mitanni practices of land tenure in the provinces (Postgate 1982: 312). Most of our evidence for land tenure in Mitanni comes from the kingdom of Arrapha, however a few contracts from Tell Brak illustrate practices in the Habur plains (Eidem 1997: TB 6002 and TB 8001). A few contracts from Rimah and Tell Amuda/Kulišhinaš give us limited evidence for land tenure in the province of Karana and the Habur plains.[149]

The palace was the ultimate legal landowner in both Mitanni and Middle Assyria. Evidence for this claim as regards Mitanni comes from the introductory clauses of two Brak contracts noting that these inheritance agreements had been contracted "in the presence of the king" (Eidem 1997: 41) The involvement of the "*Halşuhlu*", the king of Arrapha and the king of Mitanni in real estate transfers at Nuzi also provides support for this assertion (Zaccagnini 1984). The Middle Assyrian evidence for the palace's role in land ownership derives from interpretations of the phrase *zitti ekalli*, the share (or perhaps even inheritance) of the palace in the M 9 documents and the involvement of a royal representative in land sales in the Middle Assyrian Laws (Postgate 1971, 1982; Roth 1995: MAL B 6). It seems that individuals could hold this land (and indeed dispose of it by sale or inheritance) as long as they performed (or had their tenants perform) *ilku* service. *Ilku* service could probably take the form of either military service or state labour (Lafont 1998; Postgate 1971, 1982).

The community played an important role in managing the land. According to the Middle Assyrian Laws, the *ugāru*, the arable land surrounding the village was divided into two parts. First, the "great boundary of companions" (*tahūmu rabi'u ša tappā'i*) delimited the arable land belonging to one social group, probably a lineage. These great boundaries could not be moved or violated (Roth 1995: MAL B 8). Within this great boundary lay "lots" (*pūru*) which were delimited by small boundaries (Roth 1995: MAL B 9) . Some of these sub-sections were fixed permanently by title; the majority were reassigned annually by drawing lots, in the same manner in which inheritance shares were divided. Brothers may have worked their plots together, but except in unusual cases where they had not yet divided their father's estate following his death, they probably rarely *legally* owned land together (Postgate 1982: 309-310). Nonetheless, in villages where the "great boundaries" existed,

[149] The Rimah tablets that deal with real estate are: land sale documents TR 3004 (in Diakonoff FS), TR 2022 (maybe, very small fragment), TR2032 + 2054; testaments and inheritance documents TR 2037 (Postgate 1978), TR. 117 and TR. 2024; censuses of properties TR. 3017 and 3020; loans with real estate as security TR. 3001, TR 3002, 3007, 3012, 3022, all of which are published in (Saggs 1968; Wiseman 1968). The relevant Kulišhinaš texts are AO 19.228, AO 19.229, A O 20.155, all of which deal with real estate pledged for loans (Aynard & Durand 1980). A Middle Assyrian contract has also been found at Mohammed Diyab, unfortunately it has not been published.

land sale would have been " a difficult procedure, to be undertaken only with the co-operation of the rest of the village, or at least of the family". In newly founded villages in peripheral areas on the other hand, it was much easier for urban landlords to accumulate vast real-estate holdings (Postgate 1982: 310).

Postgate has cautioned scholars against applying this system of communal management in Northern Mesopotamia generally, noting that it only necessarily applies to the old villages around Aššur and cannot be assumed to hold true in other areas (Postgate 1979: 234). Although there is certainly no evidence for it, I follow R.M. Jas who applies this lot system broadly in Northern Mesopotamia, noting that it is well-suited to the Mediterranean dry-farming conditions of this region (Jas 2000: 257-258). Indeed variations on this lot system (all of course, with their own nuances) can be found in the open-field system of Medieval Europe (Adams 1982: 2-3), classical Greece (Garnsey & Morris 1989), the *'dira* system of mid-19th century Southern Iraq (Adams 1982: 4), the *musha'* system of 19th century Syria and Palestine (Adams 1982: 8; Rafeq 1984) and the *merkes* system of the 20th century Hatay plain (Postgate 1982: 310).[150]

The Middle Assyrian palace also directly owned and farmed considerable quantities of land. This land included both state-developed farmland in the Assyrian heartland, as well as former Mitanni state land in the provinces (Freydank 1988: 83). Records for royal holdings in the provinces have been found at Aššur (Freydank 1994, 1997b; Postgate 1990), Dur-Katlimmu[151] and Harbe,[152] a similar text was also found at Sabi Abyad (see below). These texts depict an administrative procedure, *pišerti karū'e*, "the dissolution of the heap", which refers to the subtraction of next year's production costs (seed, plough-oxen rations and worker rations) from the total yield. They record the total grain yield, the amount of cultivated land and the average yield per unit of land (*iku*), as well as the storage of any net grain profit (Freydank 1994: 14; Jakob 2003: 118; Wiggermann 2000: 179-180).

These texts indicated that state land was divided into plots of between 100 and 300 iku, with 200 iku attested most frequently. An official called the *rab ikkarāte*, chief farmer,

[150] Charles Issawi has conceptualised the Ottoman land tenure system as characterised by land-ownership by the state, with minor exceptions (such as *milk* freehold and *waqf* mortmain), with farmers enjoying usufructuary rights (possession). Middlemen, who collected rents for the state, also formed an important part of the system. The nomads who both raised their herds and cultivated land within their traditional holdings were sometimes exterior to this system of land-ownership, but intrinsically involved in the larger system of land-use (Issawi 1982: 135). Although separated widely in time from the first Northern Mesopotamian states, this reconstruction takes account of the extensive farming practices used in semi-arid regions, where 1/2-2/3 of the land is left fallow each year in order to conserve moisture. It also responds to a situation where both capital and labour inputs into land were generally small, resulting in low absolute yields (although high in terms of seeding).
[151] (DEZ 3359 in Arnaud 1991: 106; Freydank 1994: 15-16; Jakob 2003:270-271; Wiggermann 2000: 180).
[152] (Jakob 2003: 155-156, 313, 326, 506)

oversaw the cultivation of each plot. The state supplied the chief farmer with tools (ploughs and sickles), plough-oxen and rations for dependent labour, both "free" and "unfree" (*šiluhlu*) (Jakob 2003: 338-339). The *rab ikkarāte* also received rations (Jakob 2003: 338; Wiggermann 2000: 188). Unlike the *ikkaru* in the Mari period, this worker was not an independent entrepreneur under state contract in Assyria. The district governor (*bēl pāhete*) was ultimately responsible for agricultural and pastoral production in his domain, including the surplus stored in the granaries (MARV 2 23: 21, MARV 3 4: 5'-6'Jakob 2003: 117). However, during the division of the harvest, a representative of the king, the *qēpu*-official was present and was the person responsible for actually "dissolving" the grain heap (Freydank 1994: MARV 3 4: 6'-9'; Jakob 2003: 270, DeZ 23359: 21-24).

Mitanni and Middle Assyrian evidence attest to the growing importance of a new type of settlement, called *dimtu* in Middle Babylonian and *dunnu* in Middle Assyrian (Biagov 1976: 333-335; Diakonoff 1969 (1949) 212; Garelli 1967; Kolinski 2001: 30; Wiggermann 2000: 172). Recent excavations at Sabi Abyad on the Balikh have uncovered an archive that reveals that this settlement was a *dunnu*. The Middle Assyrian settlement at Sabi Abyad has been excavated in its entirety; ecofactual analysis of the faunal and palaeobotanical remains found there has also been undertaken. This archaeological evidence, combined with the textual information, allows us to identify the *dunnu* as "a fortified agricultural production centre"(Wiggermann 2000: 172). Other evidence suggests that they were fortified manors which generally belonged to an individual and could be inherited (Finkelstein 1953: 131, 160). This particular (very large) *dunnu* belonged to the grand vizier and king of Hanigalbat, Ilī-padâ and perhaps his grandfather, Aššur-iddin, who held the same office. A text from Tell Fakhariya show that Ninu'āju, Ilī-padâ 's brother also had a *dunnu* at his disposal (Güterbock 1958: no. 2), while a letter from Dur-Katlimmu (Cancik-Kirschbaum 1996: 2:6) shows that Sin-mudammeq possessed another *dunnu* in the Balikh district (Cancik-Kirschbaum 1996: 26; Jakob 2003: 38). These manorial estates existed throughout the entire Jezira. A text from Tell Billa/Šibaniba record sheep brought to "the city of sheep" from a number of settlements (Finkelstein 1953: Bi47). In this text, *dunnus* are grouped with cities. The tablet may reflect the settlement pattern of the countryside with small manors clustered around larger towns (Danti 2002: 31). Other *dunnu*s were located around Aššur, Kurda, Karana and Ta'idu. Some of these *dunnu* may have been newly founded following the Assyrian conquest of Hanigalbat; others however, were probably previously Mitannian *dimātu*. At Tell Sabi Abyad, for example, the central part of the *dunnu*, the "fortified tower" (*dimtu*'s primary meaning is tower) was initially constructed during the Mitannian period

(Kolinski 2001: 60-61). This Mitannian *dimtu* was small by comparison to the textually cited areas of *dimtu*s around Nuzi and served a different function than the later Middle Assyrian *dunnu*. Rather than being the agricultural and administrative centre of the countryside, it was a small family farm, dependent on one of the nearby cities, perhaps Hammam et-Turkman (Wiggermann 2000: 184).

A recent synthesis of all the data from Sabi Abyad—textual, archaeobotanical, faunal, architectural and survey—has reconstructed the management of this estate (Wiggermann 2000). The concatenation of this information gives us the best picture at our disposal for agriculture during the late second millennium BC. Although the information comes from an unusual context—a state-managed estate belonging to the second-most important official after the king—the widespread nature of *dunnu* settlements together with the similarity between this information and that from other sites in Assyria and Hanigalbat means that it can be applied more generally. The excavations at Sabi Abyad have uncovered the *dunnu*-building, a fortified precinct at the heart of this settlement, private houses and a defensive ditch surrounding the complex (fig. 5.14). The walled precinct measured 60X60 m, or exactly 1 *iku* and contained a tower (consisting of storage, treasury and a jail), the chief-steward's house, a reception court and a service wing (Akkermans et al. 1993; Akkermans & Rossmeisl 1990; Wiggermann 2000: 174-5). The entire settlement was less than one hectare in area, yet according to extrapolations from the economic texts, this *dunnu* may have controlled 10,000 ikus of land, or an area of 26km^2 (Wiggermann 2000: 183). The records of the regular deliveries to the Aššur temple (*ginā'u*) include offerings from the *pahutu* of *Ilī-padâ* , which probably means this *dunnu*, since it is unlikely that Ilī-padâ was the governor of a specific palace as well (Freydank 1992: 287, nos 5 and 6; Wiggermann 2000: 174). If the *dunnu*'s production capacity was meant to be the equivalent of the state land under the control of a provincial governor, this explains the large area of land under the *dunnu's* direct control. The *dunnu* of Sabi Abyad had about 900 dependants, 400 of which were unfree *šiluhlu*-workers who received rations, while the remainder were probably free-born *ālayu*-farmers who did not (Wiggermann 2000: 185). Between seven and sixteen chief farmers organised this workforce. Since there was clearly not space on the tell to house 900 people, the majority of these probably lived in small settlements in the countryside, near the fields (Wiggermann 2000: 183-184). These settlements were also called *dunnu* and were under the authority of the steward of the *dunnu* of Tell Sabi Abyad. In some cases, these *dunnu* belonged to specific ethnic groups, like the *dunnu* of the Subareans of Text 12, which might

explain the occurrence of non-official Middle Assyrian ware in the district of Sabi Abyad (Wiggermann 2000: 192).

I have presented the Sabi Abyad evidence in detail for three reasons. First, the *dimtu* and *dunnu* represent a widespread, novel settlement type for Northern Mesopotamia. Although there is some evidence that *dimātu* existed in the area around Šubat-Enlil during the reign of Šamši-Adad, the reading of the critical word in the only Mari text to mention it, is unclear (Chapter 4). Archaeologists have interpreted three settlements as *dimtu*s or *dunnu*s, Sabi Abyad, Tell al-Fahhar (al-Khalesi 1976; Kolinski 2002) and Tell Rijm (Kolinski 1997, 2000b). Although these identifications are not definite (or only so in the case of Sabi Abyad), it would not be surprising to interpret many small late second millennium sites as such manorial estates, given the written record. Second, Sabi Abyad's nature undermines many of the assumptions that survey archaeologists frequently make. Although it was less than a hectare in area, it was the dominant settlement south of Harran in the Balikh plains. Moreover, a calculation of its sustaining area based upon our comforting assumption of population density and dietary requirements would fall far short of the land that the texts indicated was under cultivation. This highlights an important point: archaeological reconstructions of land use rigidly confine themselves to the area under focus, seeing the site, or at most a small area in an entirely theoretically imposed isolation (Adams 2001: 350). Without the textual evidence it would be hard to accept Sabi Abyad as an agricultural production centre, whose surplus barley was regularly transported hundreds of km south-east to Aššur. Instead, we assume that the inefficiency of land transport prohibits such a situation and apply limitations inappropriate in complex societies to our discussions of land use and population density. Third, the full research agenda at Sabi Abyad allows us to analyse the texts critically, in light of the palaeobotanical and faunal evidence. For example, the total absence of pigs in the texts does not correspond with a genuine absence in the faunal assemblage (Wiggermann 2000: 199). Nonetheless, their absence from the texts is intriguing as it may indicate that pig-rearing fell outside the confines of the state and that even in this rigidly documented, state-controlled manor considerable freedom applied.

Evidence from Sabi Abyad and from *pišerti karū'e* texts from other places allows us to calculate a range of average yields for Middle Assyrian agricultural production (Jakob 2003: 313; Wiggermann 2000: Fig. 8). We can also deduce seeding rates and other agricultural practices, like a two-year fallow system from this evidence. Middle Assyrian yields fluctuate between a seed/yield ratio of 1:1-1:9. In some situations the higher yields may have come either from irrigated fields, or rarely sown fields in the desert during

spectacularly wet years (particularly at Sabi Abyad and Dur-Katlimmu). The very lowest yields probably came from rain-fed fields in marginal locations (Dur-Katlimmu and Tarbašhe). Dry-farming could also produce quite high yields, as shown by the very high ratios from Nēmad-Ištar in the Iraqi North Jezira (MARV 3 4). Given the high precipitation in the Tell Leilan survey area, relative to many of the locations for which yield information is available (the Balikh, the Lower Habur, the area around Kirkuk), it is likely that yields in this area during good years fell in the mid-high range of this spectrum.

The evidence shows a high degree of variability for individual fields, with ratios ranging from 1:4.3 to 1:6.4 at Hiššutu in the same year (Freydank 1975: MARV 2 23; Postgate 1990). At Sabi Abyad, the costs of production meant that the seed/yield ratio had to be above 1:2.75 for the state to break even. Butz notes that without manure or nitrogen fertilisers, 1:7-1:10 are the best seed to yield ratios that may be attained under a Mediterranean climate (Butz 1980-1983: 483; cf. Wiggermann 2000: 193). Although the Middle Assyrian seed/yield ratios are comparable to pre-Green Revolution ratios in the Middle East, absolute yields are much smaller, due to the low seeding rates employed in Mesopotamia (Butz 1980-1983; cf. Van Driel 2000: 272-273; Wiggermann 2000; Zaccagnini 1975; Zaccagnini 1979: 854). These low seeding rates reflect an extensive use of land and an economy where land was abundant but labour was in short supply (Van Driel 2000: 296-298). They also probably represent a risk-evading system. In more recent times in the Middle East, light sowing has been practised on lands outside of the normal range of dry-farming, so that if rain does not prove adequate losses will be minimised, while if it does, a bumper crop can be harvested. The palaeobotanical evidence from Dur-Katlimmu, coupled with the very low yields from Dur-Katlimmu and Tarbašhe suggests that the Middle Assyrian state was not averse to using very marginal lands for agriculture in certain conditions. However, the absence of Middle Assyrian settlements in many marginal zones argues against the general agricultural exploitation of the steppe.

Ecofactual Data

Reconstructing land use and land exploitation for the late second millennium BC is frustrating, due both to the small amount of ecofactual data which has been published from this area and the few small sites that have been excavated. For phase 9, palaeobotanical and faunal analysis has been undertaken at Bderi on the Middle Habur, Hadidi on the Upper Euphrates, Hammam et-Turkman on the Balikh and Umm el-Marra in the Jabbul plains. Closer to Tell Leilan, a few, unrepresentative botanical samples have been collected from

Tell Brak (Charles & Bogard 1997). Both Brak and Umm el-Marra have produced legal documents dated to the reigns of early 14th century Mitanni kings, while Bderi and Hadidi were probably also part of Mitanni (Eidem 1997; Finkel 1985; Maul 1992: 11-13; Schwartz et al. 2003). For phase 10, preliminary ecofactual data are available for Dur-Katlimmu and Sabi Abyad.[153] In general, the ecofactual data support the textual evidence for strong institutional involvement in crop production.

The archaeobotanical samples from phase 9 are diverse and show a wide variety of possible trends for different areas. The early state of analysis of most of these samples makes drawing conclusions risky, but a few general trends can be sketched. In general, higher proportions of free-threshing wheat occur in Late Bronze Age samples as compared to earlier ones, as at Hadidi and Umm el-Marra (Van Zeist 1995: 542-543; Van Zeist & Bakker-Heeres 1985 [1988]). Additionally, there is clear evidence that legumes were grown as crops at Hadidi, while much smaller finds at Umm el-Marra, Brak, Bderi and Hammam -et-Turkman have also been recorded (Van Zeist 1995: 543). Similarly, lower ratios of cereal to wild seeds in samples from Umm el-Marra may indicate greater reliance on farming as opposed to pastoralism in North-west Syria (Miller 2000: 446). In contrast, at Hammam et-Turkman, the high proportions of weed seeds and chaff may suggest a greater importance for pastoralism in this Balikh site (Van Zeist 1995: 544; Van Zeist et al. 1988).

Samples from the Mitanni palace at Tell Brak, probably the best parallel for the Leilan survey region, mainly consist of hulled barley, although single grains of emmer and free-threshing wheat are also present. Since the seeds in these samples were selected by hand, there is not a full range of wheat seeds, which could tell us more about the growing conditions for these cereals. Pips and peel fragments of a pomegranate were also found in a room of the palace (Charles & Bogard 1997: 129-130).

The two phase 10 archaeobotanical samples both come from Assyrian administrative contexts, the *dunnu* at Sabi Abyad (fig. 5.14) and the palace (Building P) at Sheikh Hamad/Dur-Katlimmu (fig. 5.13). These samples probably represent crops harvested for human consumption and animal fodder respectively. Well-cleaned, almost entirely pure barley deposits were stored in the *dunnu*. The quality and purity of this sample in such a marginal environment led Van Zeist to conclude that "the Assyrian occupants must have demanded, for their own use, the best quality grain available in the area" (Van Zeist 1995:

[153] Evidence for this phase from Western Syria will not be considered, since this area falls outside of the rule of Middle Assyrian kings. Additionally, Late Bronze Age samples from Hadidi, ancient Azu, are quite distinct from those of both Sheikh Hamad and Sabi Abyad, suggesting that agricultural strategies at this site, presumably a client state of the Hittites, differed greatly from those known to the east (Bottema & Cappers 2000: Fig. 7).

547). The size of the barley and wheat grains indicate that they were grown in irrigated conditions, which the texts also support. In contrast, the samples stored along with the tablet archive in Room A of the Assyrian palace at Dur-Katlimmu represent an uncleaned barley crop. The weed seeds show that whole sheaves must have been stored together in the palace, perhaps to be used later as animal fodder (Van Zeist 1995: 548).[154] Both the barley and weed seeds were unusually small, suggesting that they were not grown under irrigation. Instead, it seems likely that they represent barley sown in the steppe, perhaps to supplement fodder (Van Zeist 1995: 547).

Faunal analysis data from Northern Mesopotamia for the late second millennium suggest a variety of land exploitation strategies, with a decreasing reliance on hunting in North-west Syria and along the Euphrates during phase 9, but a strong reliance on game at Dur-Katlimmu on the Lower Habur during phase 10. In general, the ratio of wild to domestic animals decreased from the Middle Bronze Age. At Umm el-Marra, onager hunting declined precipitously and the majority of bones were identified as sheep, goat and gazelle (Weber 2000: 437, cf. fig. 16). By the Late Bronze Age at Hadidi all of the bones analysed came from domesticated animals (Buitenhuis 1979).

A study of the faunal evidence from the "granary" at the Dur-Katlimmu Assyrian palace provides the only evidence for animal products in a Middle Assyrian site. Given the position of this settlement as the southernmost sedentary site on the Lower Habur in an extremely marginal environment, it is difficult to extrapolate from these remains to Middle Assyrian animal husbandry more generally. These bones were found atop the floor of this building, mixed with charcoal and the remains of the archive. An analysis of the vertical deposition of these remains suggests that they were deposited after this area ceased to be used as a granary and became a dumping area for a hypothesised nearby kitchen (Becker 1991: 126-127). Cornelia Becker has compared the results of the faunal analysis to the evidence for animal husbandry in the Dur-Katlimmu tablets. Although she stresses that in some respects these two data sources coincide, she also indicates evidence from the archaeology which the textual sources do not consider (Becker 1991: 128). The largest percentage of bones belonged to sheep and goat, as we would expect both from the environment of the steppe, as well as the dominance of these animals in the archaeological record. Although the largest percentage of identified fragments (75.1%) belonged to ovicaprids, they represented a much

[154] An alternate interpretation, suggested by Van Zeist, is that the barley was harvested early, due to political instability and that there was no time to clean it or thresh it in the fields. Human agency could explain the fire that destroyed Building P, supporting this interpretation (Van Zeist 1999/2000 (2001), 2003)

smaller percentage of the minimum number of individuals (52.5%) (Becker 1991: 119). Instead, wild animals, particularly fallow deer and onager, represent a large percentage of these animal bones (Becker 1991: 122). The high percentage of wild fauna contrasts with the evidence from the houses in Dur-Katlimmu's lower town, where 80-90% of the find were domestic animals. This might suggest different dietary provisioning for the elites (Becker 1991: 126).

Sutû, Ahlamu and an empty steppe

During the 13th century, the main pastoral group in the texts were the Suteans, possibly a tribal confederacy. References to narrower tribal designations, the Yurayu, Tahabayu and Qairanayu also occur; in all cases these tribes are designated as Sutean (Postgate 2002: fn 21). In comparison with the documentation for Mari, the Suteans appear quite infrequently. During the early second millennium BC, they had inhabited the desert between Tadmor and the borders of Babylonia, south of the grazing territory of the Ben-yaminite confederacy. By the late second millennium BC, however, although they continued to live in the west, as attested by the Amarna letters (Moran 1992: EA 122, EA 123, EA 200), their territory had expanded east. Middle Assyrian letters and economic documents suggest that they lived, or rather "wandered"[155] on the edges of Assyrian territory, between the Euphrates and the Habur, as well as east of the Habur (Cancik-Kirschbaum 1996: 39).

The Assyrian state did not have any direct authority over the Sutean tribes. There is no evidence that Assyria tried to regulate Sutean migration or tax these tribes directly. Nonetheless, various tribes did recognise the power of the Assyrian state and paid tribute (*maddattu*) to the Assyrians (Postgate 1981: 51). In KAJ 314, dated to the reign of Shalmaneser I, the Suteans contribute 16 fat-tailed sheep. Similarly, the *namurtu* contributions which several Suteans made to the Assyrian king suggest that they were in some sense either "allied with or subject to" Assyria (Postgate 1981: 55). In the Dur-Katlimmu letters, the Suteans are allied with the Assyrians. Ranking Assyrian officials keep close tabs on the Suteans in these letters, even though they seem to present little threat to the Assyrians. Letter 21 is quite broken, but in it the king requests further information about them. In letter 13, Qiranayian Suteans are said to be roaming the steppe surrounding the city of Sab'u, where troops saw and arrested them. Letter 15 refers to a similar occasion, of Suteans in a certain district, but here the letter is broken.

[155] BATSH 13:22 *i-du-*⌜*lu*⌝; BATSH 15: 20 *i*[*d-du*$^{?}$*-lu*$^{?}$].

The most information on the Suteans occurs in Letter 2. This long letter describes the situation on the western frontier of the Middle Assyrian empire, where officials are trying to apprehend a group of refugees from Carchemish and maintain social order in the light of upheaval in Waššukanni. In response to information requested by Aššur-iddin, the grand vizier and king of Hanigalbat, Sin-mudammeq, a high-ranking official reports on the activity of the Suteans in the district. At this moment none are present. He sent a letter to the only Sutean in the Balikh, who has been staying in the town of Sahlalu. The text is broken and the language difficult, but it seems that Sin-mudammeq, the author of the letter, next quotes this Sutean's report on the activity of his tribe:[156]

> We withdrew. From the height of Araziqu, Kumahu until Ešpiruwa... In the city Marina, which lies in the mountains, their assembly has convened. We have reconfirmed the "*šamnu*-ship" of the previous *šamnu*, whose mission we denied, because two of his "sons" were killed. Ana-šumiya-Adad, an ill-disposed man waits for their news. He will give instructions". (Cancik-Kirschbaum 1996: letter 2: 45-53).

It is unclear precisely how to interpret this passage; the key term, *šamnu* is not otherwise attested in Middle Assyrian (Cancik-Kirschbaum 1996: 105). The context of the letter suggests that the *šamnu* is some sort of tribal official; perhaps like the *sugāgum* of the Mari letters, one who was responsible both to the tribe (which confirmed his appointment) and perhaps to the Assyrians, who are informed of his appointment. Ana-šumiya-Adad may be identical to the official of the same name at Harbe, who is named as a recipient in some of the recently discovered letters from Tell Chuera (Cancik-Kirschbaum 1996 : 105, fn 34; Kühne 1995a: 209).[157] The context of this passage, in a letter mostly devoted to military affairs, may suggest that the Suteans collaborated militarily with the Assyrians. This interpretation receives further support by the evidence quoted above that the Suteans made *namurtu* contributions to Assyria, suggesting that they were employed as mercenaries. Suteans may also appear in a military context in letter 8, as Cancik-Kirschbaum suggests, but here the evidence is more equivocal (Cancik-Kirschbaum 1996: 38-39).

Otherwise, Middle Assyrian tablets affirm that Suteans were involved in the "animal trade". An administrative tablet from Dur-Katlimmu shows that the Suteans served as contract herdsmen for the palace. In this capacity, they could even receive rations (Cancik-Kirschbaum 1996: 39, citing DeZ 2500). Otherwise, the Suteans occasionally supplied small

[156] This does not seem to be Cançik-Kirschbaum's interpretation, cf. (Cancik-Kirschbaum 1996: 94-95), although her translation of the letter would support it.
[157] TCh92.G.184, a letter from Sin-mudammeq to Sūti'u, the main official in Harbe may relate to this affair. This letter discusses a Sutean, in Sahlala in the district of Kurbirahe, from whom Sin-mudammeq wants information (4-6) (Kühne 1995a: 215).

numbers of animals to individuals (or the palace) in Assyrian cities. At Tell ar-Rimah, TR 2059 records that a tax inspector taxed a donkey that a woman in Qaṭṭara had acquired from a Sutean (Postgate 2002: 303). Similar customs receipts for a sheep and a cow purchased from Suteans were illicitly excavated from Kulišhinaš, probably Amida (Aynard & Durand 1980: 36). A tablet from Chuera records horses belonging to Suteans which are to be brought to Sin-Mudammeq (Kühne 1995a: TCh92.G.214, pp. 219-220).[158] Other evidence suggests that the trade intermediary role of the Suteans was more extensive (Faist 2001; Heltzer 1981). One tablet from Aššur describes a merchant expedition as a "journey to the house of the Suteans", where house probably implies "little more than tribe" (KAJ 39: 7, cited in Postgate 1981: 51).

The Ahlamû and the Arameans were also active in Northern Mesopotamia during the Middle Assyrian period. References to the Ahlamu, whose general territory was west of the Euphrates, only occur in royal inscriptions. Adad-nārāri I mentions that his father, the little known Arik-dīn-ili, conquered the land of the Ahlamu, the Suteans and the Yarayu, (a Sutean tribe) (Grayson 1987: RIMA 1: A.0.76.1: 18-24; Harrak 1987: 40). Shalmaneser boasts of slaughtering a coalition of Hurrians, Hittites and the Ahlamû, in the desert south of the main "watering places" of the Habur plains (Grayson 1987: RIMA I: A.0.77.1:73-87, ; Harrak 1987: 135, 169-170). His son, Tukulti-Ninurta, also mentions an expedition to the "mountains of the Ahlamu", probably Jebel Bishri (Grayson 1987: RIMA I: A.0.78.23).

The Arameans appear for the first time in the 11th century. An early inscription from Tiglath-Pileser describes them as a sub-tribe of the Ahlamû confederacy (Grayson 1991: A.0.87.1:46-47). During Tiglath-Pileser's reign the Arameans slowly expanded their territory from the area around the Jebel Bishri into Assyria. Two chronicle fragments indicate that by the end of his reign, the Assyrians had abandoned the Jezira after a string of bad harvests, allowing the Aramean "houses" free access to this territory (see below: Grayson 1975: 189; Neumann & Parpola 1987: 178; Postgate 1981: 52). During Aššur-bēl-kala's reign problems with the Arameans worsened. The Broken Obelisk records battles between this king and the Arameans at Pauza and Nabula at the foot of the Tur 'Abdin (Mount Kašiyari) and at a city on the Tigris, establishing their increasingly strong presence in the Habur plains and East Jezira (Grayson 1991: RIMA 1 A.0.89.7:8-10; Neumann & Parpola 1987: 179). By the 9th century, this area was fully "Arameanised" (Zadok 1995: 235-236). An Aramean dynasty had founded Naşibina, which probably stood virtually alone in a steppe empty of other

[158] A Rimah tablet also shows that they were involved in the slave trade (Postgate 2002: 306). For further references see RGTC 5 237 "sutu".

settlements (Postgate 1979: 236-237). Adad-nārāri II's inscriptions, which mention that this king captured Nūr-Adad's "golden tent, symbol of his royalty", stress the ties of Naşibina's king to the non-sedentary population (Grayson 1991: RIMA II A.0.99.2:71; Postgate 1979: 235).

The discovery of Middle Assyrian archives in Syria greatly expands our evidence for contact between the Assyrian state and pastoralists during the 13th century. References to the Suteans have been found in the archives from Dur-Katlimmu, Harbe and Tell Sabi Abyad, although few of these have been published to date. Nonetheless, these attestations must refine our understanding of nomads, who appear not as distant steppe people, located beyond the Euphrates, but as allied tribal people, present in marginal zones adjacent to the Assyrian state in Syria. The situation was probably not wholly different from the Mari period; tribally organised semi-pastoralists were still present in the drier areas. Although they recognised the dominance of the Assyrian state and were occasionally allied to it, they were not officially integrated into that state. One of the great differences in the textual evidence from the later second millennium compared to the earlier second millennium is that the dominant state neither maintained a tribal identity nor attempted to rule these tribes directly or regulate their access to pasture; as a result, our records concern themselves much less with pastoral and tribal affairs. By the 11th century, the expansion of Aramean territory attests to changes in the composition of pastoralists in the nearby steppe, as well as in their relationship to Assyria. Aramean tribes in the Jezira did not recognise the authority of Assyria; their raids, along with a series of poor harvests, forced the withdrawal of Assyrian colonists and the Assyrian provincial apparatus from the lands west of the Tigris.

Settlement patterns, as reconstructed from the Tell Leilan survey, fit this scenario nicely. The majority of settlements without Middle Assyrian "official ceramics" (70%) are located either in the Radd swamp to the south, or on the basalt plateau in the east. The small number of ceramics recovered from most of these sites may suggest that they were occupied seasonally by semi-pastoralists. Similar situations occur along the Balikh and Lower Habur, where settlements are not present in the more marginal areas. The poorly-understood ceramics for these centuries and the generally conservative nature of most Middle Assyrian pottery makes it difficult to quantify the collapse of Assyrian settlement at the end of the second millennium (Roaf 2001: 362-365, 367). Nonetheless, textual evidence and excavation data indicate that it was extensive.

V. Conclusion

Few sources record the end of the Middle Assyrian empire in the Jezira. A fragment of an Assyrian chronicle, kept originally in the library of Tiglath-Pileser, vividly, if disjointedly, describes the catastrophe that led the Assyrians to abandon their former land:

> [In the eponymy of..., the peop]le ate one another's flesh [to save (their) lives?. Like a flood's ra]ging [water (?)] the Aramean "houses" [increased], plundered [the crops (?) of Assyria], conquered and too [many fortified cities of] Assyria. [People fled to]ward the mountains of Habrūri to (save) their lives. They (=the Arameans) took their [gold], their silver, (and) their possessions... [In the eponymy of...], all the harvest of Assyria was [ruin]ed. [The Aramean tribes] increased and seized the b[ank]of the Ti[gris. They plundered...], Īdu [or perhaps Taidu], the district of Nineveh, Kilī[zi. (Glassner 2004: 189-190)

The Assyrians, both during the 11th century and in later sources clearly blamed the Arameans for their loss of the western half of the Middle Assyrian state. Yet recent interpretations suggest that the Middle Assyrians never completely lost control of the Jezira and deny the causality of an "Aramean" invasion altogether.

Excavations at Bderi and Dur-Katlimmu have revealed conflicting evidence for a Middle Assyrian presence on the Middle Habur during the 10th and 11th centuries (Kühne 1995b: 72-76). A clay cylinder, found amongst rubble in an old well, records the construction of a fort at Bderi by a king of the nearby city of Ṭabātu, Aššur-ketti-lēšer, who calls himself "king of the land of Mari", recalling the prestige of that long-abandoned city (Maul 1992: 20-30). The colophon of this inscription links it to events in Aššur, writing that the king's construction occurred at the "time of Tiglath-Pileser, king of Assyria, his lord" (Maul 1992: p.21, line 19). These events are dated by *limmu*, using the Assyrian dating formula. Another cylinder from this same king records his capture of a town in a neighbouring district (Lambert 1991). Aššur-ketti-lēšer's cylinder inscription supplies the names of three generations of kings, showing that by the time of Tiglath-Pileser, the Middle and Lower Habur had been lost to Assyria for some time (Kühne 1995b: 74). Another inscription, from Bēl-ereš, a "vice-regent", who ruled the city of Šadikanni provides evidence for local potentates on the Habur nearly a century later (Grayson 1991: A.0.96.2001). Once again, Bēl-ereš dates his achievements, the construction of an irrigation canal and temple, with regard to two Assyrian kings (Grayson 1991: A.0.96.2001: 3, 16). His title, "vice-regent", as opposed to king, also indicates his subservient status. On the other hand, a mention of Dur-Katlimmu in the "Broken Obelisk", records a battle with the Arameans there. Hartmut Kühne suggests that this, along with synchronisms of pottery between Sheikh

Hamad and Bderi for the 11th century, proves that Dur-Katlimmu "existed as a provincial centre" (Kühne 1995b: 75), although it seems just as likely that the evidence points the other way. Just south of Dur-Katlimmu, on the Middle Euphrates and the Lower Habur, an Aramean dynasty established Bīt Halupe in the land of Laqe (Kühne 1995b: 75). Kühne hypothesises that following the death of Tukulti-Ninurta, the Assyrian state weakened, but never completely shrank back to the Assyrian core (Kühne 1995b: 76).

The evidence does suggest a complicated political patchwork for the Middle and Lower Habur, but Kühne's ultimate conclusion is spurious. The *pahutu* of Dur-Katlimmu does not occur on the *ginā'u* receipts from the archive of the Aššur temple, which as we have seen above, is the clearest sign of provincial status. Moreover, no epigraphic evidence proves that it belonged to the Assyrians at any time after the reign of Tukulti-Ninurta. The existence of these inscriptions of local "kings" or "vice-regents" suggests that Assyrian direct rule here ended, although these states may still have relied upon connections with Assyria to legitimate their rule. The status of Assyria along the Habur during the 11th-10th centuries was thus very different than during the 13th century. The late 10th and early 9th century kings claim to (re)conquer this territory. Aššur-dān II, for example, just after boasting of his successful campaigns against the Arameans, describes how he:

> brought back the exhausted [people] of Assyria [who] had abandoned [their cities (and) houses in the face of] want, hunger, (and) famine (and) [had gone up] to other lands. [I settled] them in cities (and) homes... they dwelt in peace. I constructed [palaces in] the (various) districts of my land (and thereby) [piled up] more grain than ever before....

Such a description implies a policy that explicitly sought to reintegrate a "lost" territory into a political landscape.

Who were the Arameans and how did they bring down the Middle Assyrian state? In the Habur triangle, fragmentary evidence suggests that the provinces of Ta'idu, Amasakku, Nahur and Kulišhinaš remained under firm Assyrian control from the early days of Shalmaneser I through the reign of Tukulti-Ninurta. Yet, as we have seen above, by the end of the 10th century, these cities had disappeared and in their place was Nūr-Adad, the independent, Aramean king of a newly founded city, Naşibina. Two recent syntheses of the end of the Bronze Age in Syria both suggest that the Arameans were not a ravaging group of nomads, recently arrived from the Arabian peninsula. Instead, they were pre-existing pastoralists who took advantage of the "decline of the regional empires" to establish their own authority over this landscape. Aramean pastoralists founded new settlements in areas of the countryside that had been previously abandoned, while "the new orientation of the rural

settlements toward the pastoral group... gave the tribe a development and a centralisation which were impossible to achieve before" (Sader 1992: 161). Thus the rise of the Arameans was predicated on the collapse of "the palace system", of Hittite and Assyrian control (Sader 1992: 162). Although Thomas McClellan disagrees with Sader's use of the "palace model" for inner Syria and suggests that the demographic decline was a long-term phenomenon, he agrees that the Arameans "probably emerged from local pastoral elements" (McClellan 1992: 170). Yet the Arameans appear abruptly in the written evidence. The ethnicon is only attested in late royal inscriptions cited above, while Aramean names first appear in an 11th century Middle Assyrian document, probably from the Euphrates (Whiting 1988). It seems more likely that the Arameans did represent a pastoralist population expanding their migratory range. The later Aramean states, however, probably both included "Arameans" as well as local people, who established themselves as tribal dependents. Nonetheless, the end of the Middle Assyrian empire and the rise of the Aramean states of the 10th and 9th centuries remains obscure.

Chapter 6: Conclusion

This study has explored how the dynamic relationship between human actions and space manipulated and constructed new landscapes, which both created and were created by transformative social processes in Northern Mesopotamia from 3000-1000 BC. Countless experiments in land exploitation, with changing emphasis on crops and herd composition and shifting patterns of possession, ownership and use-rights of land interacted with economic, environmental and social factors to fashion new political landscapes. Our exploration of these landscapes—be they religious, tribal or administrative—has emphasised the diversity of North Mesopotamian polities and has privileged their position within both space and time. The previous three sections have studied the history of Northern Mesopotamia in terms of the operation of three historically bounded processes—urbanisation, tribalisation and provincialisation—in one confined region. We have sought to understand the long-term history of Northern Mesopotamia in terms of the region's own historical and archaeological record, eschewing artificial analogies and false assumptions of continuity. Rather than analysing settlement patterns using outmoded human geographical techniques, we have considered them in terms of the spatially and temporally-sensitive excavation and historical record.

Three key observations have emerged from this study. First, archaeological data for both the Leilan countryside and Northern Mesopotamia has emphasised disjunction; a disjunction which partly coincides with the attestation of different settlement types (e.g. *dimtu* and *dunnu*) and land-tenure systems (e.g. different types of *ilku* obligations in the early and late second millennium) in the textual record. This emphasis on discontinuity is critical, since many historical and archaeological reconstructions assume either continuity or parallel developments (Adams 1984: 81-2; Adams 2001: 347). Second, our study has illustrated the complex dynamic between pasture and arable, due to environmental and political conditions. Although our evidence for pastoralists, tribes, manorial estates and village communities has emerged from the written record, it is critical to our evaluation of the settlement patterns and should encourage future studies of the archaeology of nomads.[159] Third, our focus on the Leilan region has underlined how developments in this small area can only be understood in

[159] For the interaction between nomadic and settled community in a marginal dry-farming environment elsewhere in the Near East, see (Cribb 1991; Finkelstein 1995; essays in Geyer 2001a). B. Lyonnet and F. Hole's work in the western Habur Triangle has been explicitly concerned with pastoralism, but without more extensive excavation it is difficult to evaluate their claims (Hole & Kouchoukos N.D.; Lyonnet 1998; Lyonnet 2001, 2004).

terms of larger demographic and environmental processes in Greater Mesopotamia and beyond.

I. Disjunction and Continuity

By comparing contemporaneous archaeological and textual material about this region, we have tried to replace the speculative histories of political theorists with a firmly grounded history of land-use and land-tenure in one area of Northern Mesopotamia. Much of this work has focused on identifying periods of continuity and disjunction. A glance at the survey evidence for the Tell Leilan region shows that discontinuity was far more prevalent than continuity, only two sites, Mohammed Diyab (55) and Abu Farah (60), out of 325 surveyed, were occupied throughout these two millennia. Moreover, the size and function of both these sites shifted radically during this period (fig. 6.1-6.4). This lack of continuity has obvious consequences for the assumptions that we make regarding social and economic history. Since both historians and archaeologists tend to assume continuity in the absence (and even occasionally in the presence) of contrary evidence, this recognition of disjunction is critical to our analysis of social relations of land (Yoffee 1995). The analysis of the survey ceramics has identified three periods of settlement collapse: phase 1, phase 6 and phase 8, corresponding to the end of the Late Uruk period, the end of the Early Bronze Age and the end of the Middle Bronze Age. Each of these has important consequences for our understanding of later developments.

The collapse of "Uruk colonies"—settlements and enclaves characterised by Southern Mesopotamian material culture—at the end of the fourth millennium BC has been understood in Southern Mesopotamian terms, with reference to world-systems theory (Algaze 1993; Stein 1998). Yet this period did not merely see the withdrawal of most Southern Mesopotamian influence from Northern Mesopotamia (cf. McCarthy 2003), it also saw the abandonment of sites characterised by local late Chalcolithic pottery, an event that has been linked to a short-term drought apparent in Western Asian palaeo-climate proxies (Weiss 2000: 77; Weiss 2003: 595-609). The subsequent settlement recovery and the rise of cities and states in this area was a local, Northern Mesopotamian phenomenon. It did not occur in isolation. We can recognise the development of a shared culture in Northern Mesopotamia, Syria and the Northern part of the Southern Mesopotamian alluvium, the so-called "Kish civilisation", from similarities in the written language, iconography and the appearance of palaces (McCarthy 2003; Steinkeller 1993). I suspect, given the information presented in chapter 3, that "Kish civilisation" with its emphasis on a Southern Mesopotamian city, is a

misnomer, since many of the developments which characterise it emerged from Northern Mesopotamian traditions (Postgate 1994a; Ristvet 2002b; Weiss 1990a). The Uruk collapse is thus instrumental in our understanding of the rise of Northern Mesopotamian urbanism as a local phenomenon, not solely the result of Southern Mesopotamian influence (Schwartz 1994a).

Likewise, the collapse of settlement at the end of the third millennium helps explicate the rise of the tribalised kingdoms of the early second millennium BC (Ristvet & Weiss N.D.). Once again, the end of Southern Mesopotamian influence in Northern Mesopotamia coincided with decreased precipitation and a more general Northern Mesopotamian collapse (Weiss 2000; Weiss et al. 1993). Despite the near invisibility of nomads in the archaeological record, settlement and textual evidence both suggest that much of the area previously devoted to dry farming in the Jezira became the preserve of pastoralists. Although a few urban centres remained, particularly along rivers or wadis, excavation and surveys suggest that these had diminished in size. The depopulated landscapes of the Jezira during phase 6 correspond with evidence from the toponymy which suggests that this area was partially resettled during phase 7 by tribal semi-pastoralists (Durand 1992b). The political power of pastoral tribes in Northern Mesopotamia at this period probably resulted from the collapse of most city-states and extension of pastoralism. Documents from the Mari period do not illuminate relations between nomads and the sown that prevailed over the *longue durée* in Northern Mesopotamia. Instead, they document a specific, unusual period, when the absence of strong political authority and environmental conditions were both conducive to the spread of pastoralism and the rise of tribalised states. We know of other periods in the history of Western Asia when similar conditions allowed tribes to amass political power (like the late Ottoman period, chapter 1) and pastoralists were part of the North Mesopotamian landscape from at least the early third millennium, nonetheless both the survey patterns and the textual record from the early second millennium are unique and can not be easily applied to other periods.

The collapse of these tribalised kingdoms also illustrates their singularity. At least in the Leilan region, phase 8 sees an abrupt population decline. In Northern Mesopotamia more generally, very few textual records relate to events during the two centuries following the destruction of Tell Leilan and the emergence of Mitanni.[160] The collapse of these tribalised states and the "dark age" documented in phase 8 must contextualise our discussions of the

[160] Some of this evidence has been recently summarised, with references in (De Martino 2004; Podany 2002).

rise of Mitanni. There is no evidence for any environmental variation during this period. Instead, this collapse probably resulted from a weakening of dominant cities like Babylon and Halab—which had previously sought to conquer this breadbasket—and the concomitant tribal abandonment of large urban institutions. The destruction of Mari and the decline of the Sim'alite confederacy probably led to changes in pastoral migration patterns. Perhaps Hurrian pastoralists either began using the Habur triangle as summer pasture, or increased their use of this area. This area probably remained a mix of Semitic and Hurrian speakers, but such changes would have allowed the dominance of the Hurrian speakers.

This interlude represents a decisive break between this region as documented in the Mari texts and the later Mitannian ones; the change in language and dominant ethnicity is just one aspect of this. The destruction and abandonment of Mari and Ebla indicate a profound disruption in a long settled tradition. In Sargonic inscriptions these two cities (along with a third, Yarmuti) serve as a synecdoche for the entire "Upper Land" (Frayne 1995: Sargon E2.1.1.9, E2.1.1.10, E2.1.1.11, E2.1.1.12). They are two of the only cities in Northern Mesopotamia that were not abandoned during phase 6. Likewise, the major Mitanni centres in the Jezira were not simply the important cities of the early second millennium BC. Waššukanni/Uššukanni/Sikani, the capital of Mitanni, is not attested in the early second millennium BC, while Tâdum/Tai'du, Mitanni's second royal city, is a small city-state in the Ida-maraş, of little political importance (see references in Wäfler 2003b: 169-170).

What persisted during these periods of instability? Excavations, survey and written sources emphasise continuity in different aspects of settlement and land use. Despite the high levels of abandonment, for example, some cities of Northern Mesopotamia survived the collapse of settlement in the countryside during phases 6 and 8. Some cities, like Tell Brak, ancient Nagar/Nawar, or Aššur, appear in our records from the third through the second millennium. In other cases, like at Tell ar-Rimah, the archaeological evidence shows settlement continuity, although no epigraphic evidence indicates occupation of this city during the third millennium (Oates 1982). On a more basic level, the majority of settlement throughout this entire period occurred on tells. Only 18% (24 out of 132) of the new settlements from phase 8, the period of the establishment of the greatest new settlements in the Tell Leilan region, were actually founded on virgin soil. The rest were located on low prehistoric or third millennium sites. Wilkinson sees the focus of tell settlement as the basic characteristic of Northern Mesopotamia during the second and third millennium BC (Wilkinson 2003: Chapter 6). Seen through this perspective, the third and second millennium BC, despite the great variability in settlement still preserve a landscape that differs

fundamentally from that of the first millennium BC, when the majority of settlements were founded on virgin soil. Moreover, elements of continuity in the toponymy of Northern Mesopotamia throughout this period also contrast with the disappearance of these cities after the beginning of the first millennium BC. The capitals of the Neo-Assyrian Northern Mesopotamian provinces bear no relation to the major cities of the second and third millennia.

II. Urban society and Tribal Society

The fragmentary nature of the archaeological and textual evidence and our lack of representative data complicate our reconstruction of changes in the social relations of land. Throughout this time period, many of the parameters remained constant. With the exception of millet, which may have been introduced as a summer crop in the late second millennium, the crops and domestic animals available to the farmer or herder did not change. Similarly land was owned, possessed and/or managed by individuals, communities (including tribes) and the palace at all periods for which we have written records. Yet within these parameters great transformations in land use occurred. Textual, ecofactual and survey data attest to a shifting emphasis on pastoralism and agriculture over the course of this period. When confronted with climatic shifts, agriculturalists adapted to new agricultural conditions through a number of innovations: including habitat-tracking, agricultural extensification and pastoralism. These economic changes transformed social and political spheres as well, particularly the relationship between urban and tribal society. Two important conclusions emerge. First, contrary to most previous studies, this relationship was not static, but was historically contingent. Second, urban society and tribal society often overlapped substantially and were rarely dichotomous.

The archaeological and textual record for the second and third millennia indicates a transformation in pastoralism and tribal organisation. During the last half of the third millennium BC, pastoral intensification went hand-in-hand with rising urbanism. The urban *Kranzhügeln*, Ebla and Nagar were all "built on the back of shepherds" (Gelb 1986: 157). At the same time, we have no evidence for "tribal identities". The extension of pastoralism during the late third millennium and early second millennium changes all of this. In general, the pastoralists of the second millennium were probably more mobile than those of the third, living in temporary camps along the Habur, rather than in settled villages in the Jebel 'Abd-al-Aziz. This must be at least in part a response to the changing environment and decreasing rainfall of the second millennium BC and the shift in the boundary between the steppe and

cultivable land. At the same time, tribes became powerful. If in the third millennium, urban rulers had harnessed the products of pastoralism to fund the state, in the early second millennium pastoralist tribes had conquered the state. We may only understand the government of Mari, for instance, with reference to Sim'alite tribal politics. During the late second millennium BC, tribes are still clearly in evidence—and still politically powerful, but they no longer have the same relationship to the Assyrian state that they did to the Mari state.

The textual and archaeological evidence thus suggests a new series of models for the interaction of urban institutions and pastoral tribes. The two common older models—Kupper's "barbarians at the gate model" and Rowton's model of enclosed nomadism—assume that tribes and states are irreconcilable opposites (Kupper 1957; Rowton 1974). Both of these models interpret the Mari letters in light of comparative historical and anthropological studies—Lattimore's work on Chinese border relations and Barth's study of the dynamics of sedentarisation in South Persia (Barth 1961; Lattimore 1967). Our evidence suggests that this was rarely the case. Instead, tribal chiefs—like Zimri-Lim—could lead sedentary states, while states had a stake in tribal political choices—the institution of the Ben-yaminite or Ben-sim'alite *sugāgu* or the Sutean *šamnu*. In a society like Mari during the early second millennium BC, the urban-tribal distinction no longer exists; in this tribal state, tribal practices permeated politics from diplomacy to land tenure, while tribal members maintained ties to cities and villages. Porter's work on the emergence of Tell Banat as a tribal urban centre in the mid-third millennium has reached the same conclusion (Porter 2000), as has Fleming's work on tribal politics under Zimri-Lim (Fleming 2004a). It is time to change our models of tribes and states. As Richard Tapper observes,

> In the Middle East, groups referred to as tribes have never, in historical times, been isolated groups of "primitives" remote from contact with states or their agents; rather, tribes and states have created and maintained each other in a single system, though one of inherent instability (Tapper 1990: 51).

III. The land of Apum and Greater Mesopotamia

Archaeologists have finally begun to distance themselves from theoretical positions that saw all developments as "local" and derided discussion of larger processes. As Robert Adams remarks in a recent essay:

> It requires a conscious, counterintuitive effort not to assume the existence of a kind of self-enclosing boundary around a particular locale of excavation, within which processes of change are viewed as largely endogenous. Reinforcing this natural predisposition may also be a continuing reaction against the excesses of older, now almost completely discredited, diffusionist

> doctrines. The effect is to take implausibly for granted that the most significant social relationships —even in far-flung states and civilisations and even those relationships most tied to power, production, wealth and access to resources—are among kin and neighbours... My point is to question whether we can get very far with the principle of local autarky in reconstructing the emergence of early cities, states and civilisations.(Adams 2001: 350)

Archaeological surveys have always been a counterweight to site-based excavation, by emphasising how processes played out in the countryside, not merely in a bounded city. Nevertheless regional surveys can suffer from the same drawback that Adams highlighted above, although on a larger scale, assuming that the small area surrounding a city represents "its hinterland" and ignoring the fact that cities "have economic hinterlands as far away as the most distantly traded good in the marketplace" and that "world cities", with global economic ties, are not a modern phenomenon (Smith 2003b: 4-5). Political borders have a tendency to fluctuate widely and regional events are rarely understandable outside of a larger framework. The boundary between the arable and the steppe also shifted drastically over time. The presence of a number of pastoralists, who lived here part-time and regularly travelled long distances, meant that communities within this region had a wide range of outside contacts. We have already seen how environmental, technical and political factors provoked major demographic changes during the 19th and 20th centuries AD (chapter 1). As a result of such factors, migration to and from this region occurred regularly. We will evaluate the necessity for a wider geographic framework, beyond that of the "survey area", by looking at demographic trends in the LRS, Northern Mesopotamia and Greater Mesopotamia.

A histogram of site numbers and settled ha over these two millennia suggests two major settlement trends among early Northern Mesopotamian states (fig. 6.5). The values of site numbers (from 30-45) and settled ha (300-400 ha are widely similar for phases 3-5 and 9-10. Although the focus of settlement within the Leilan region had shifted from the north-central part of the area, to the south-west part from the third to the second millennium, settlement patterns are statistically consistent, when values for mean site area, site density, urbanism and population growth rates are compared (fig. 6.6-6.13). In contrast, phases 6-8 represent a period of great discontinuity, when all values are far outside the normal range experienced by the earlier and later phases. Such great discontinuity may not be explained by "normal" demographic processes within this region, but must have occurred as a result of population shifts on a larger geographic scale (Adams 1984).

A comparison of population rates across Northern Mesopotamia illustrates the complex interaction between population growth and decline across a larger region. The clearest trend is the discordance between settlement patterns in the dry-farming plains of Northern

Mesopotamia and the banks of the Tigris and Euphrates. The Birecik Dam survey exemplifies this pattern. Guillermo Algaze's analysis of that survey concluded that "the development of the basin area was inversely related to that of the inner Syro-Mesopotamian plains west and east of the river: that is, the Euphrates thrived in times of collapse inland and devolved at times in which newly resurgent inland polities reasserted their power" (Algaze et al. 1994: 17). The constant water supply afforded by the Euphrates and the Tigris, despite the difficulties of harnessing it for irrigation, as well as the easily bounded and defended floodplain allowed the inhabitants of the river valley to resist environmental, social and political breakdown. Conversely, the lack of natural boundaries and major rivers in dry-farming plains like the Habur basin, increased these societies' susceptibility to collapse. We may also observe the different dynamics between settlement in well-watered and marginal areas of the plains, defined here as differences in settlements above and below the 300 mm isohyet. The population increase in the well-watered Leilan survey area during phase 7, for example correlates with the population decrease observed in both the Beydar survey and the Western Habur survey (fig. 6.14).

Comparing population shifts between Northern and Southern Mesopotamia also highlights the symbiotic relationship between the dry-farming zone and the irrigated alluvium. During the third and early second millennium, population loss in the dry-farming plains coincides with population gain in the alluvium. Figure 6.14 illustrates population growth rates for a number of surveys across Greater Mesopotamia. Two periods of population decline in the north—phases 1 and phases 6—are periods of population doubling in Southern Mesopotamia. Unfortunately, the ceramics of both of these periods are poorly understood and do not coincide completely with those of Northern Mesopotamia. Nonetheless, the increase in aggregate population in the Nippur-Adab and Warka areas and the more than three-fold increase in village population could only be the result of immigration, presumably from the dry-farming plains (Adams 1981: 142; Weiss 2000: 89). This symbiotic relationship breaks down, however, by the middle of the second millennium BC, when both Northern and Southern Mesopotamia experience a population decline. Surveys in coastal Syria, Transjordan, Palestine, The Persian Gulf and the Indus Valley also illustrate a decline in sedentary settlement from the Middle to Late Bronze Age (McClellan 1992: 168-169), suggesting that this phenomenon, whatever its cause, must be understood across Western and Central Asia.

These demographic trends are only beginning to emerge with the publication of regional surveys from North-eastern Syria and South-eastern Turkey. We are far from having

an adequate database of all tells in Northern Mesopotamia, or even in North-eastern Syria. We are much further from having an adequate record of the total archaeological landscape. As a result, we need both more extensive surveys, to fill in the major gaps in our archaeological knowledge, as well as more intensive ones, so that we may better evaluate evidence for changing rural and pastoral development through the presence of small, specialised sites. Our increasing understanding of pottery chronology in Northern Mesopotamia should also encourage landscape archaeologists to look at trends over a shorter period than the millennium or half-millennium "periods" that most surveys designate.

In the future, more intensive collections of ceramics and other artefact types should establish functional differences between sites and map functional areas within sites. Nuzi-ware and official Middle Assyrian pottery have been useful in this regard for the late second millennium, but more work should be done to distinguish between elite and non-elite wares in other periods. Analysis of excavated assemblages suggests that the typical pottery found in public quarters and domestic houses during phase 5 varies at Leilan (Ristvet 1999; Senior 1998); further analysis will no doubt uncover other periods where this is the case. A greater use of magnetometric survey at a range of sites would greatly refine our population estimates and recognition of demographic trends by giving us some estimate of population density. Coupled with excavation to test their validity they can inform us of the relationship between inter-site organisation and intra-site hierarchies. Such work could allow us to create more sensitive maps of political relations than our current inadequate site hierarchies based on size differences.

Finally, we must revise our methods of evaluating archaeological surveys. We should not simply assume geographical models developed in the late 19th and early 20th centuries are relevant to all other times and places. Rather our geographical models must incorporate the varied interaction between people, place and politics that the excavated evidence—including the texts—attests.

Appendix 1: Figures

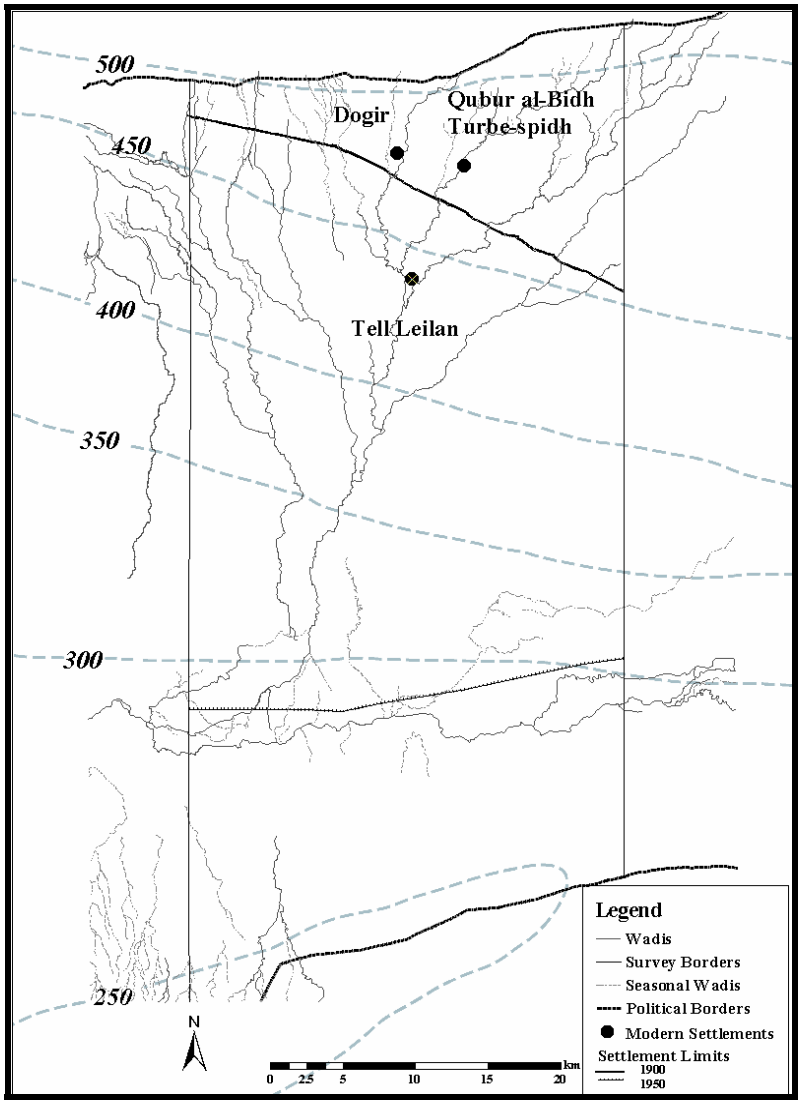


Fig. 1.1. Modern Middle East.
Fig. 1.2. The resettlement of the Jezira from 1850 to 1950.
The solid line indicates the Qamishli-Mosul Road, the limit of settlement in the late 19th century. Dogir and Qubur al-Bid were the only villages during Rassam's visit. Modern Tell Leilan was founded around 1900. The dotted line marks the limits of French Mandate settlement, as inferred from the Qamishli-Sinjar 1:200,000 map and the Syrian 1:50,000 maps: Bouara and Tall Khudruf.

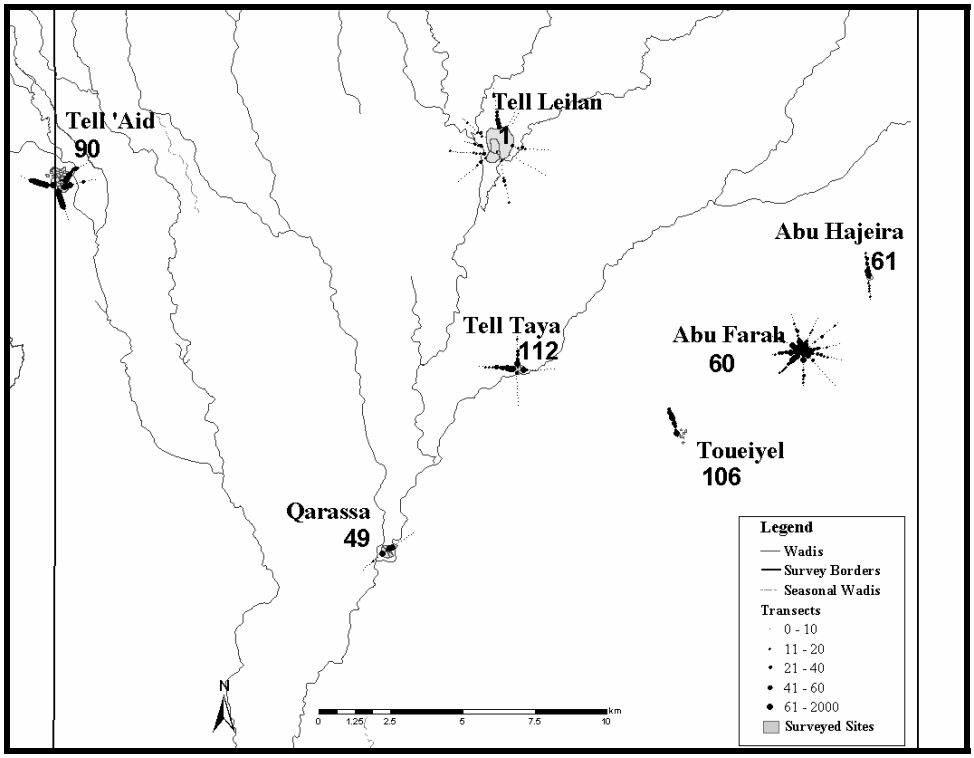


Fig. 1.3. Off-Site Transects in the LRS, showing density of off-site sherd scatter in sherds per 100 square meters.

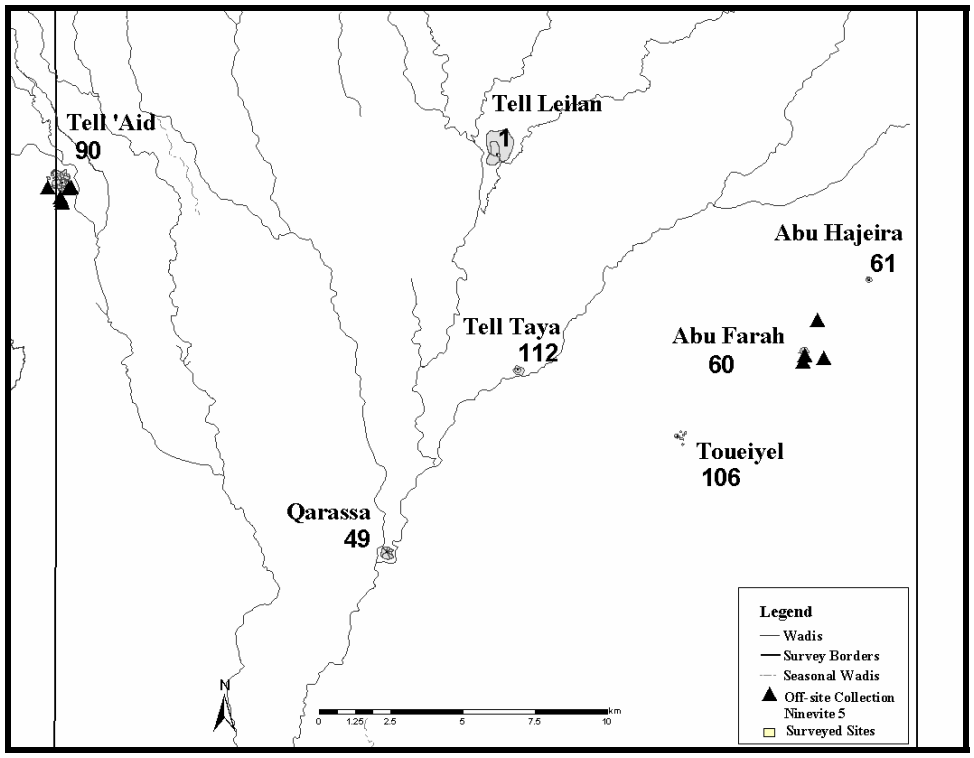


Fig. 1.4. a) Ninevite 5 sherds (phases 1-3) in off-site transects.

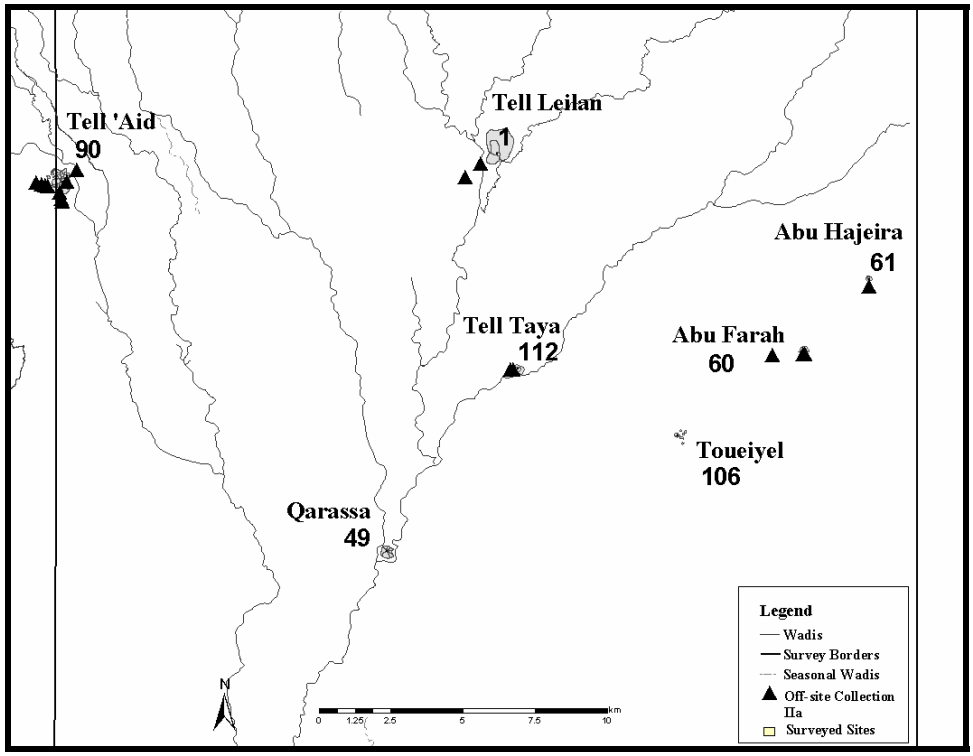


Fig. 1.4. b) Period IIa sherds (phase 4) in off-site transects.

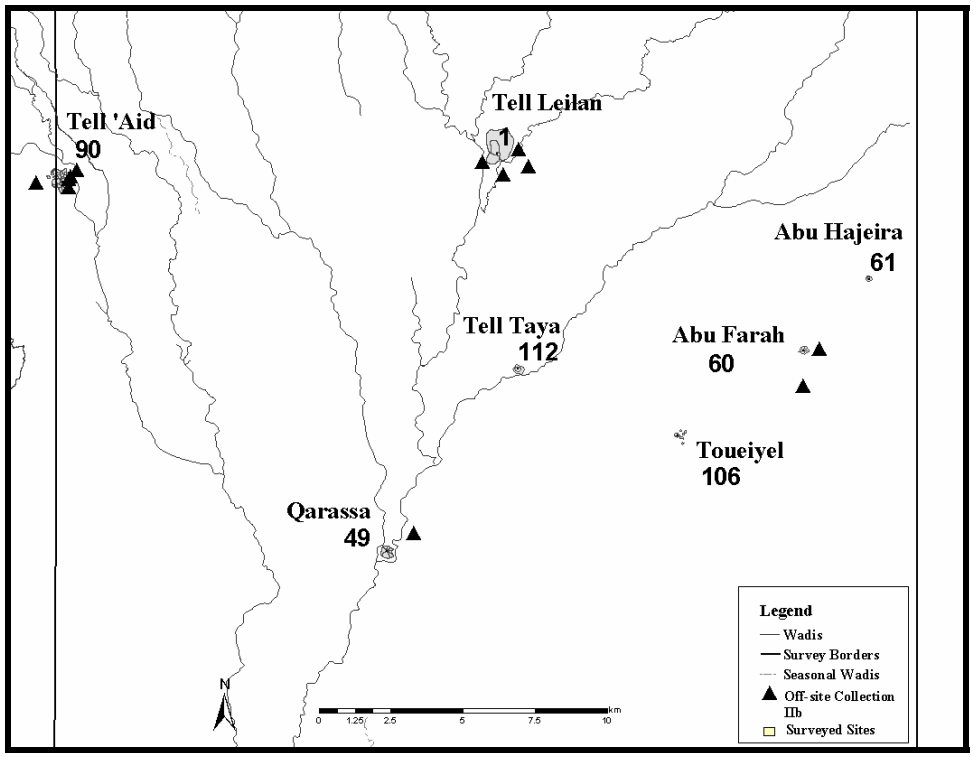


Fig. 1.4. c) Period IIb sherds (phase 5) in off-site transects.

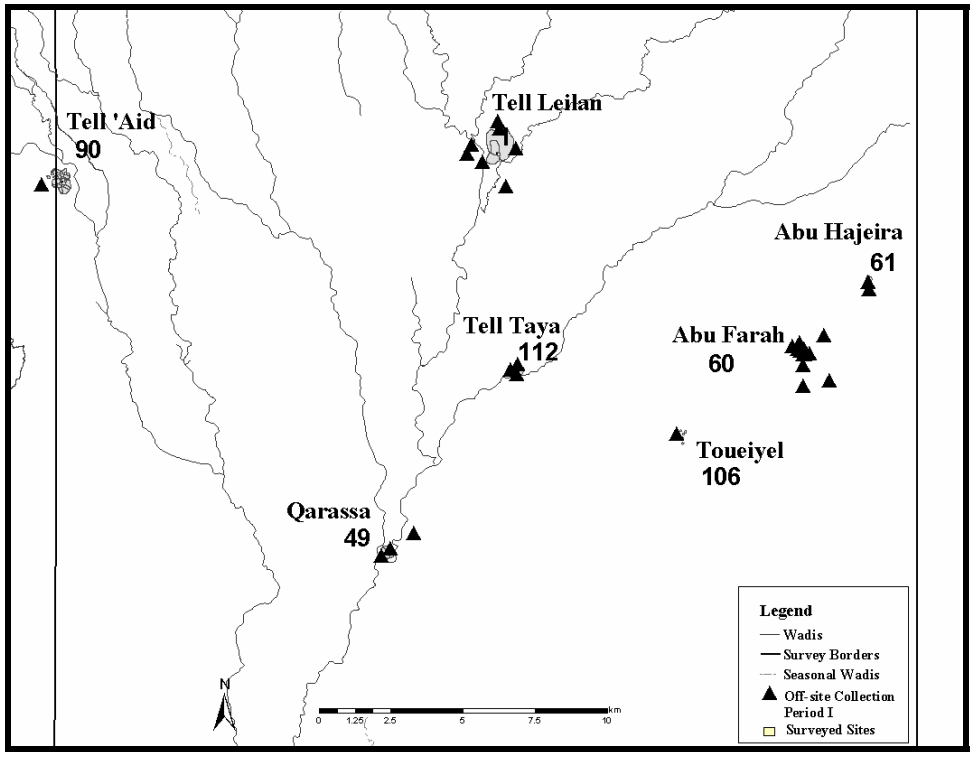


Fig. 1.4. d) Period I sherds (phase 7) in off-site transects.

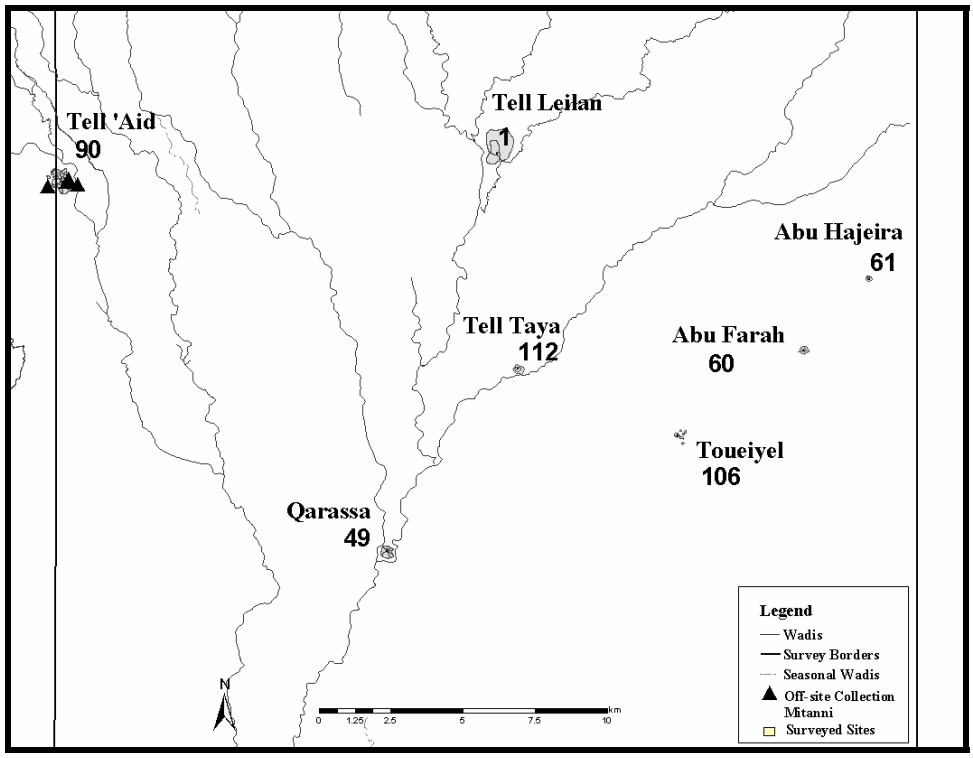


Fig. 1.4. e) Mitannian sherds (phase 9) in off-site transects.

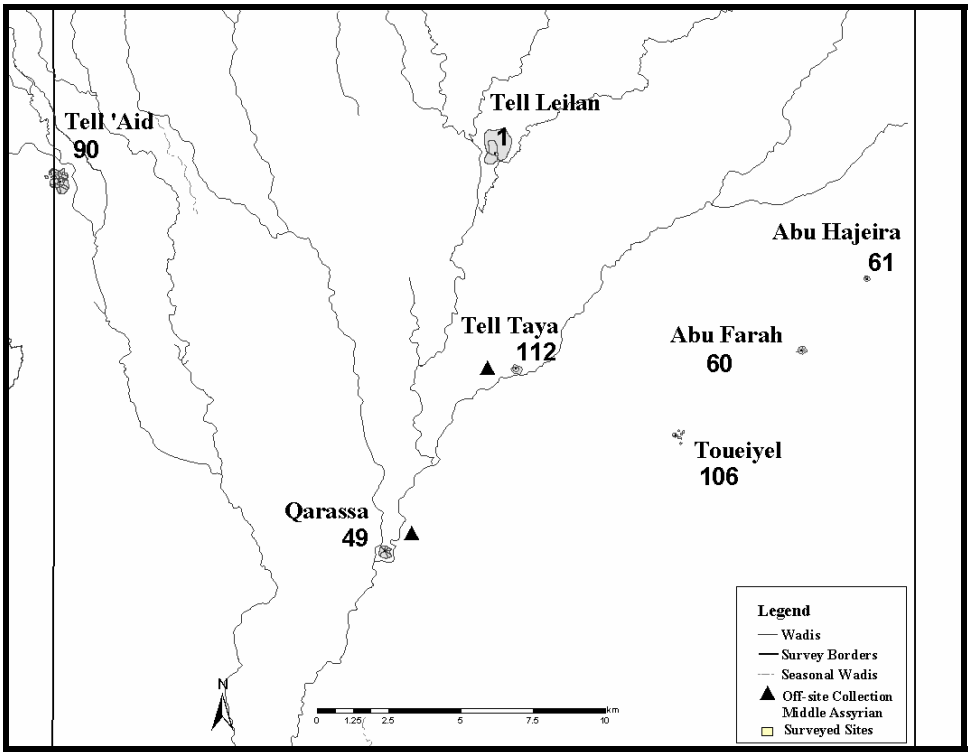


Fig. 1.4. f) Middle Assyrian sherds (phase 10) in off-site transects.

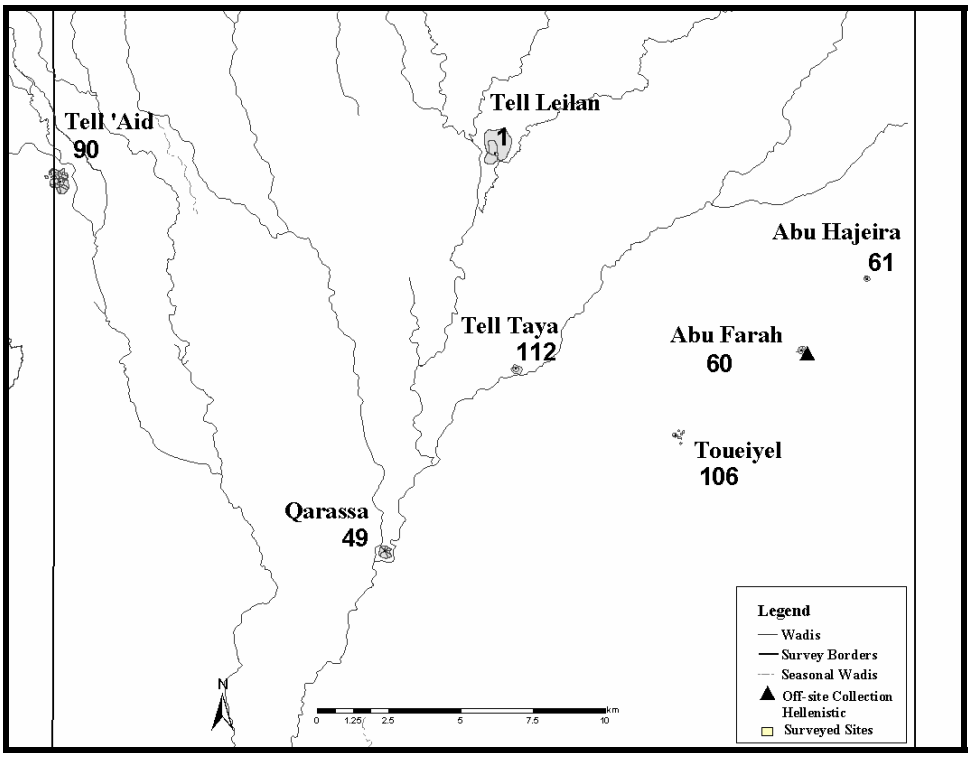


Fig. 1.4. g) Hellenistic sherds in off-site transects.

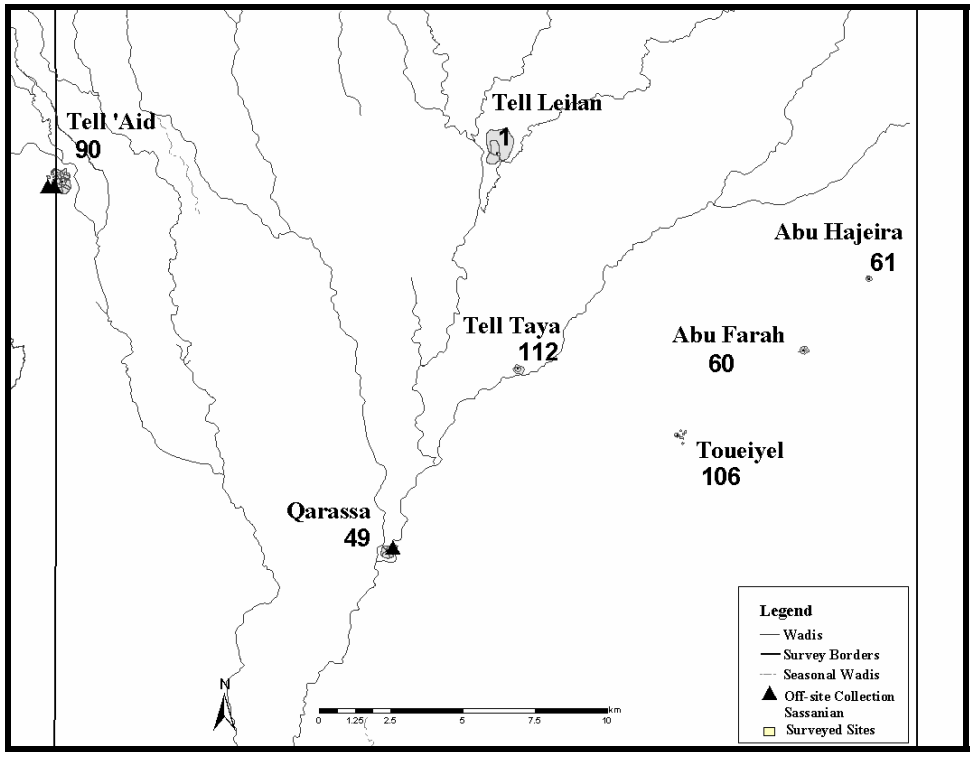


Fig. 1.4. h) Sassanian sherds in off-site transects.

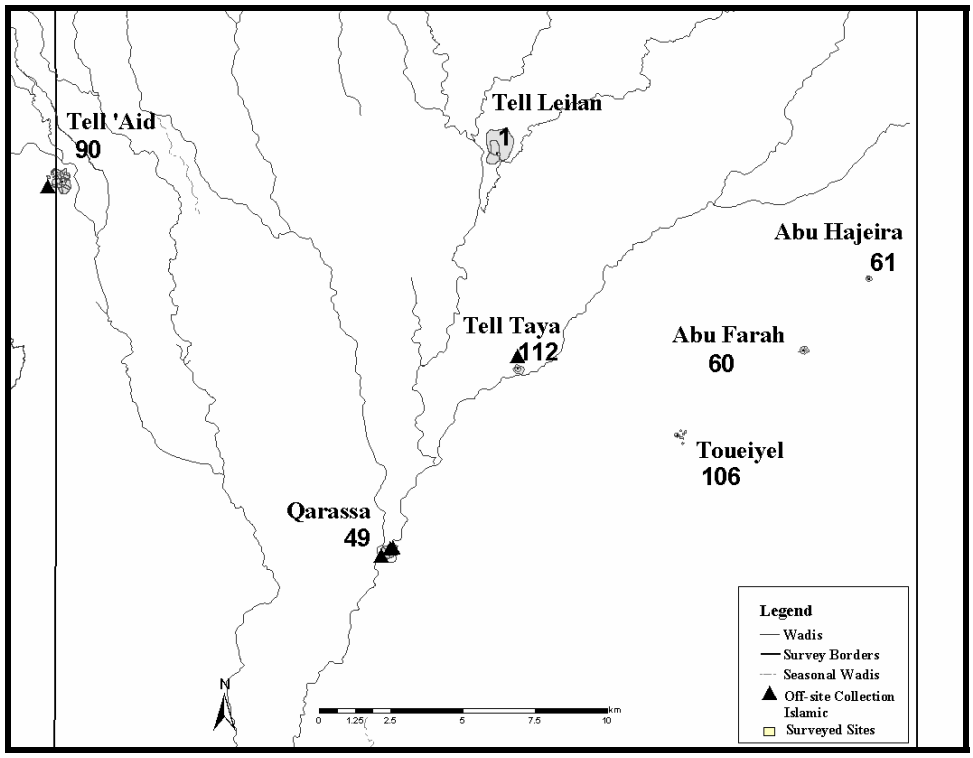


Fig. 1.4. i) Islamic sherds in off-site transects.

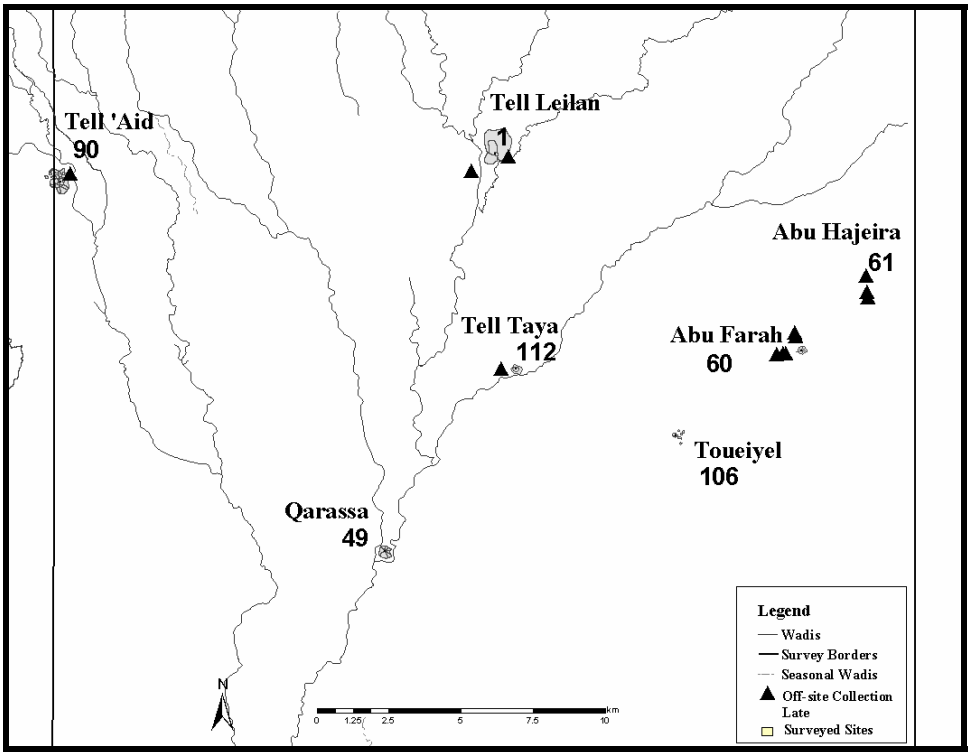


Fig. 1.4. j) "Late" (post-Hellenistic) sherds in off-site transects.

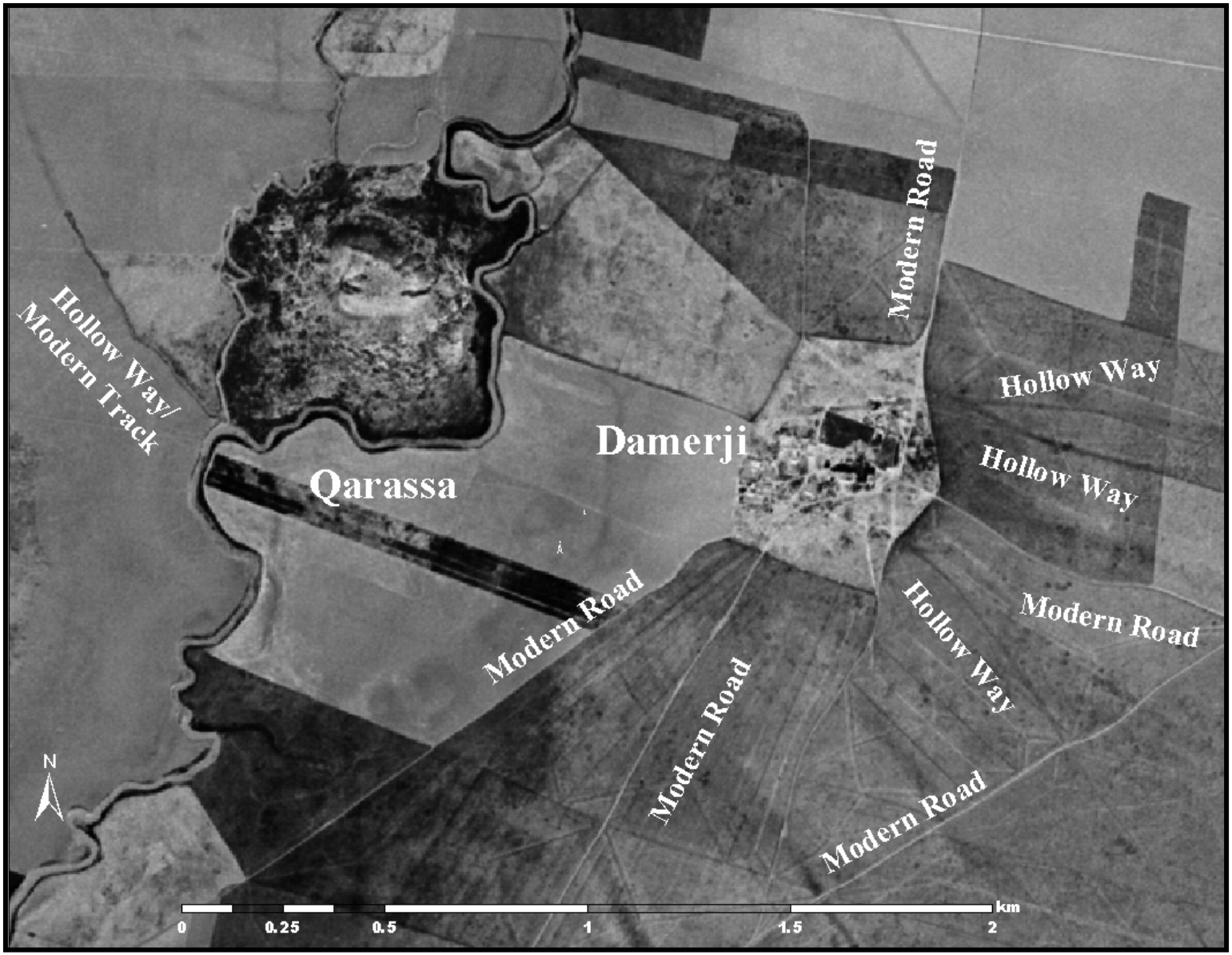


Fig. 1.5. Morphology of modern roads and "hollow ways" near Damerji (Qarassa).
Modern roads appear as white lines, while "hollow ways" are dark. The hollow way/modern track to the west appears on the Syrian 1:50,000 Map Hassawiyah, but has the morphology of a "hollow way." CORONA DS1108-1025DF005 (6 December, 1969).

Fig. 1.6. Map showing the recent origins of the hollow ways around Damerji (Qarassa).
Damerji is a modern village near site 49. Survey revealed no ancient site at Damerji, but clear hollow ways link this village, founded in the 1920s, to other modern villages, ar-Rihaniya (no site), Abtakh Fawqani (ancient site) and Abtakh Tahtani. CORONA DS1108-1025DF005 (6 December 1969).

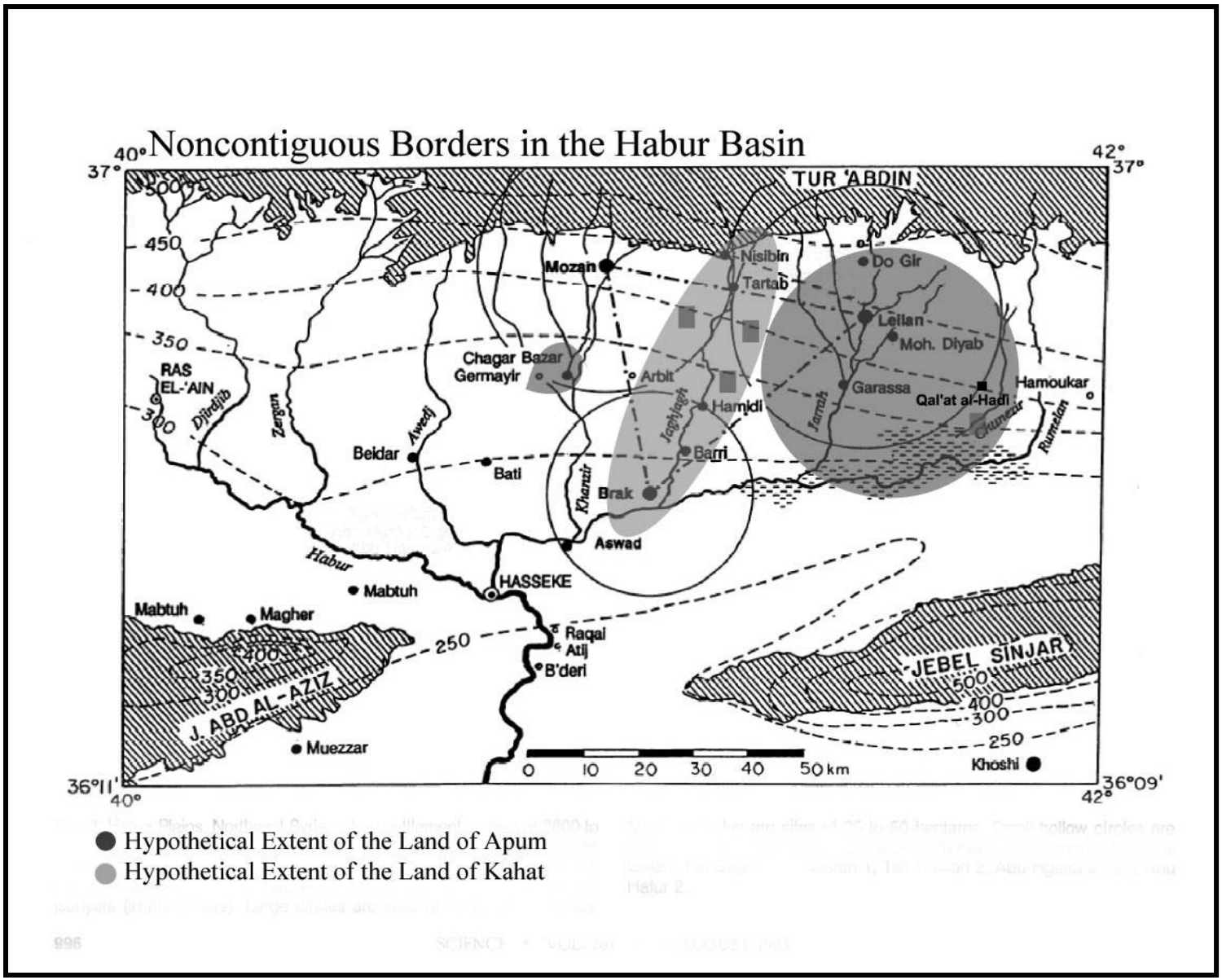


Fig. 1.7. The hypothetical extensions of Kahat and Apum in the late 18th century BC.
According to information from Leilan Treay 3 (Eidem 1991) and the administrative texts dated to the limmu of Niwer-Kubi (Ismail 1991).

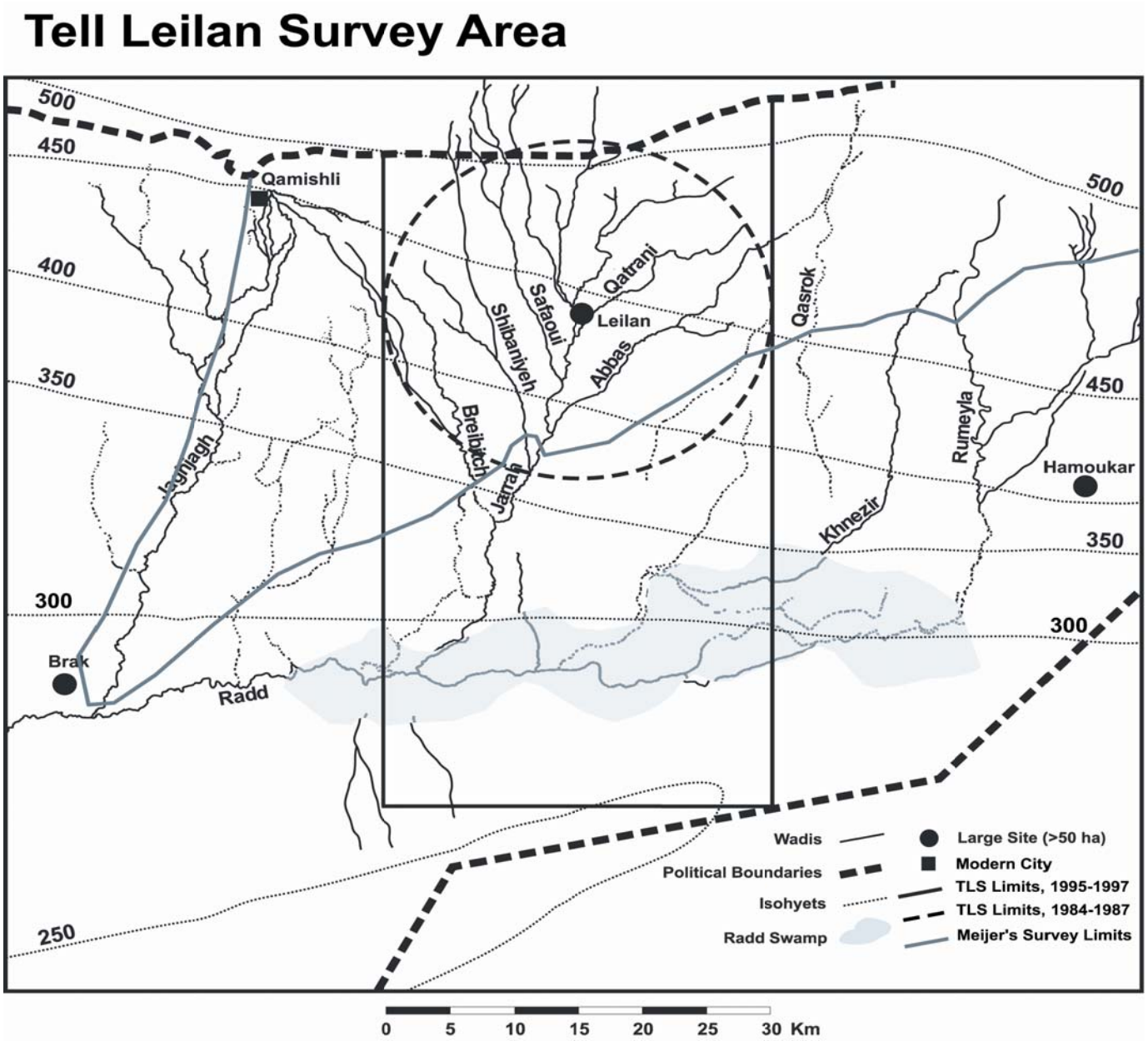


Fig. 2.1. The Eastern Habur Triangle, illustrating the extent of Meijer's survey (1986), and the LRS by year.

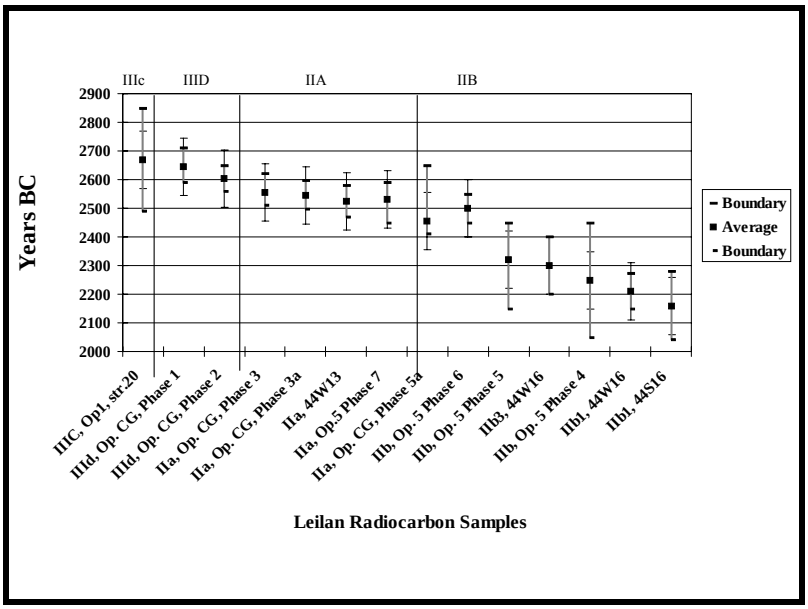


Fig. 2.2. Averaged radiocarbon dates from Leilan IIId-IIb excavations.
Excavation areas: Acropolis: Op. 1, 44W13, 44W16, 44S16; Lower Town: Op. 5; and City Gate Op. CG. Dates are published in Weiss 2003, Weiss et al. 1993, Weiss et al. ND and Ristvet and McCarthy N.D. Range for second standard deviation and average shown for each date.

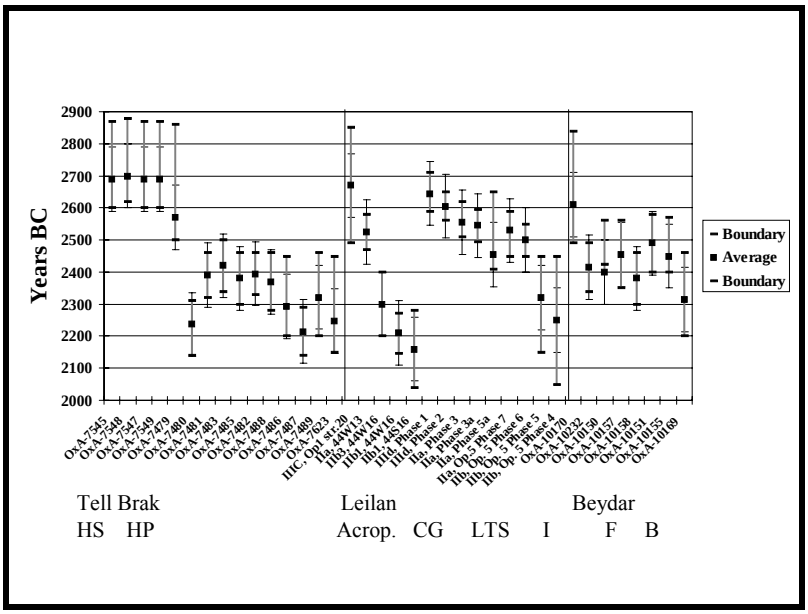


Fig. 2.3. Averaged radiocarbon dates from the Habur Triangle, 3000-2000 BC.
Leilan dates as above. Brak dates from Matthews 2003; Beydar dates from Lebeau and Milano 2003. Provenience of the dates is indicated. Range for second standard deviation and average shown for each date.

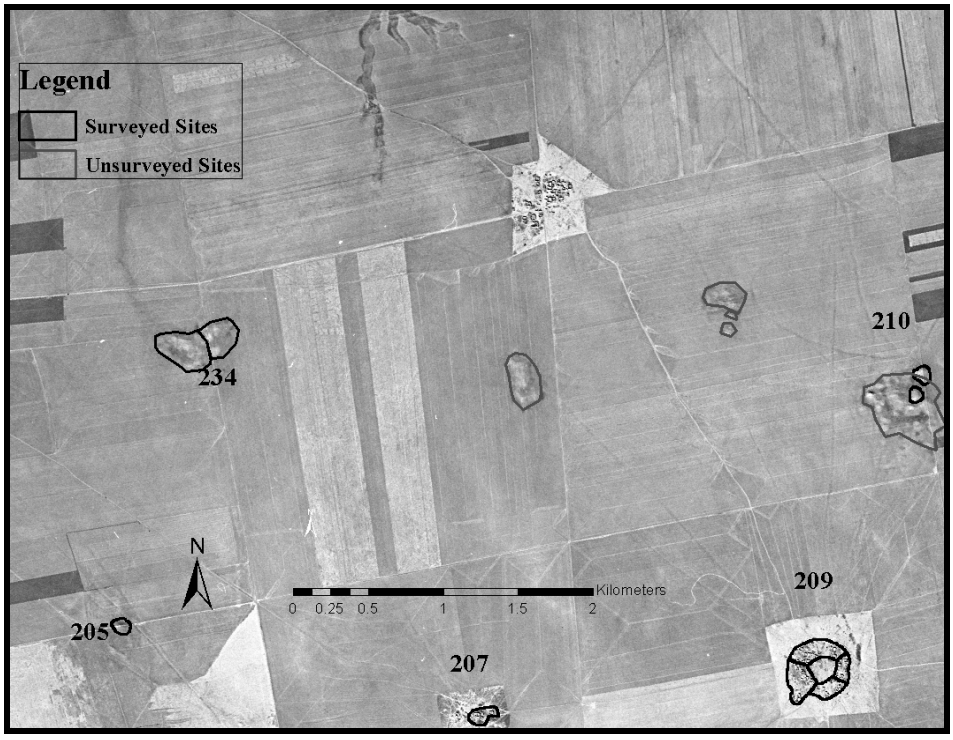


Fig. 2.4. South-west corner of survey, showing surveyed and unsurveyed sites. CORONA DS1117-1025DF149 (27 May, 1972).

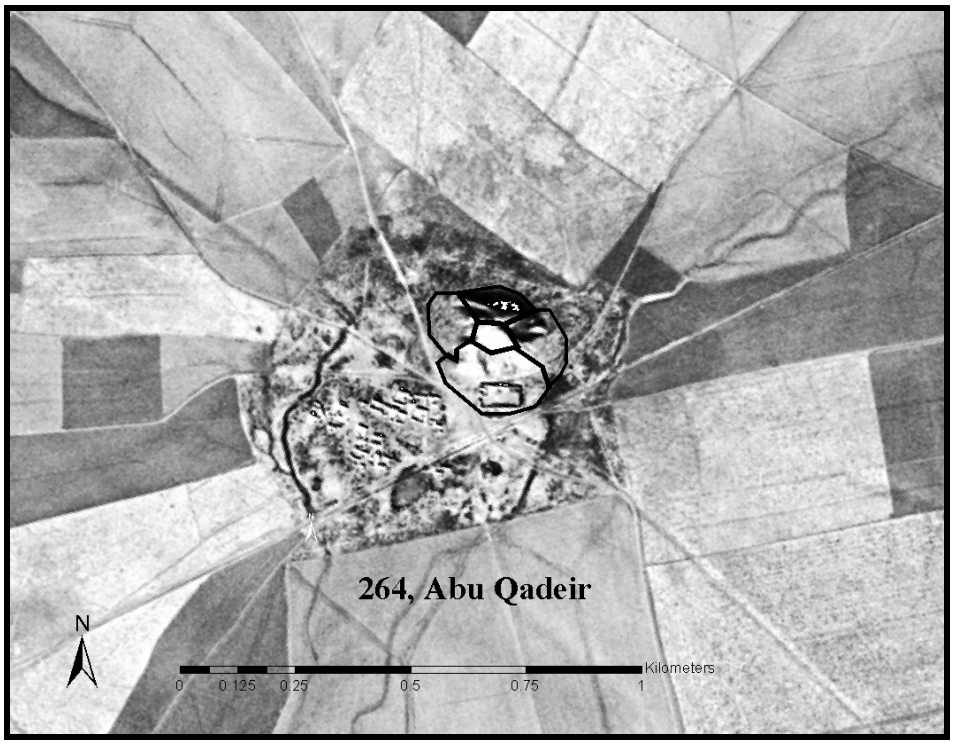


Fig. 2.5. Abu Qadeir (264).
Mound and complex, off-site topography. CORONA DS1108-1025DA005 (6 December, 1969).

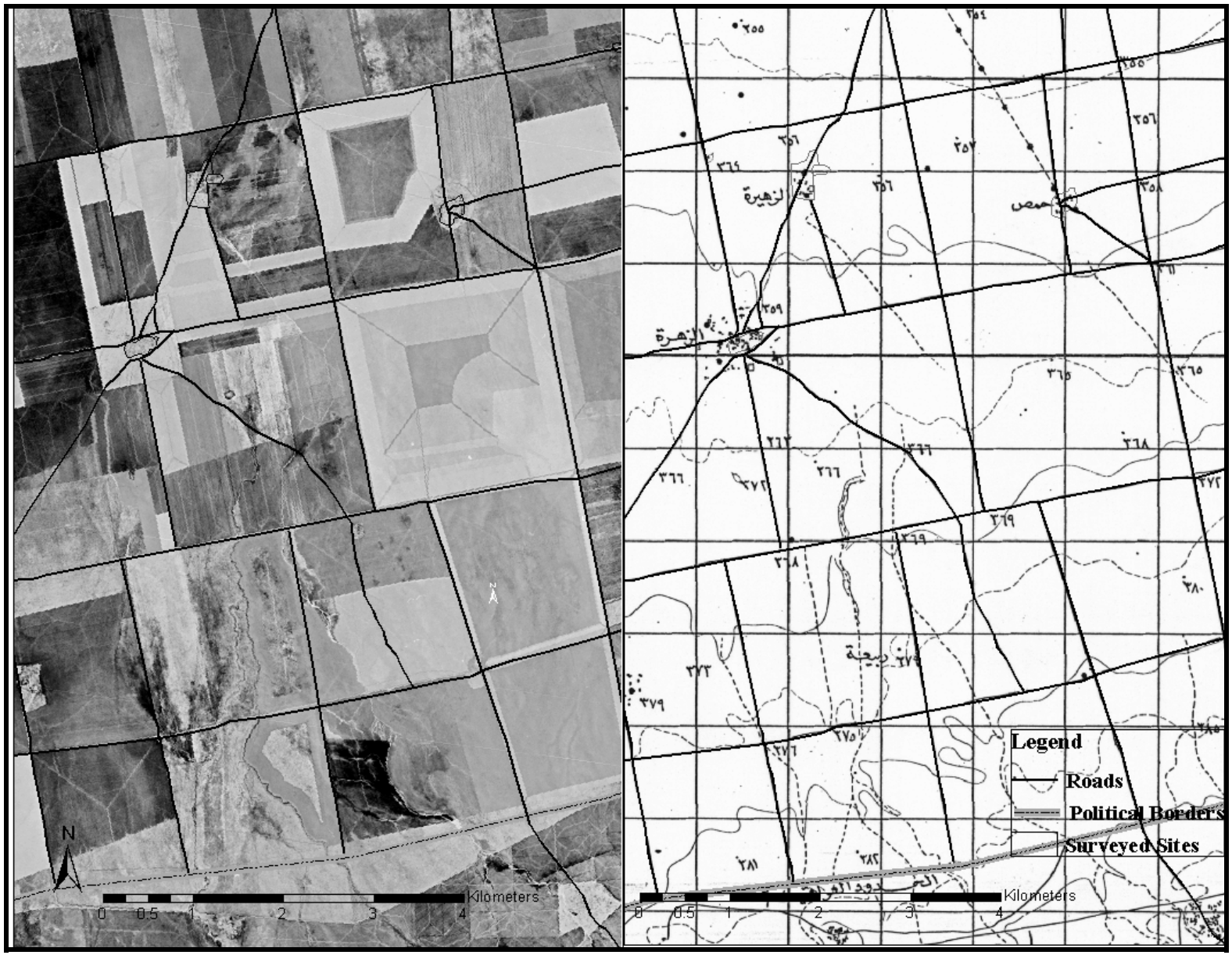


Fig. 2.6. Identification of GCPs on Syrian maps and a CORONA image.
CORONA DS1117-1025DF149 (27 May, 1972), Syrian 1:50,000 map: “Bouara”.

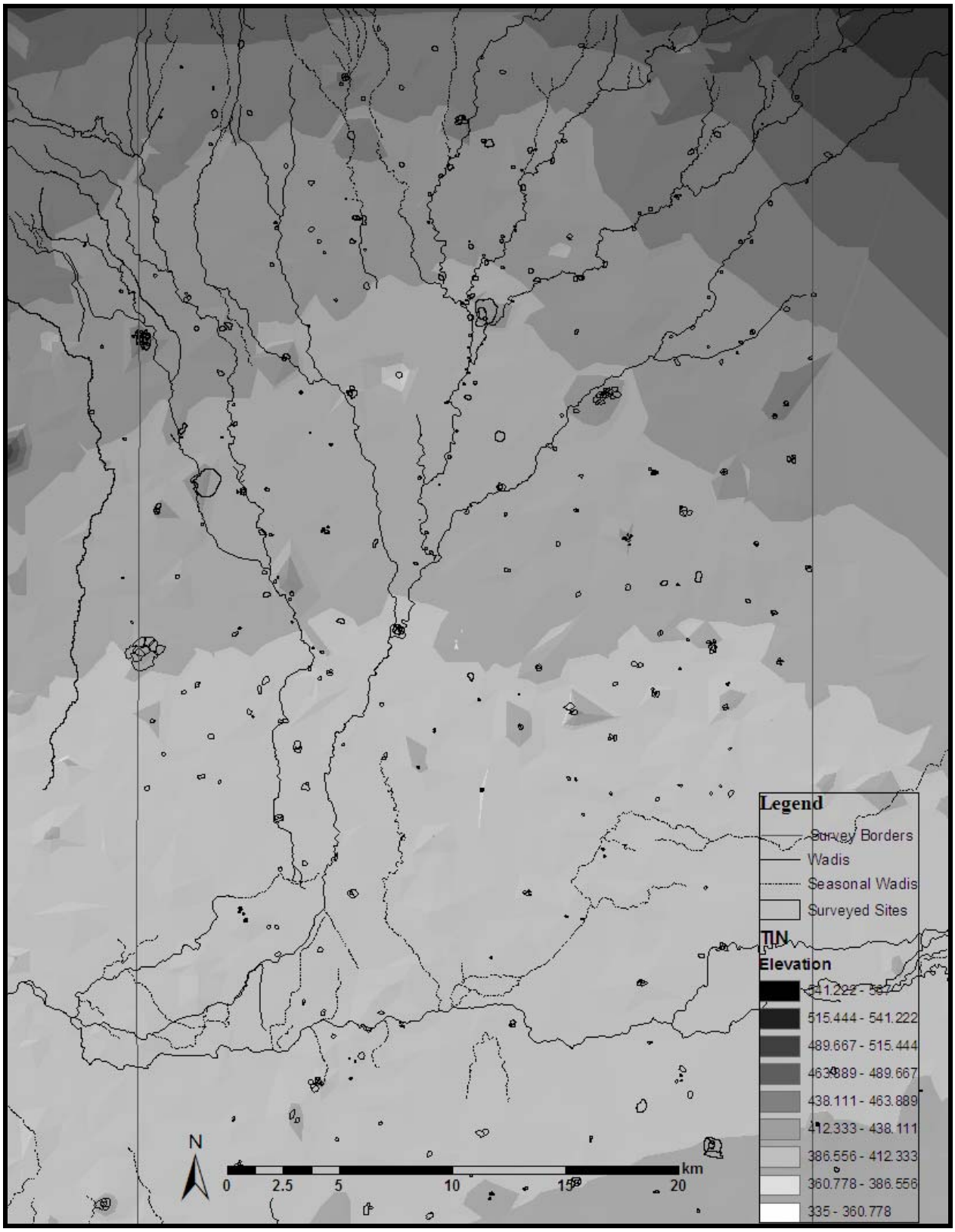


Fig. 2.7. Topographic map (TIN) of LRS.
Actual surveyed site areas are visible in black.

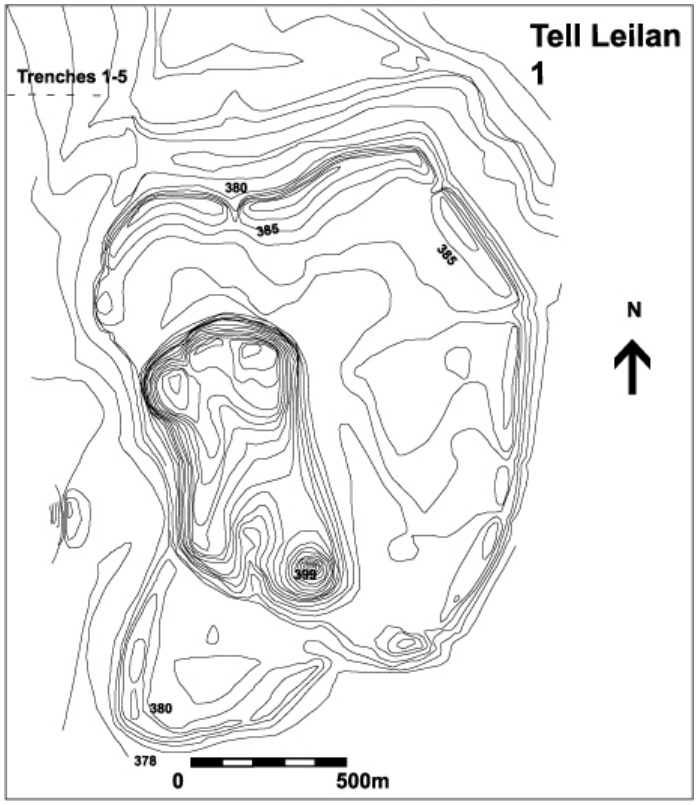


Fig. 2.8. Topographic map of Leilan indicating geomorphological trenches. Contours are in m.a.s.l. Map by Richard MacNeill.

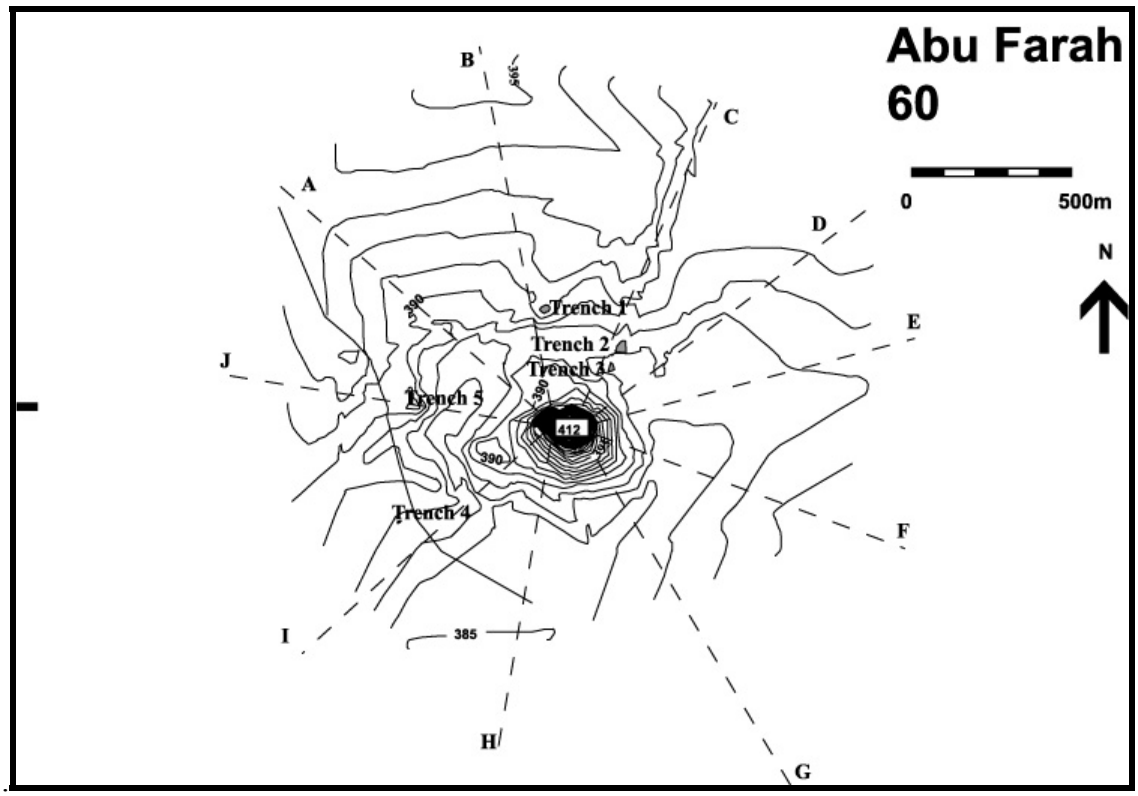


Fig. 2.9. Laser map of Abu Farah with geomorphological trenches and survey transects. Contours are in m.a.s.l. Map by Richard MacNeill.

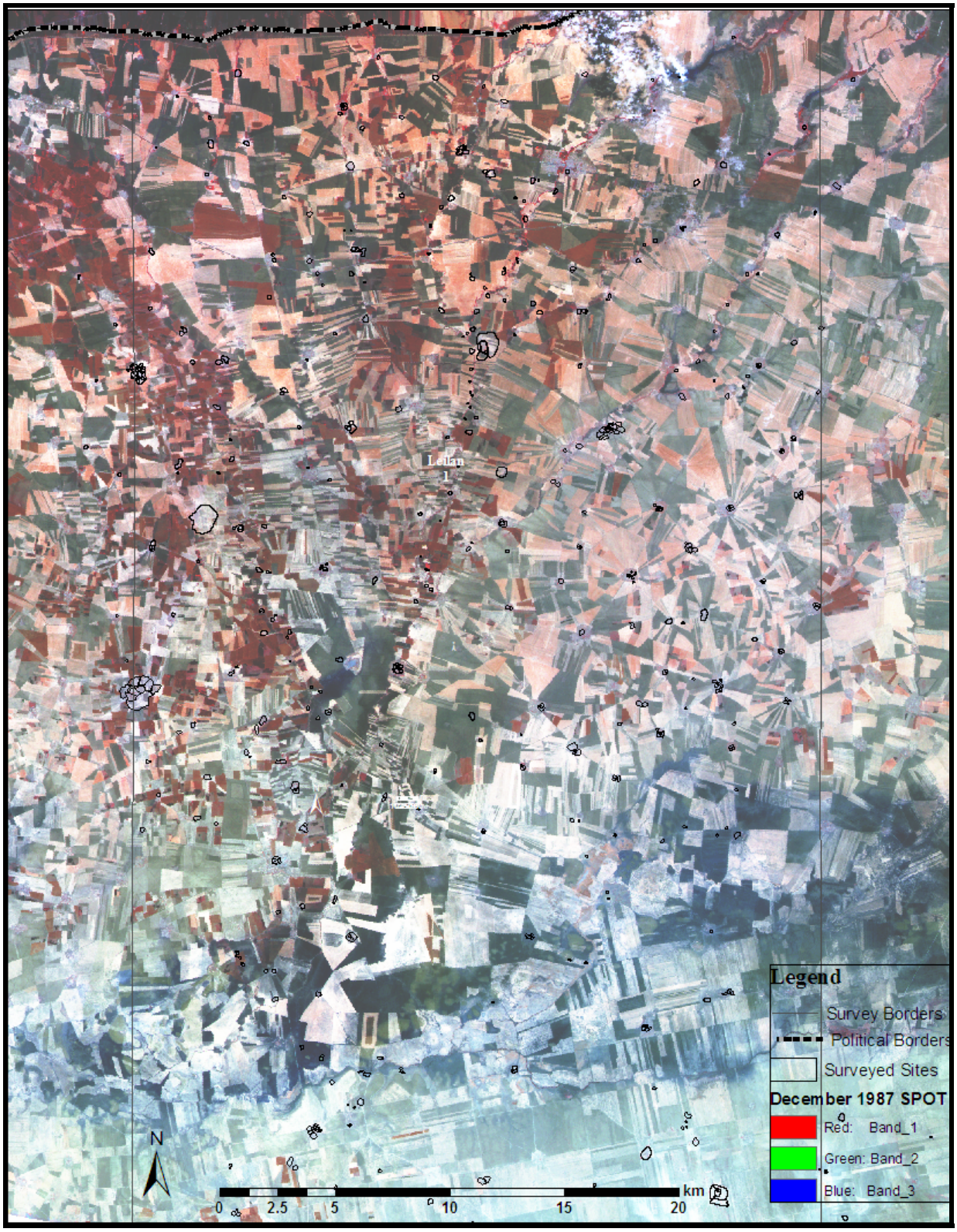


Fig. 2.10. December 1987 SPOT image illustrating modern land-use practices in the LRS. The presence of irrigated cotton fields in the west (red band) indicates the greater availability of ground water there.

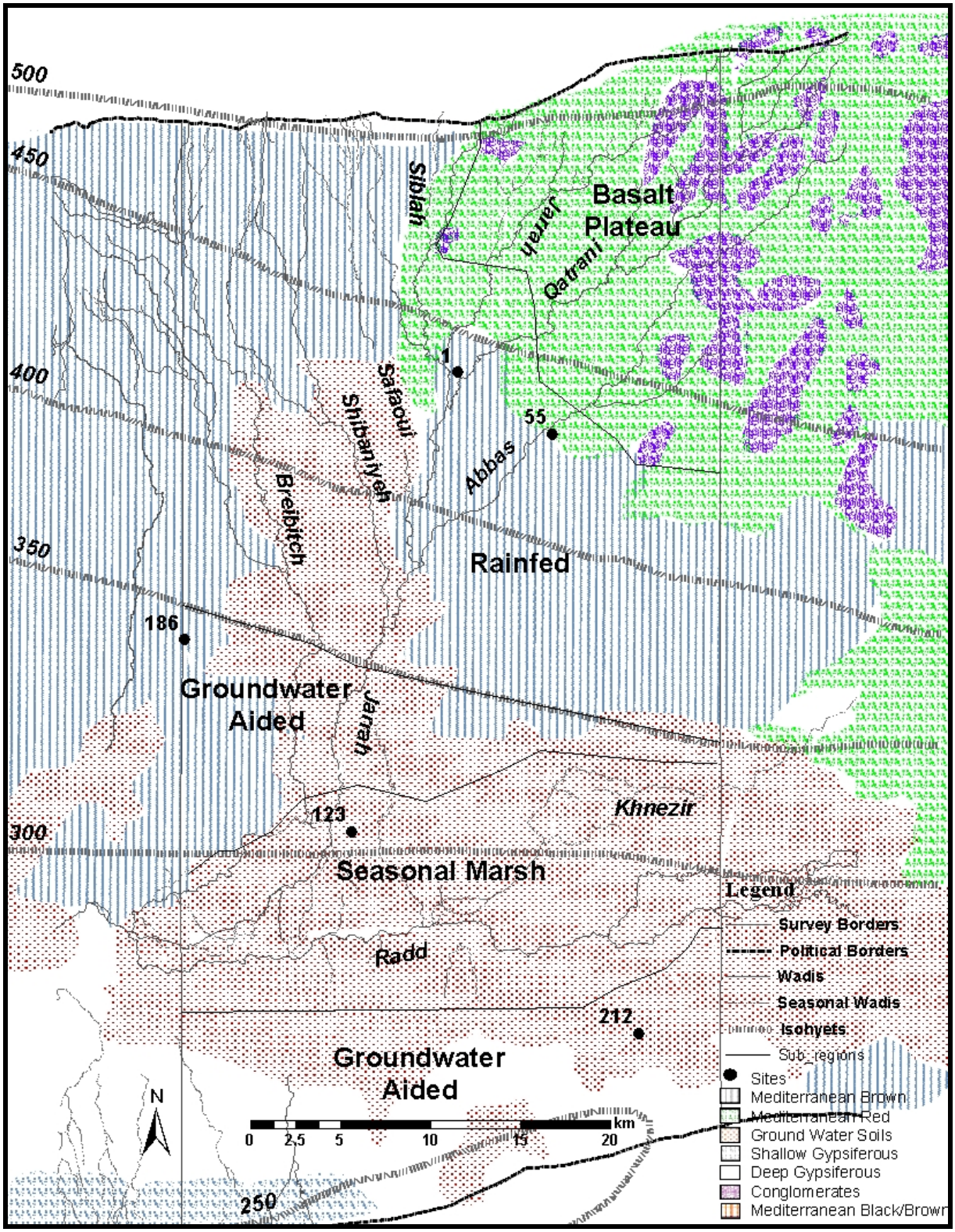


Fig. 2.11. LRS area with soil types, modern isohyets and land-use regions.
(After Huisman in Weiss 1990: Abb. 2, van Liere, 1964 and FAO, 1966).

Fig. 2.12. Tell Leilan (1). CORONA DS1108-1025DA004 (6 December, 1969).

Fig. 2.13. Mohammed Diyab (55). CORONA DS1108-1025DA004 (6 December, 1969).

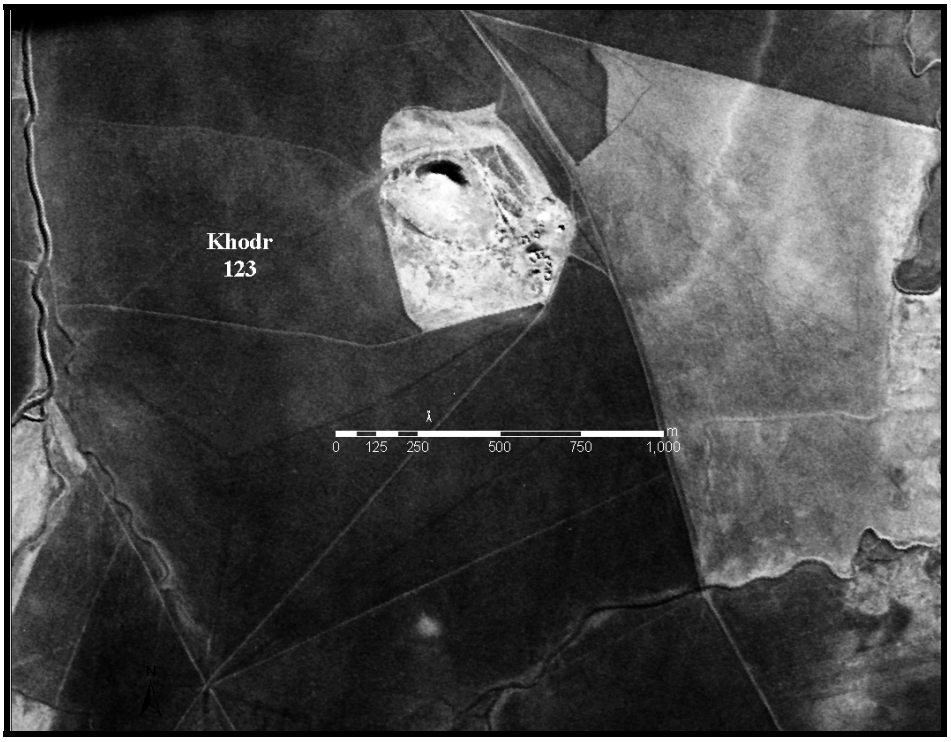


Fig. 2.14. Tell Khodr (124). CORONA DS1108-1025DA005 (6 December, 1969).

Fig. 2.15. Al-Andalus (212). CORONA DS1117-1025DF149 (27 May 1972). Note city wall covered with *harmor* shrubs.

Fig. 2.16. Farfara (186). CORONA DS1108-1025DA005 (6 December, 1969).

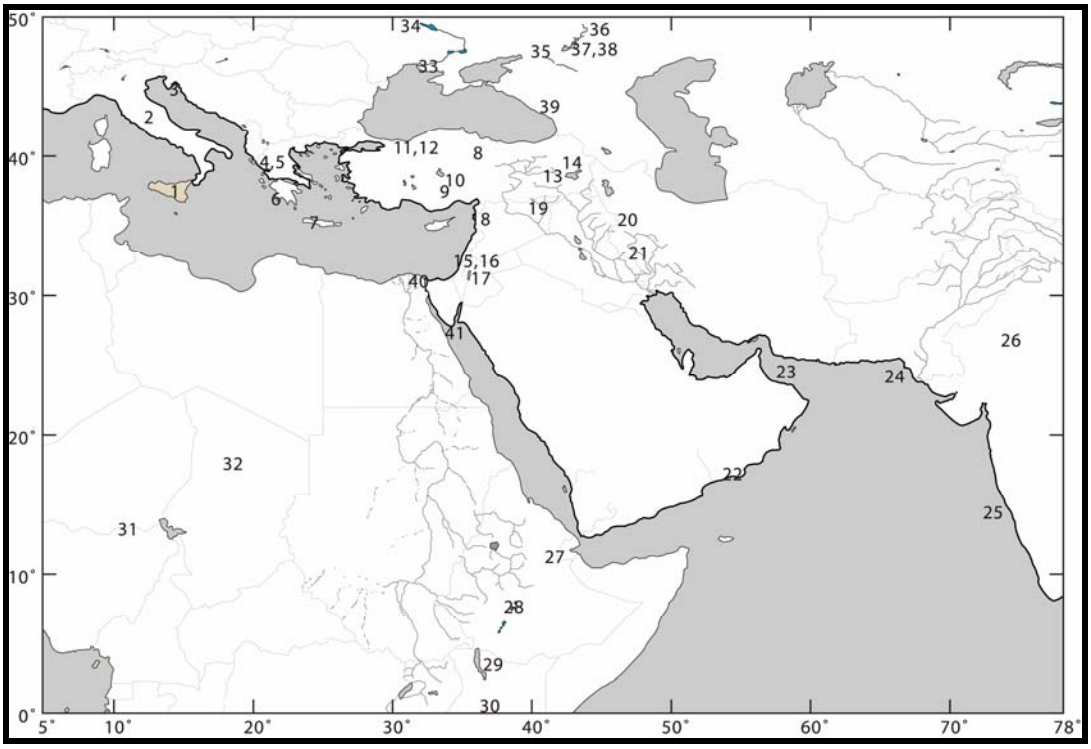


Fig. 2.17. Climate proxies for SW Asia.

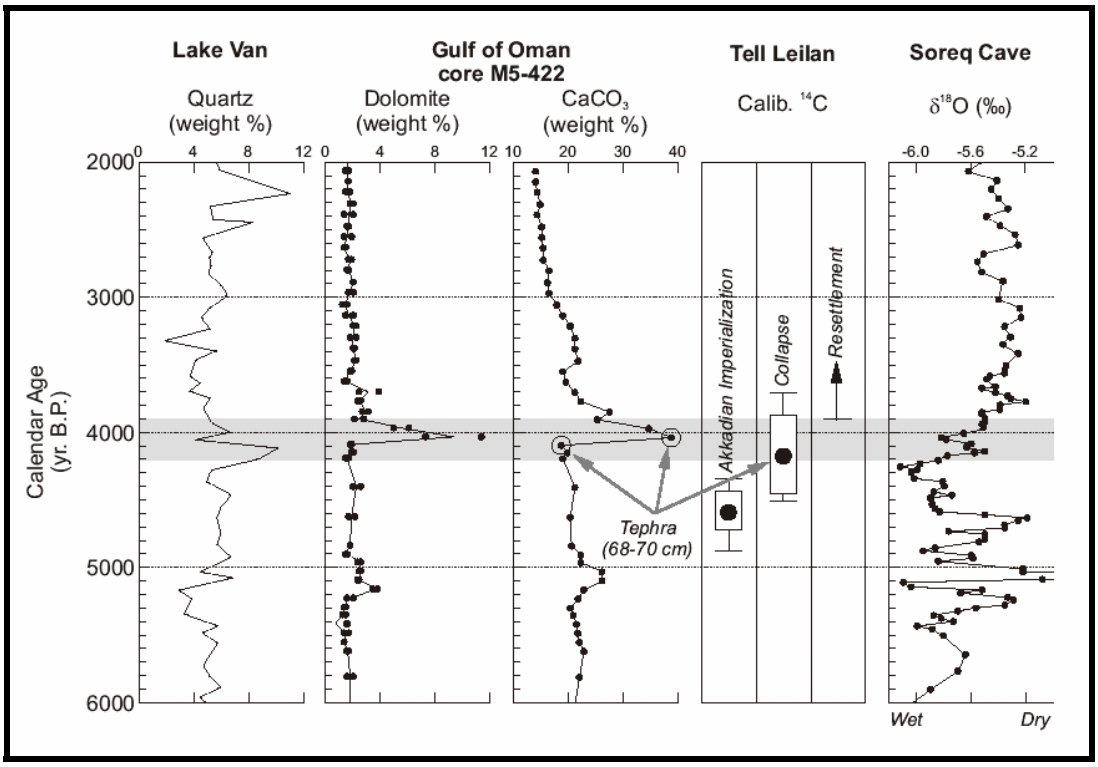


Fig. 2.18. Climate proxies from Lake Van, the Gulf of Oman and Soreq Cave.
And their correlation by means of tephrochronostratigraphy to the Leilan sequence (Weiss 2000).

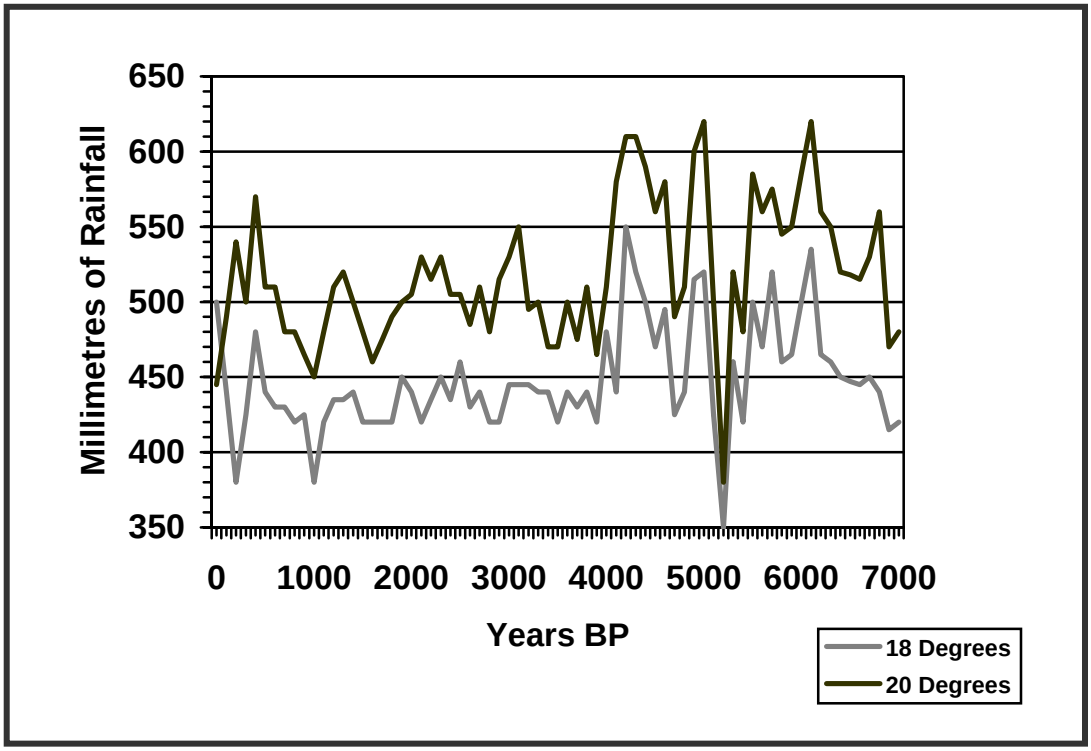


Fig. 2.19. Palaeo-rainfall estimates from Soreq Cave oxygen isotopes.
Based on an average temperature of 18 and 20◦ respectively (after Bar-Matthews et al. 1998).

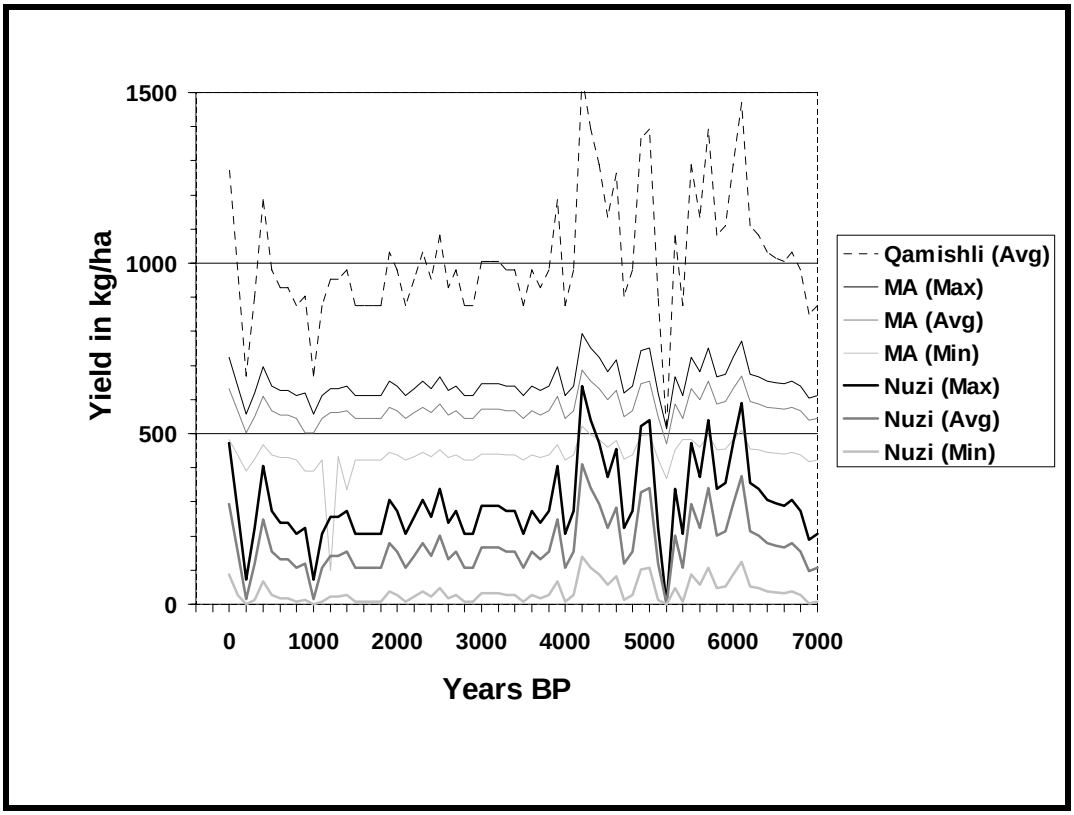


Fig. 2.20. Model of yield response to Holocene climate variability, ca. 7000-0 BP.
Based on high, medium and low yields recorded in Middle Assyrian and Nuzi records for dry-farming and the modern average for Qamishli province.

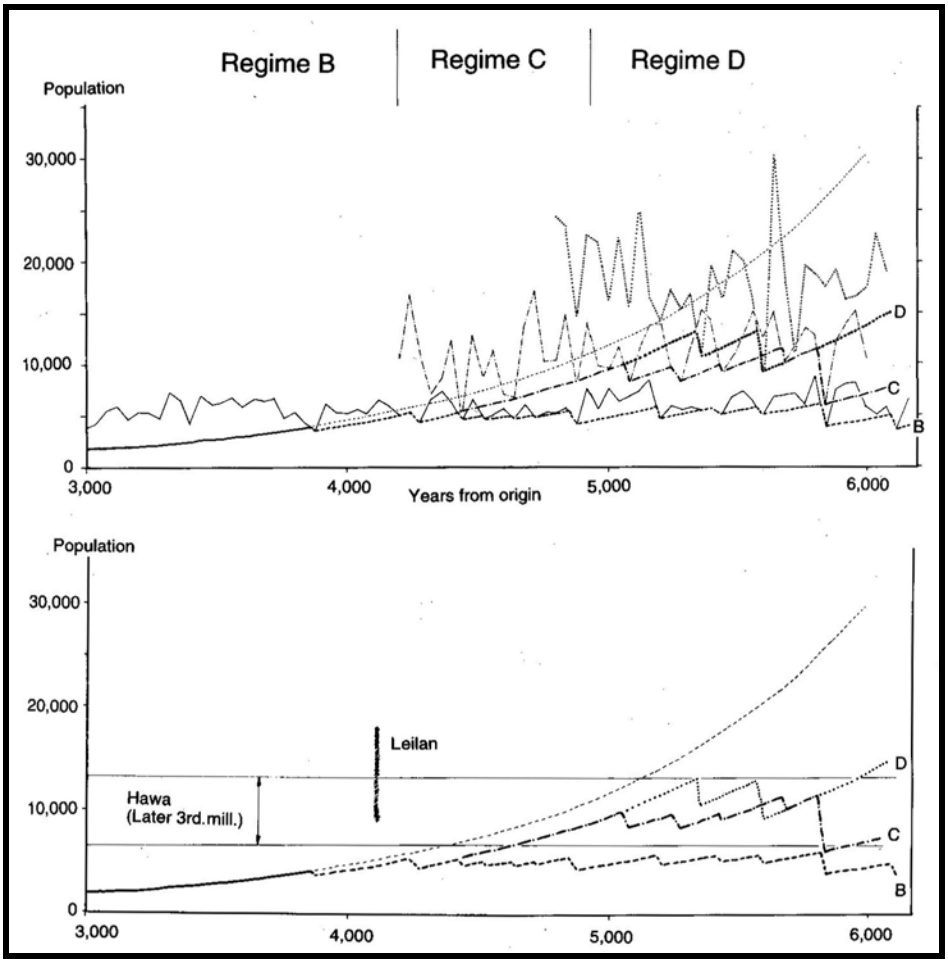


Fig. 2.21. Model of the relationship between agricultural intensification and population growth.
Assuming the adoption of more intensive agricultural methods (manuring, no fallow) in response to population pressure (after Wilkinson 1997).

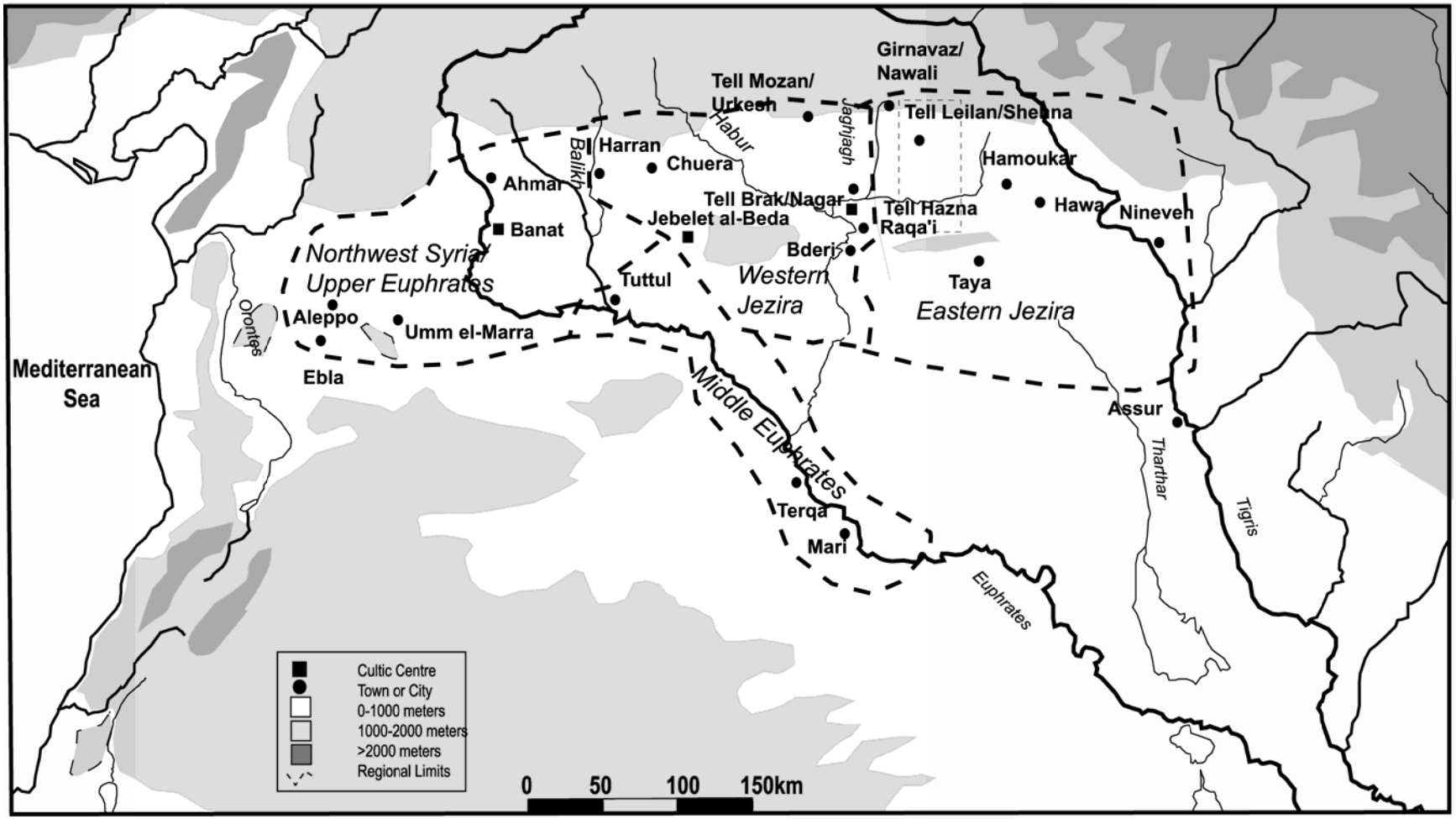


Fig. 3.1. Regions and Sites in Northern Mesopotamia, 3000-2200 BC.

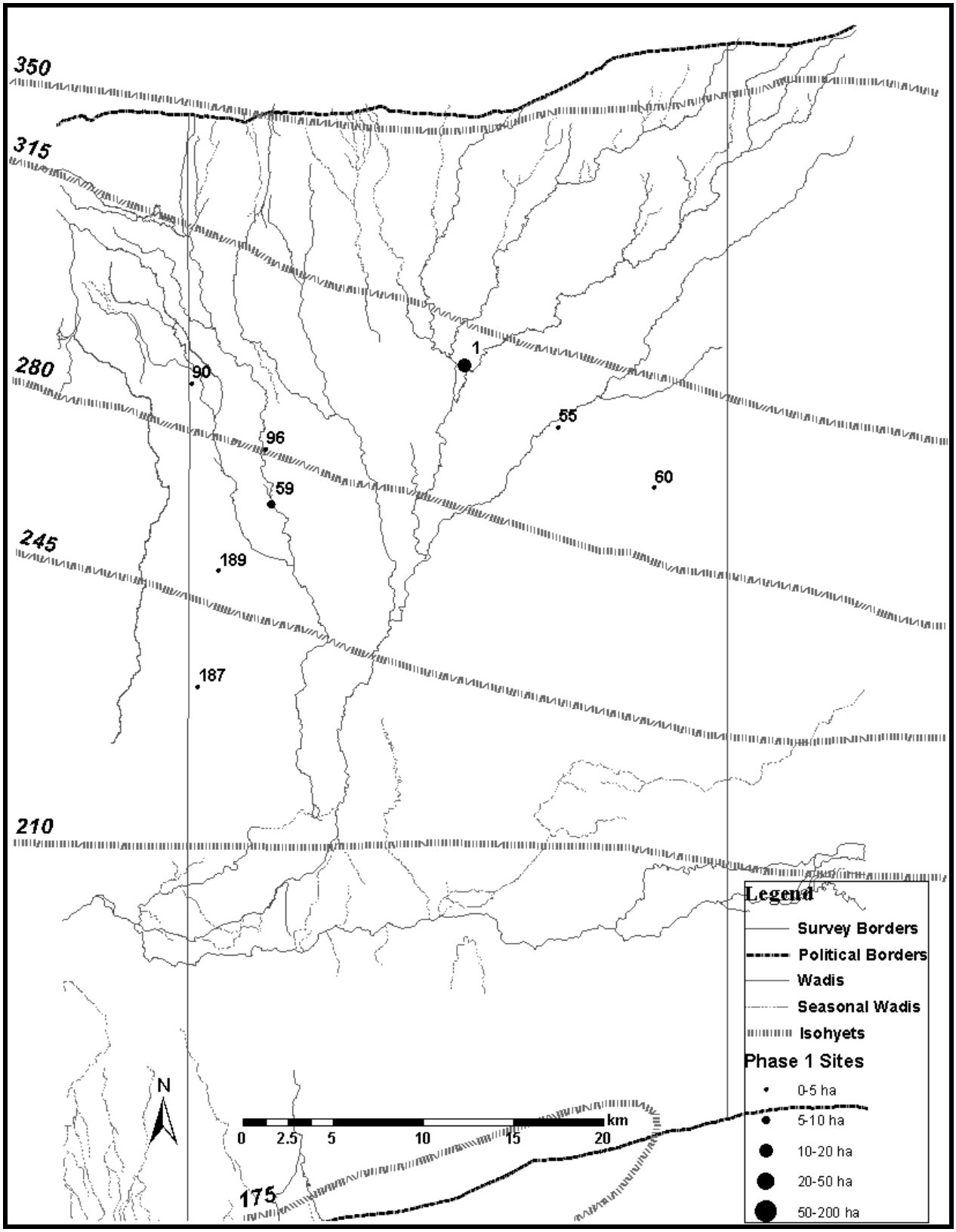


Fig. 3.2. LRS, IIIa, phase 1 (ca. 3000-2800 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

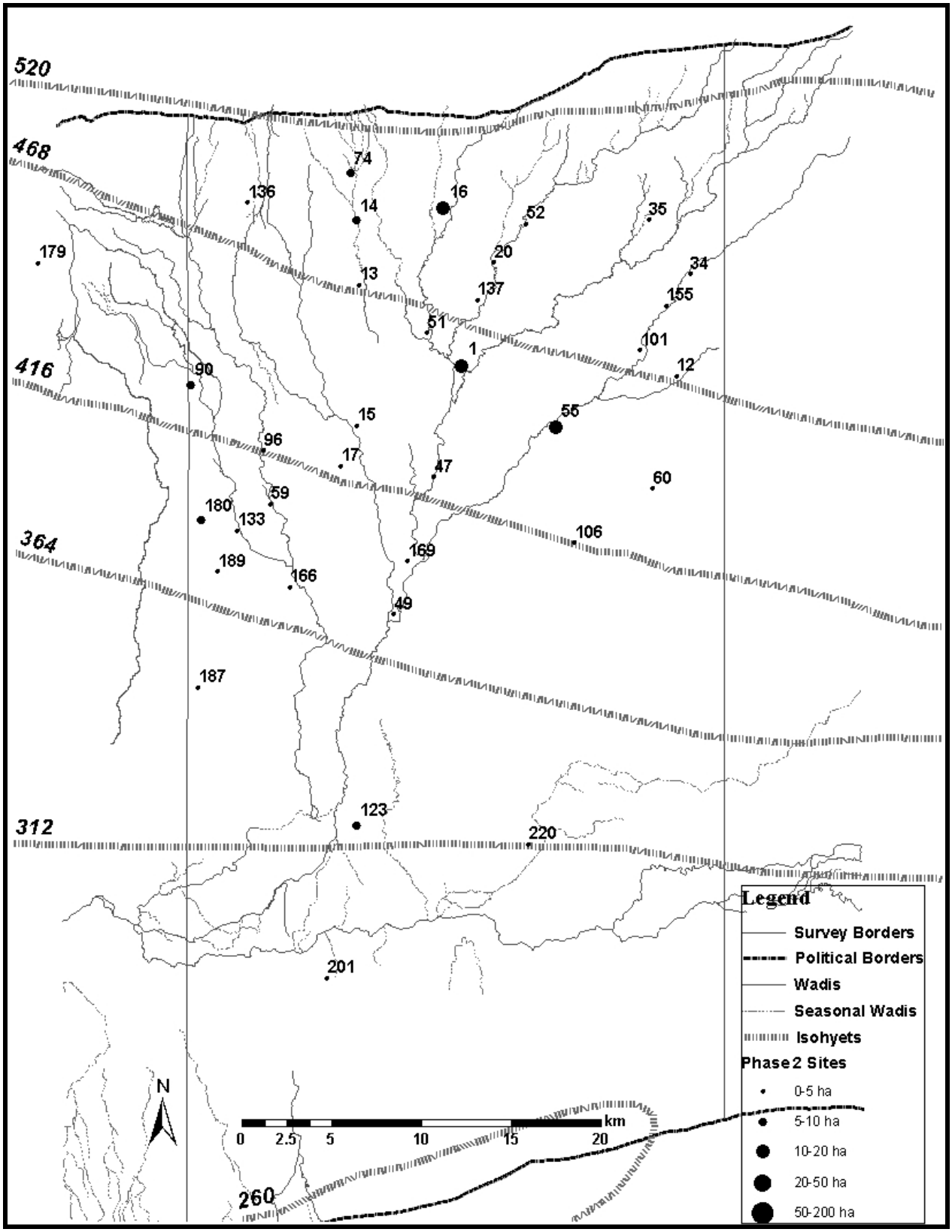


Fig. 3.3. LRS, IIIb-IIIc, phase 2 (ca. 2800-2650 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

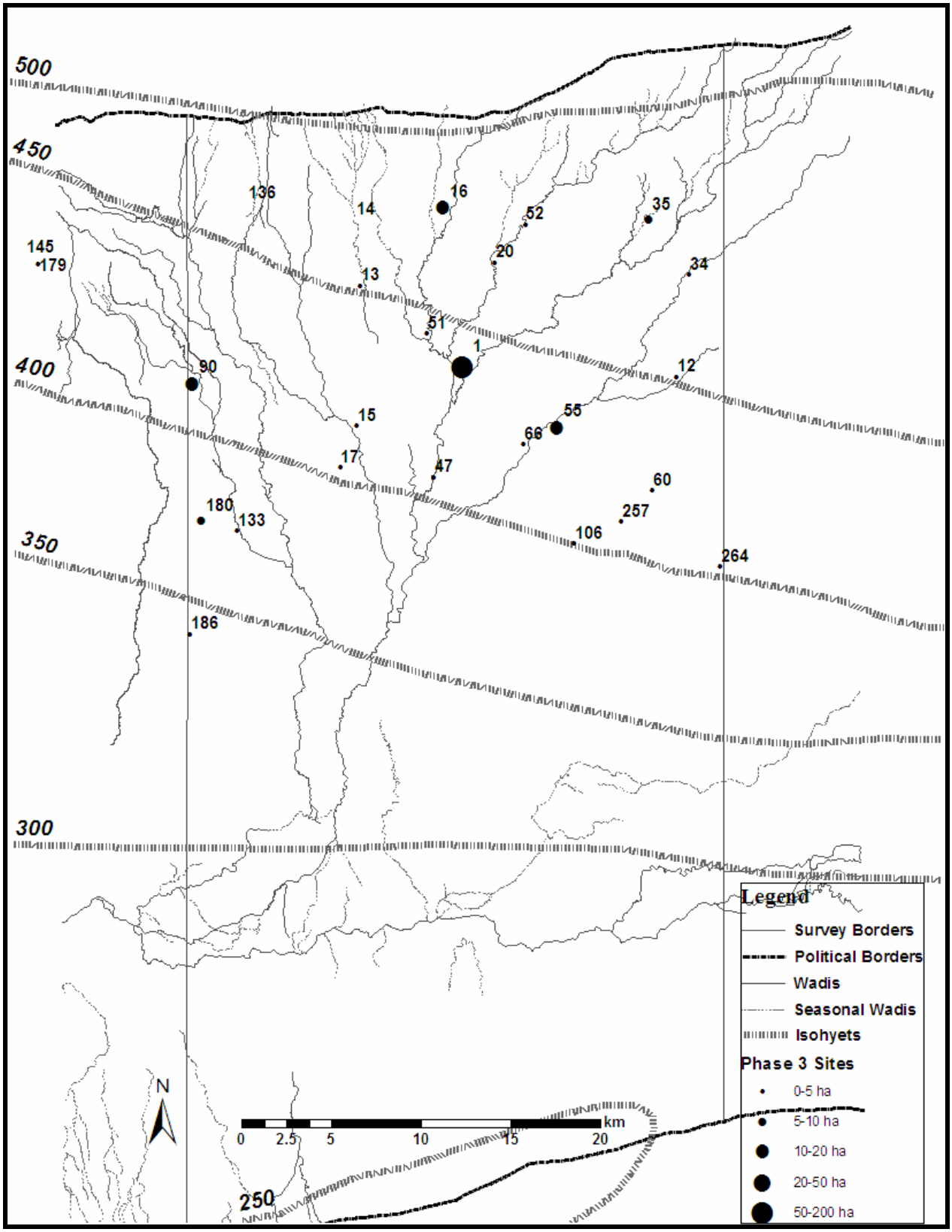


Fig. 3.4. LRS, IIId, phase 3 (ca. 2650-2500 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

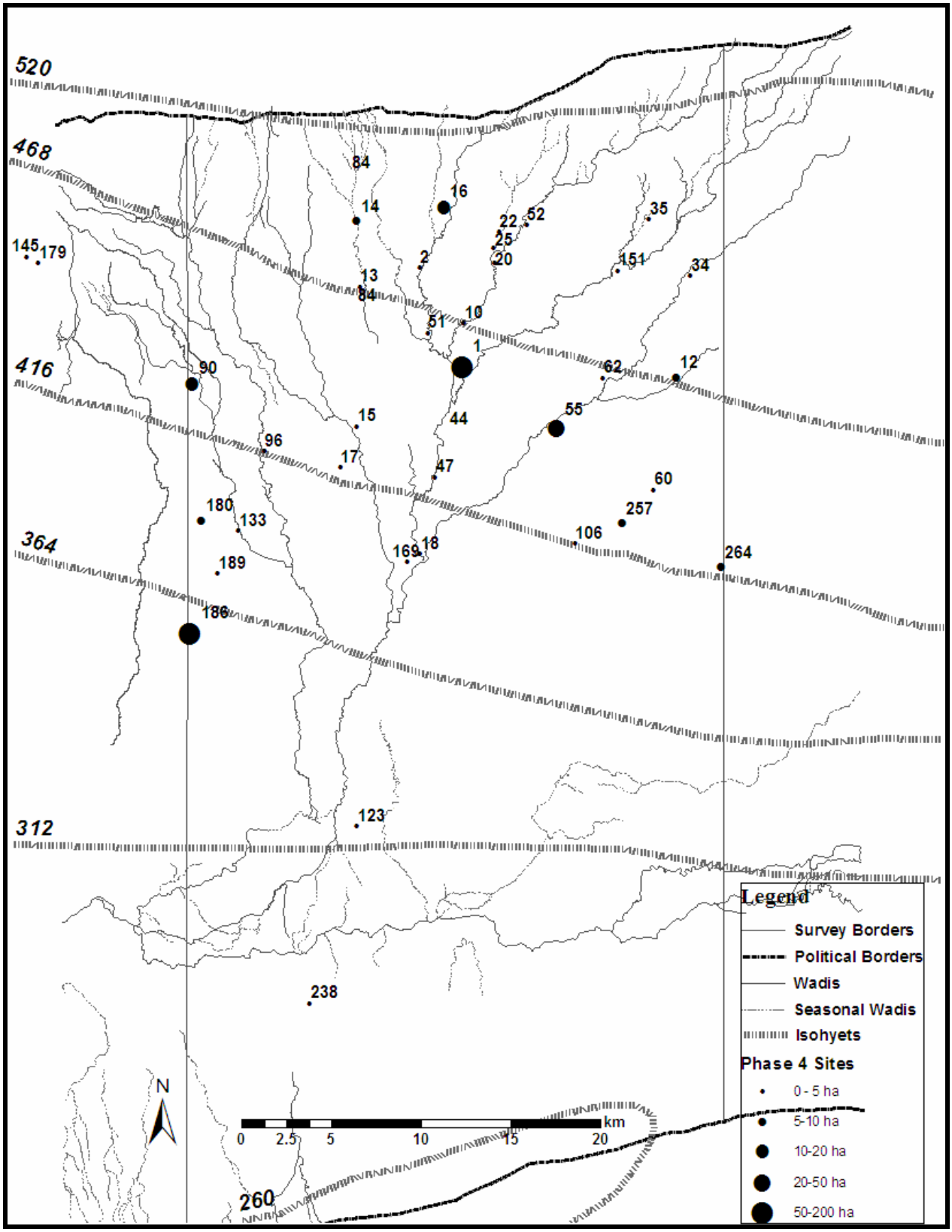


Fig. 3.5. LRS, IIa, phase 4 (ca. 2500-2300 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

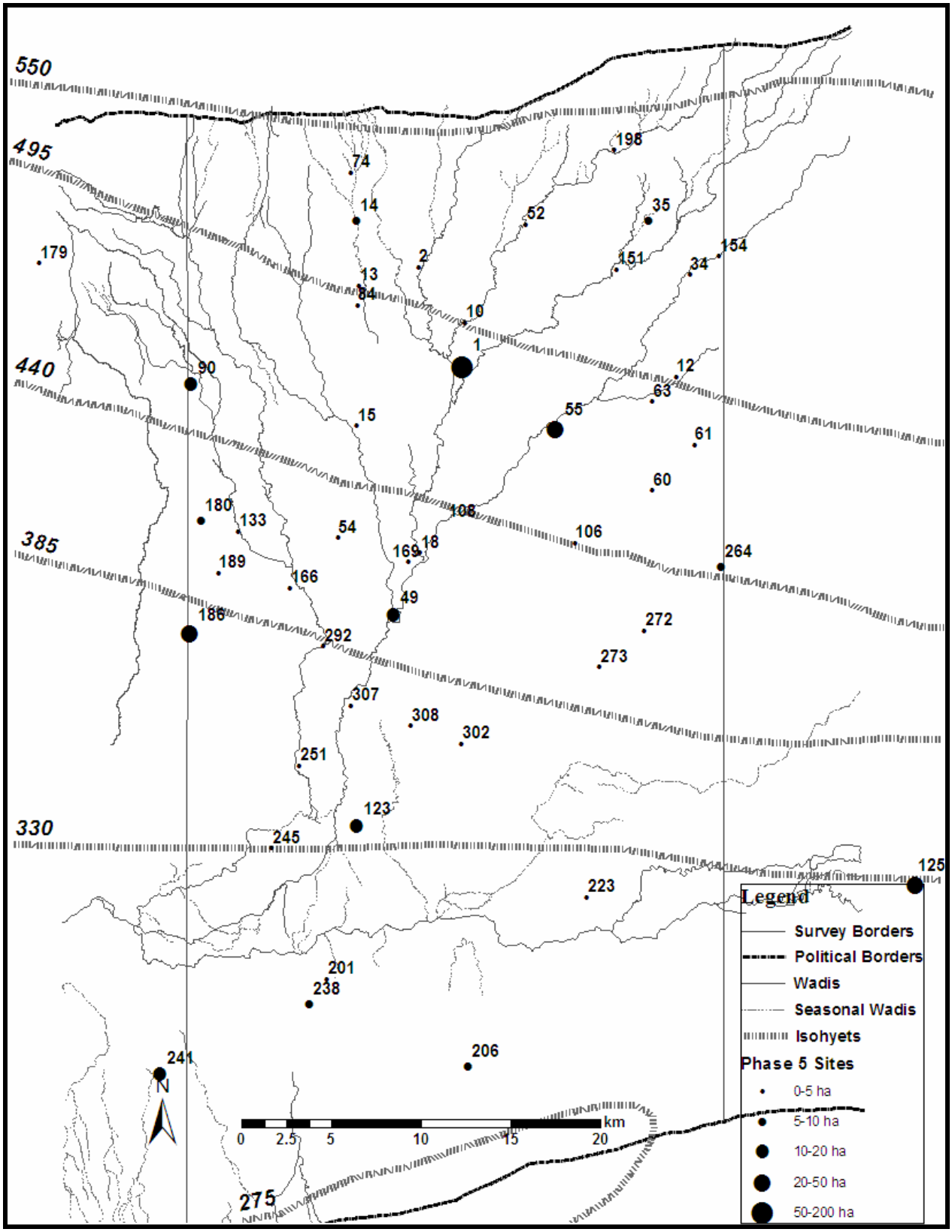


Fig. 3.6. LRS, IIb, phase 5 (ca. 2300-2200 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

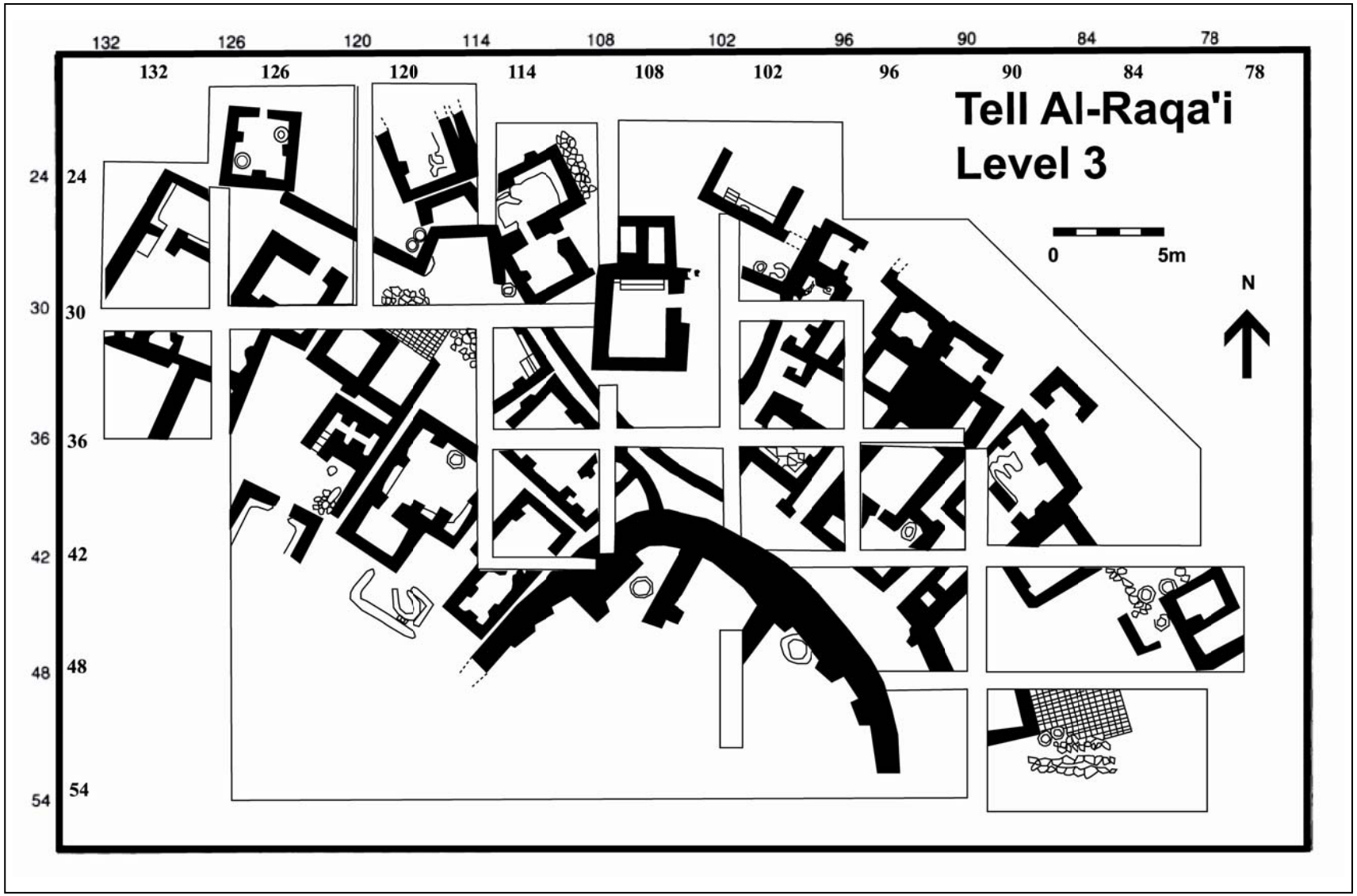


Fig. 3.7. Raqa'i, building level 3 architecture, mid-third millennium B.C.
(After Schwartz and Curvers 1992: fig. 8)

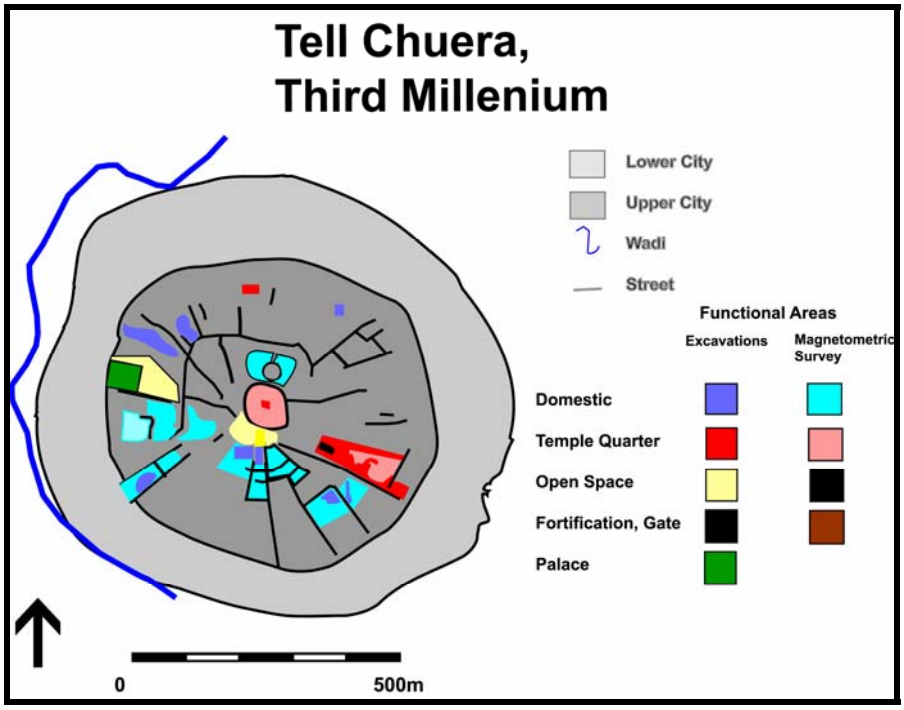


Fig. 3.8. Plan of Tell Chuera during the mid-third millennium BC.
Based on magnetometric survey and excavation (after Meyer 2002)

Fig. 3.9. Domestic housing, Leilan Lower Town South, facing north.
Houses lining the street date to periods IIa and IIb.

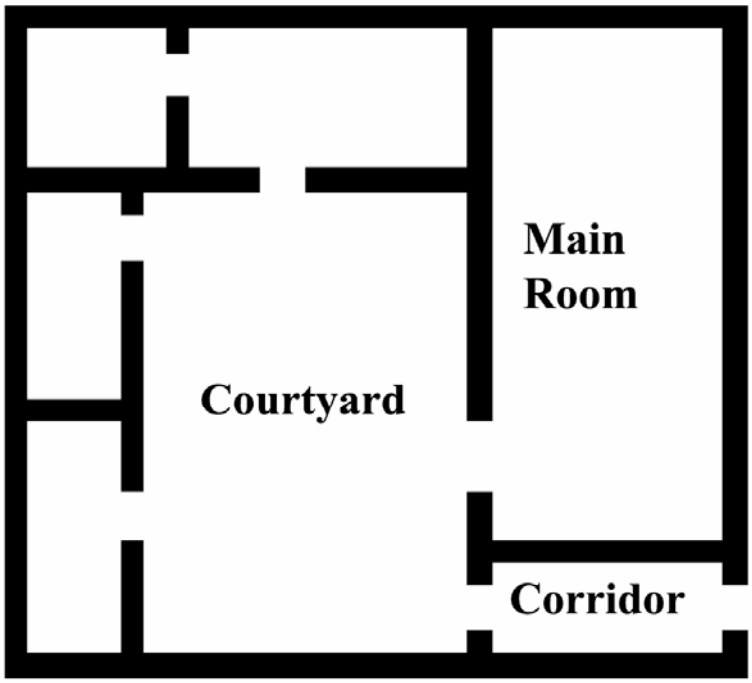
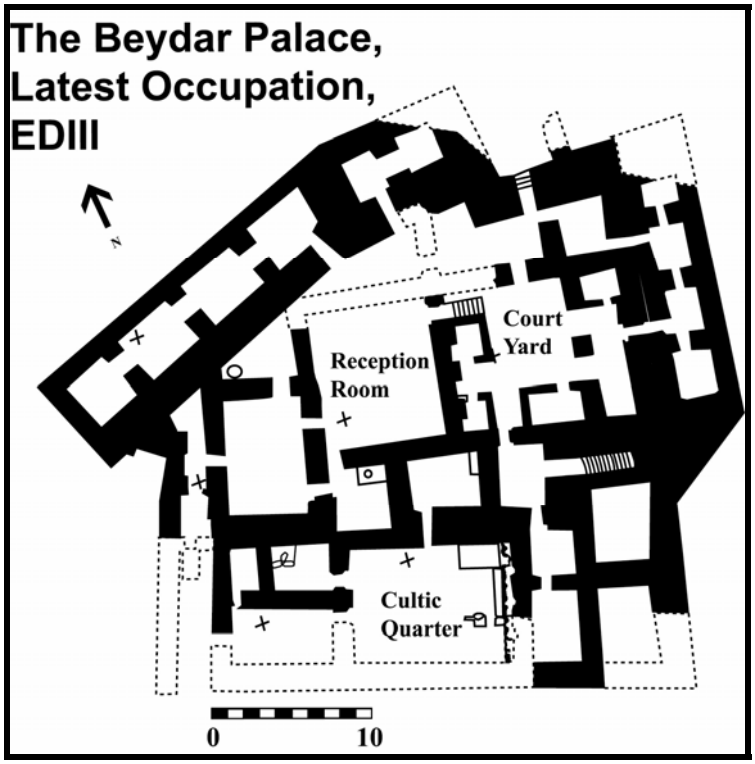
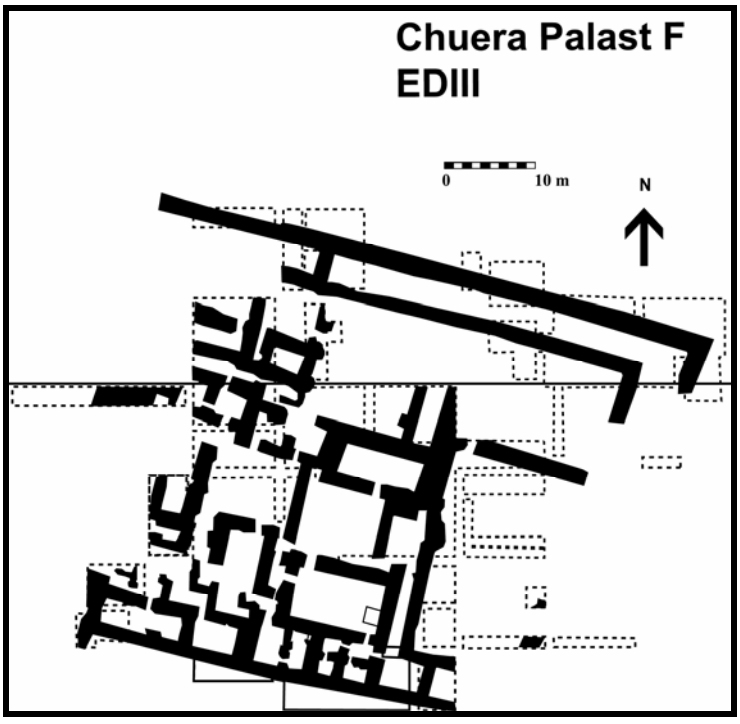


Fig. 3.10. A typical allotment house.

Fig. 3.11. Allotment house in the Leilan Lower Town South, Operation 5, period IIa.



a)



b)

Fig. 3.12. Public buildings: a) Beydar, b) Chuera
(after Bretschneider and Jans 1997: Plans 1-2).

Fig. 3.13. Leilan storage room in the Leilan Official Quarter, 44W13, Acropolis Northwest.

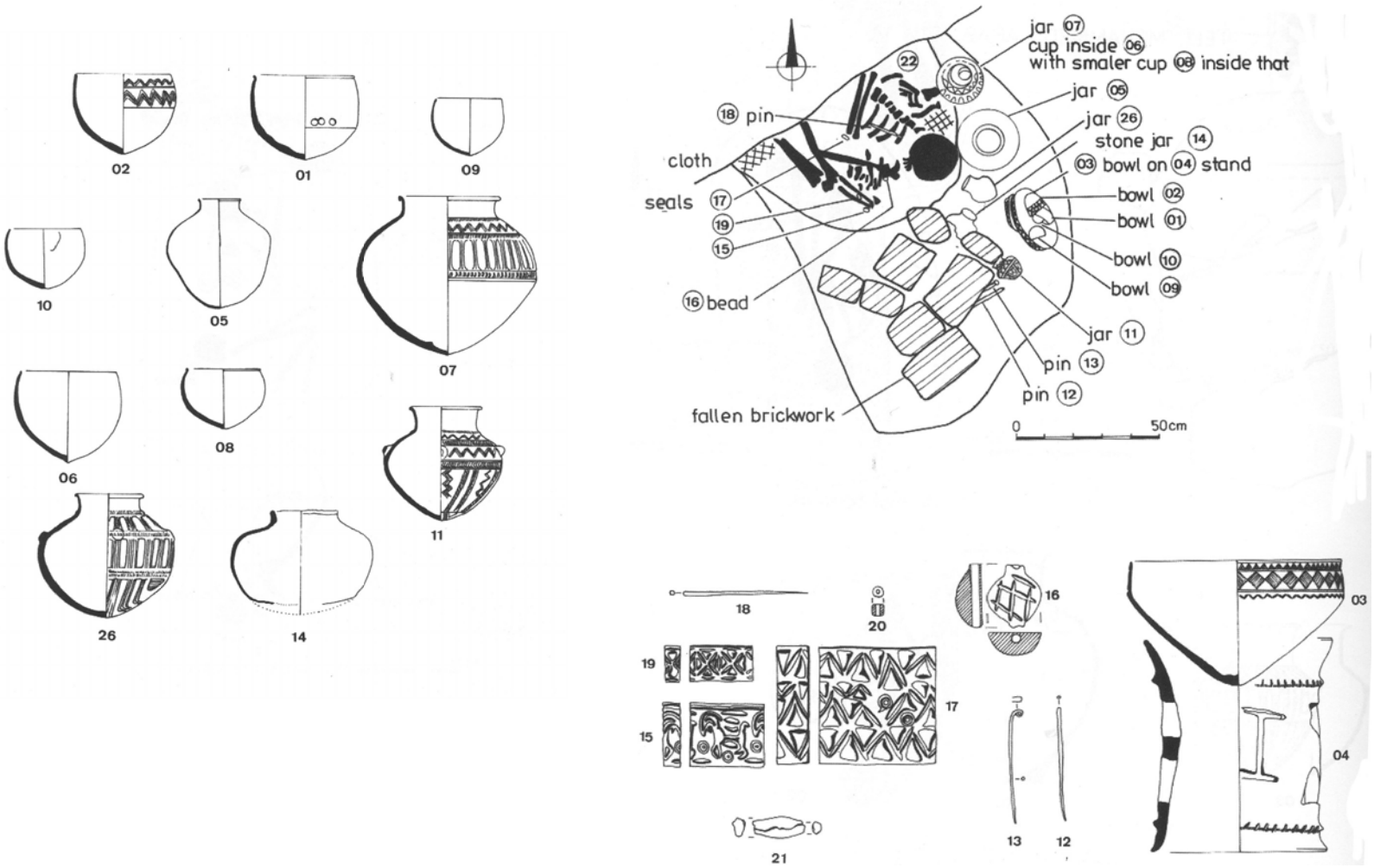


Fig. 3.14. a) High status Ninevite 5 burials: Mohammed Arab, grave 54V: 23 (after Bolt and Green 2003: fig.21).

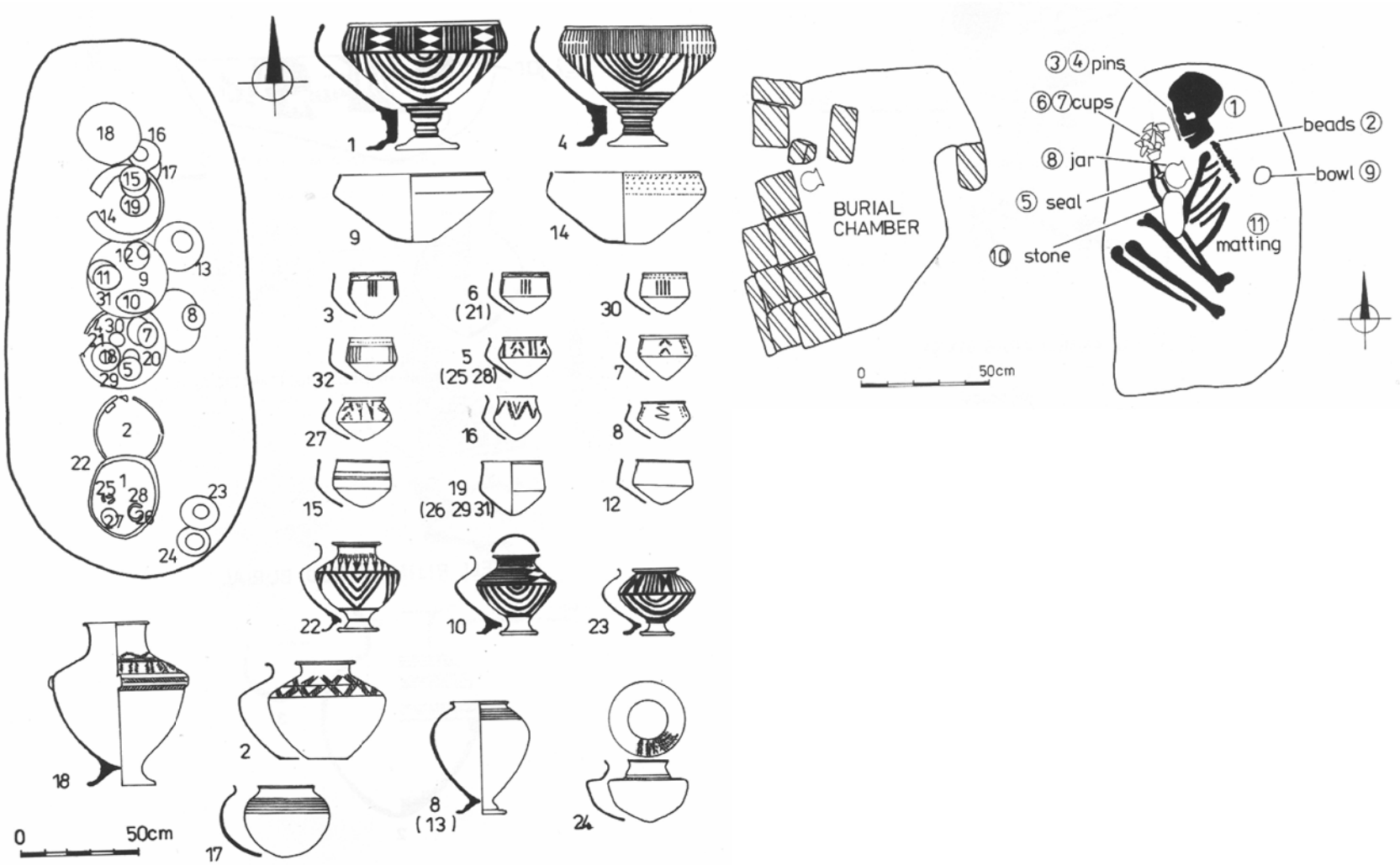


Fig. 3.14. b) High status Ninevite 5 burials: Leilan, Operation 1, Burial 1 (after Bolt and Green 2003: fig.21).

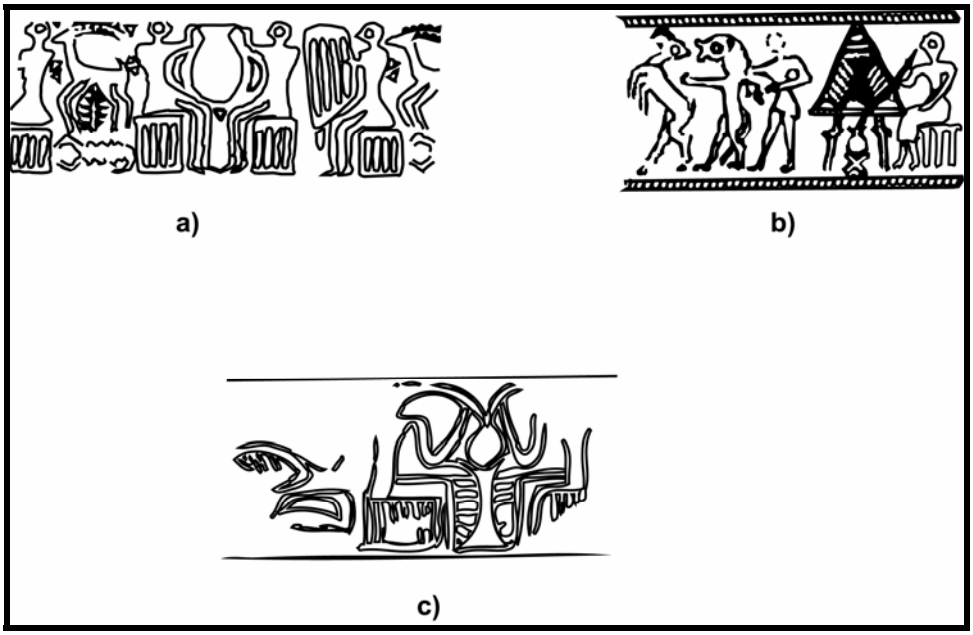


Fig. 3.15. Chuera style seals of banquet scenes from Chuera (a and b) and Leilan (c).
(a= Marchetti 1998: 16, tkh04; b= Marchetti 1998: 8, tkh46; c=Parayre 2003: plate 7, no. 1c).

Fig. 3.16. Brak style sealing from Beydar depicting a chariot in procession.
(Jans and Bretschneider 1998).

Fig. 3.17. The White Monument and the modern village of Banat (McClellan 1998: fig.1).

Fig. 3.18. Worshipper statue, sun god stele, and reconstructed storm god stele from Jebelet al-Beda (Oppenheim 1933: pl. 62-63)

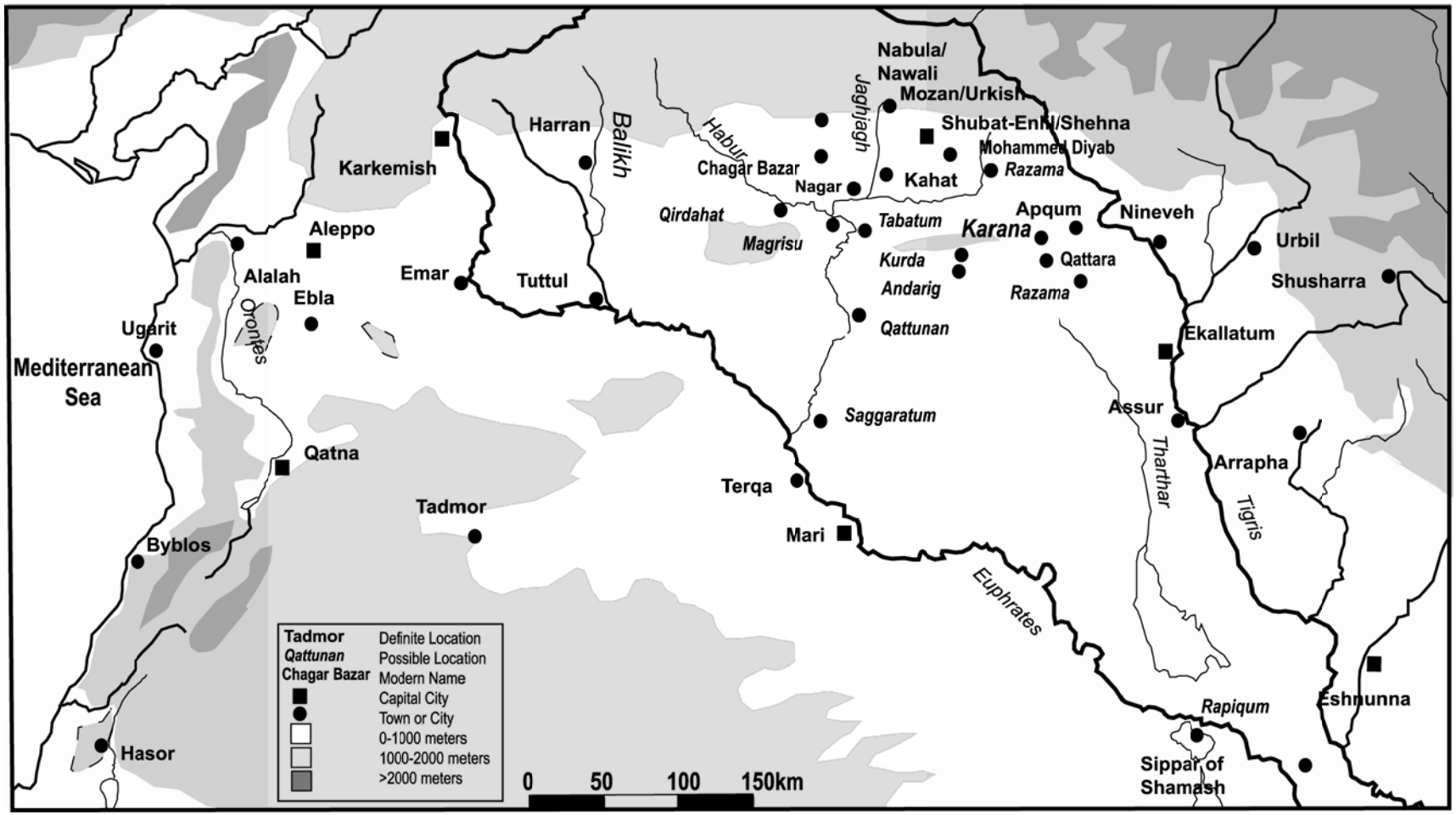


Fig. 4.1. Cities and towns in Northern Mesopotamia, 2200-1500 BC.

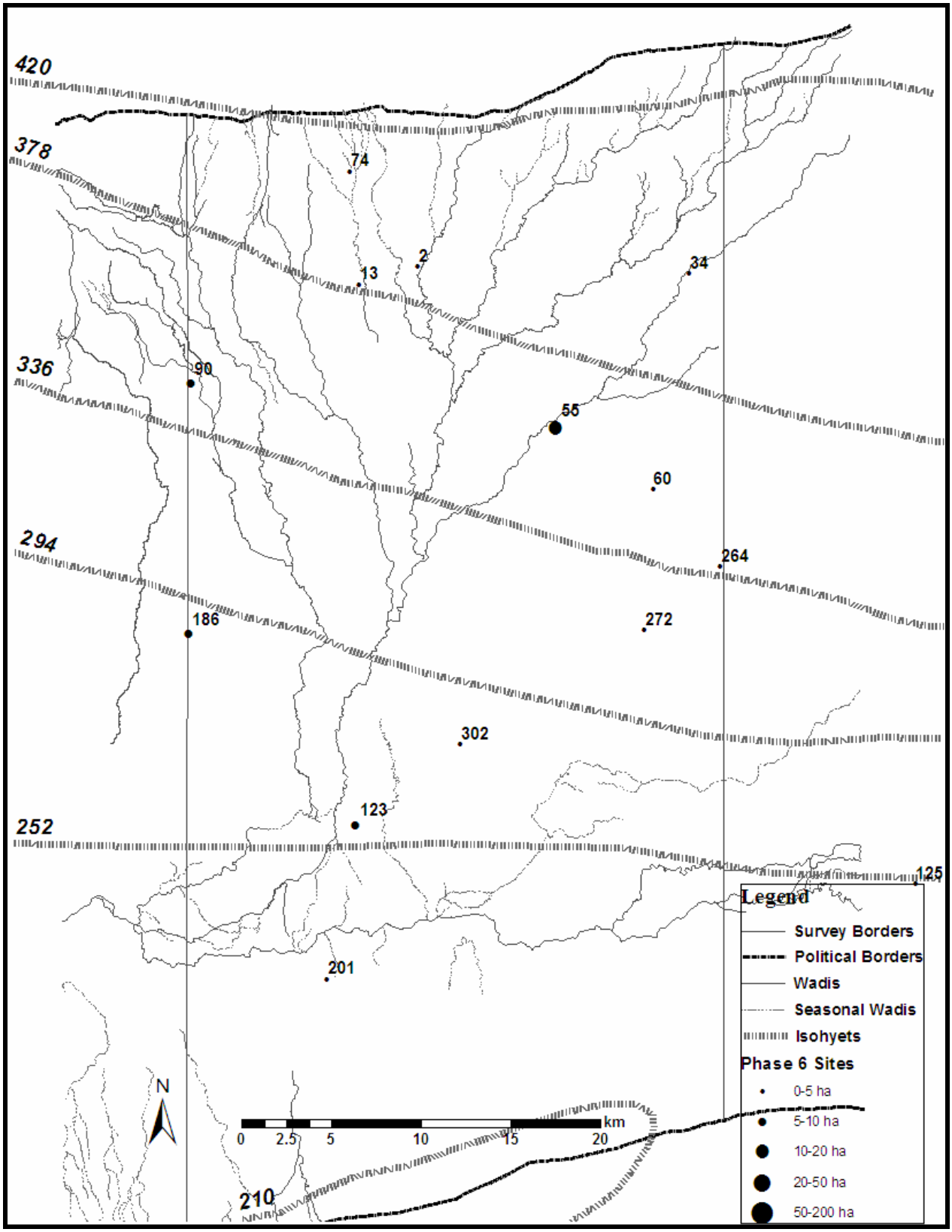


Fig. 4.2. LRS, phase 6 (ca. 2200-1900 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

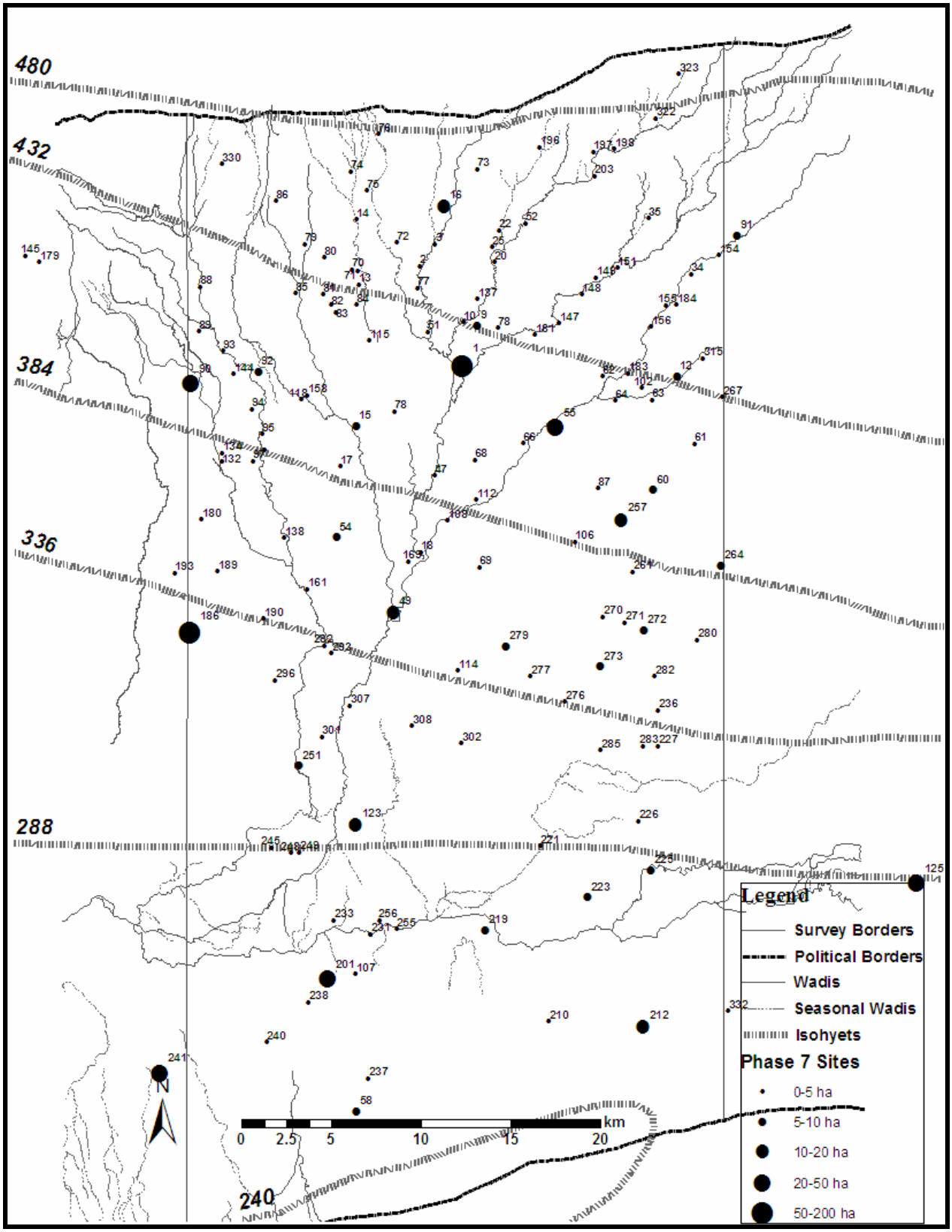


Fig. 4.3. LRS, phase 7 (ca. 1900-1700 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

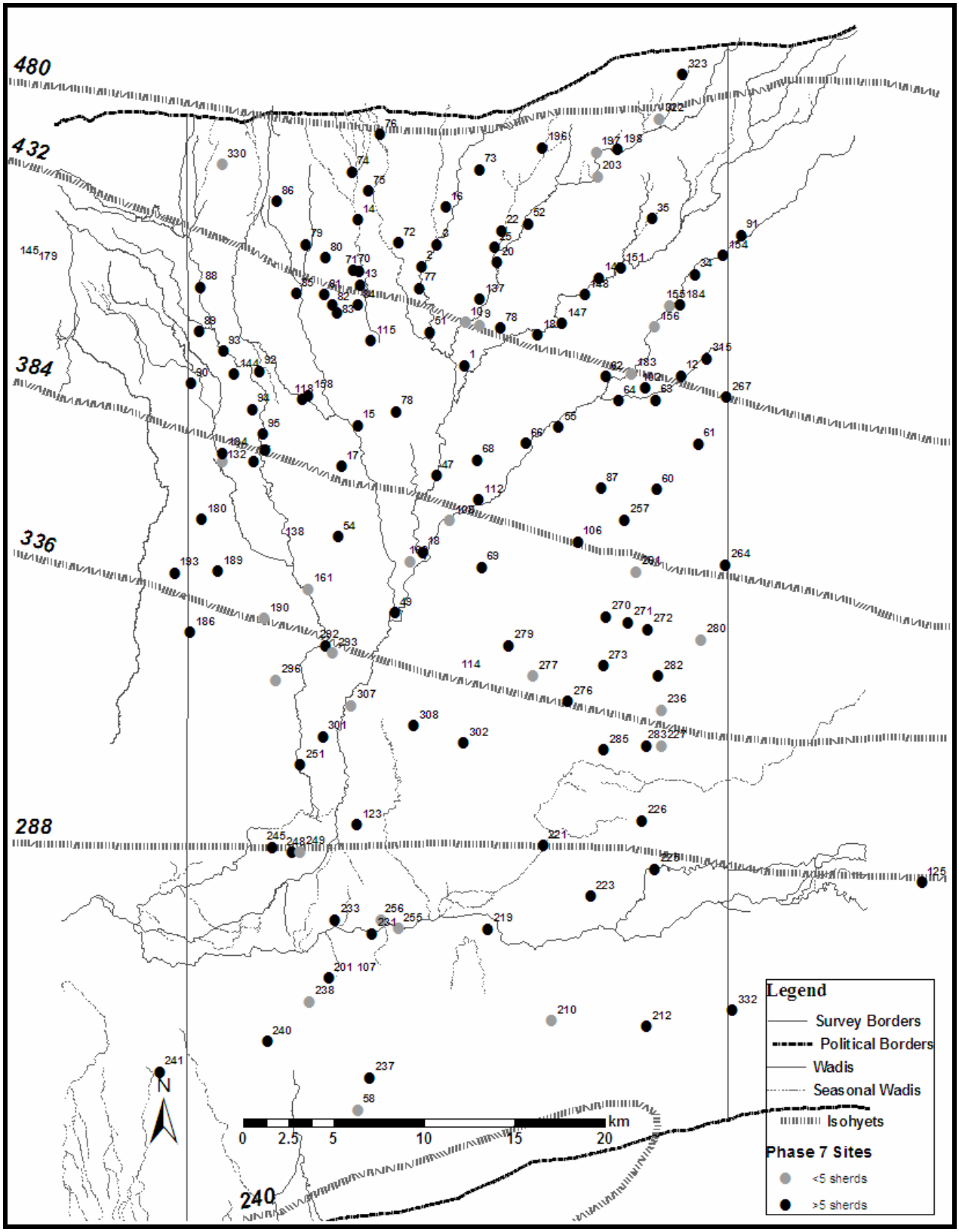


Fig. 4.4. LRS, phase 7, distribution of possible pastoral sites (with fewer than five sherds). Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

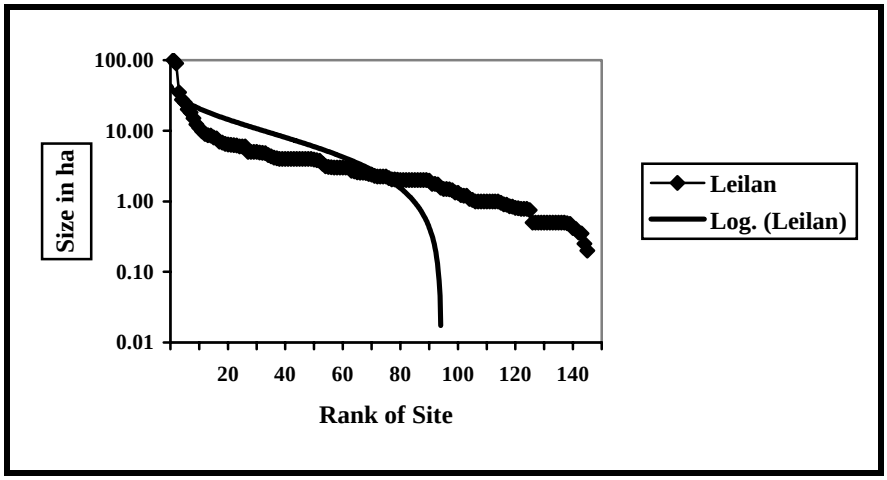


Fig. 4.5. Rank size curve of Phase 7 sites from LRS.

Fig. 4.6. The area surrounding Leilan, with phase 7 sites indicated.
CORONA DS1102-1025DF004 (11 December, 1967).

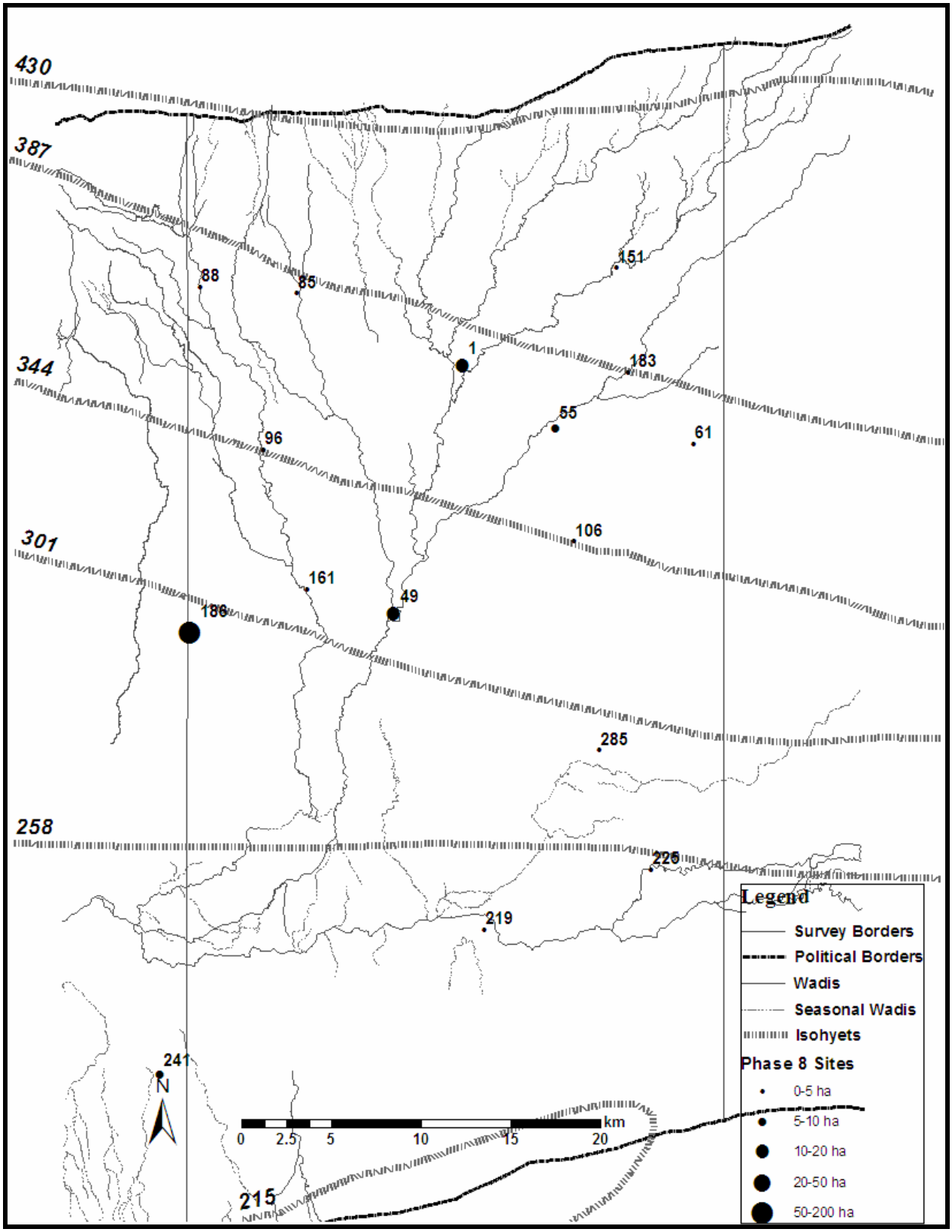


Fig. 4.7. LRS, phase 8 (ca. 1700-1500 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

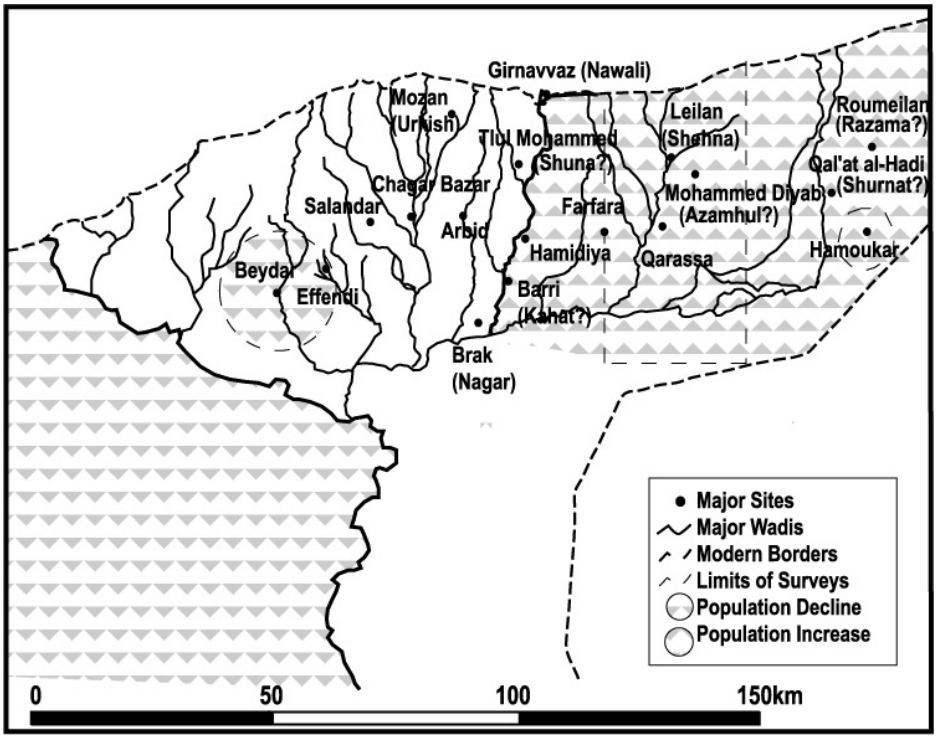


Fig. 4.8. Regions of population change in the Habur Plains, 1900-1700 BC.
(after Wilkinson 2002).

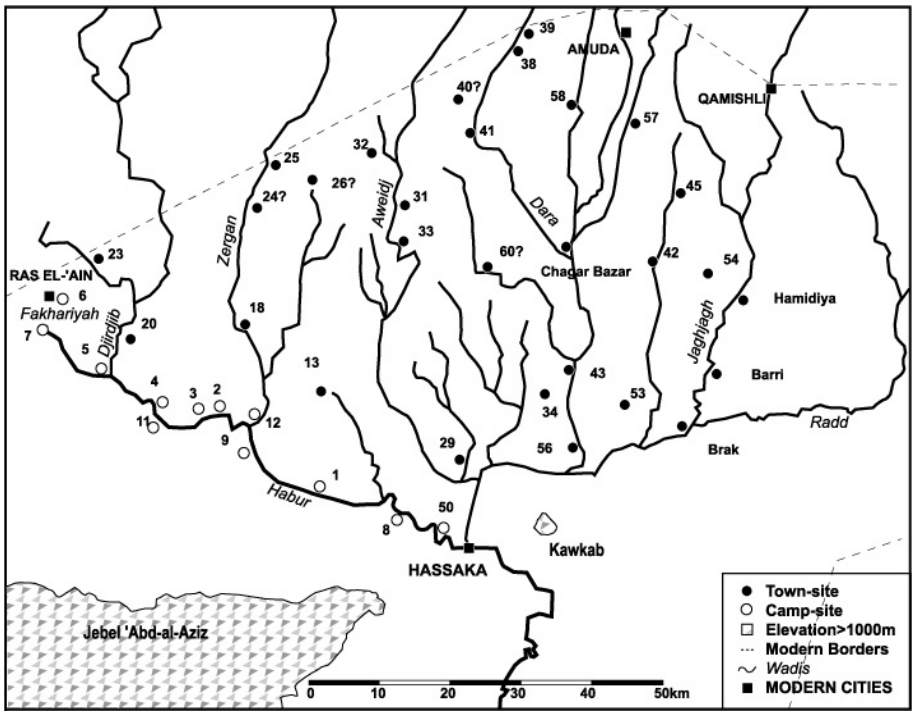


Fig. 4.9. Early second millennium settlements and possible nomadic camps in the West Habur.
(after Lyonnet 1996).

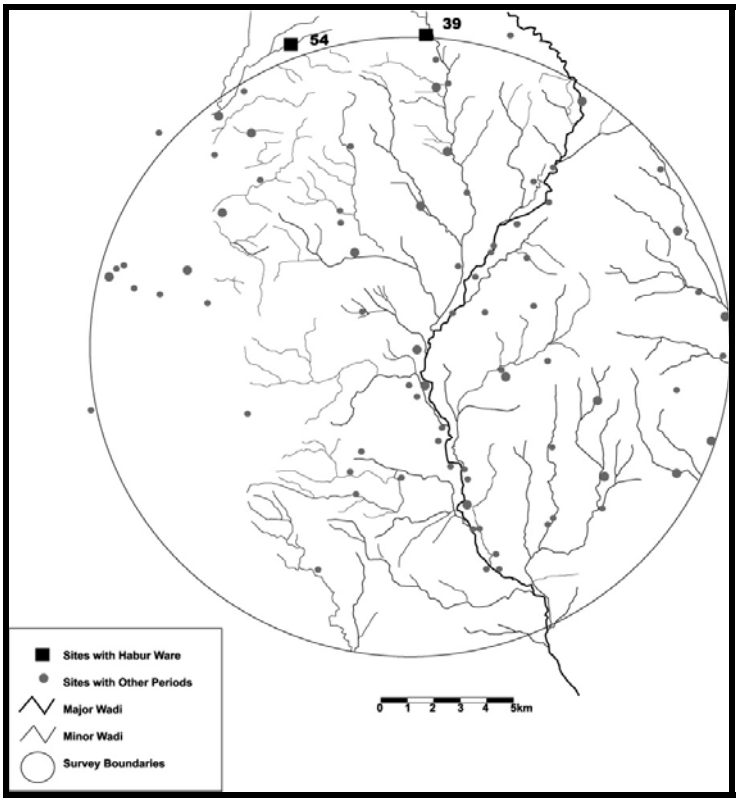


Fig. 4.10. Early second millennium settlements in the Beydar survey. (Phases 7-8, after Wilkinson 2002).

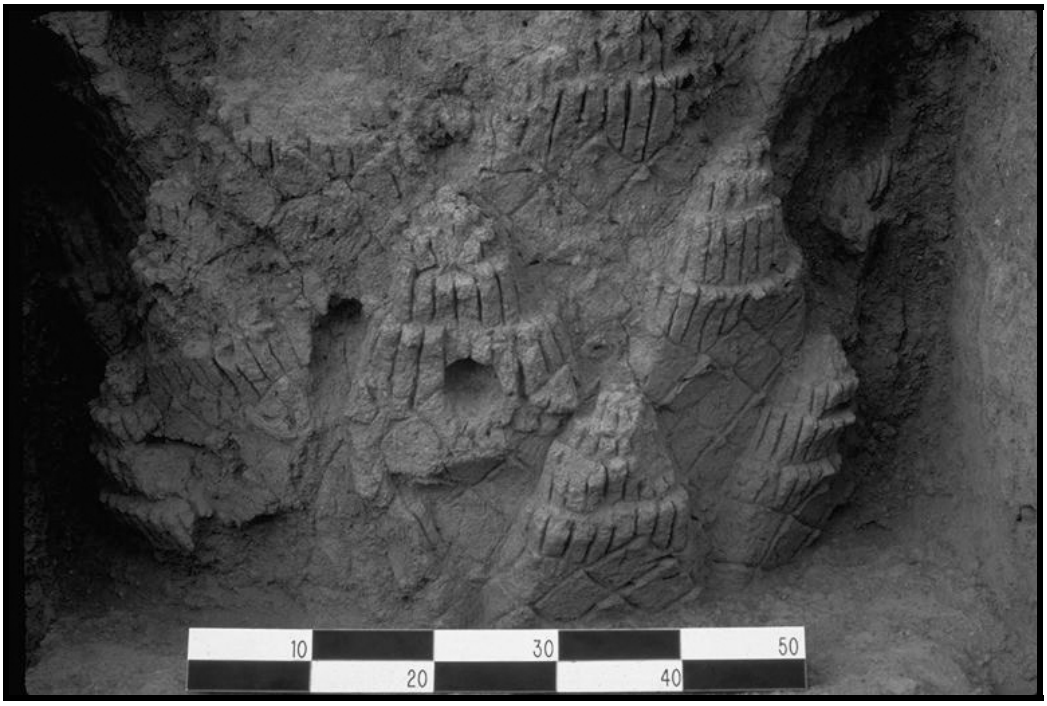


Fig. 4.11. Palm-trunk columns from the Leilan Acropolis Temple.

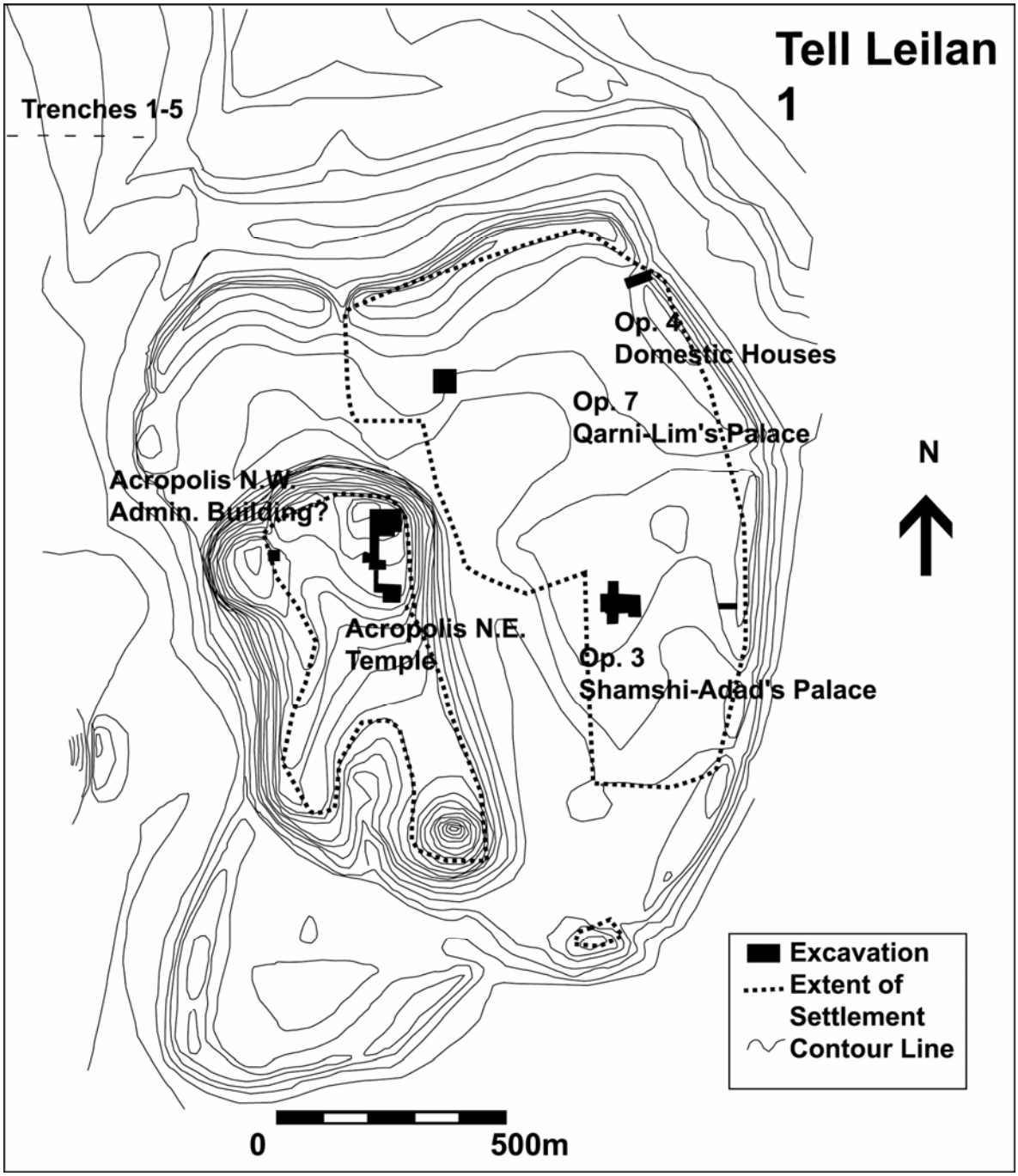


Fig. 4.12. Excavations and probable extent of settlement at Leilan during phase 7.

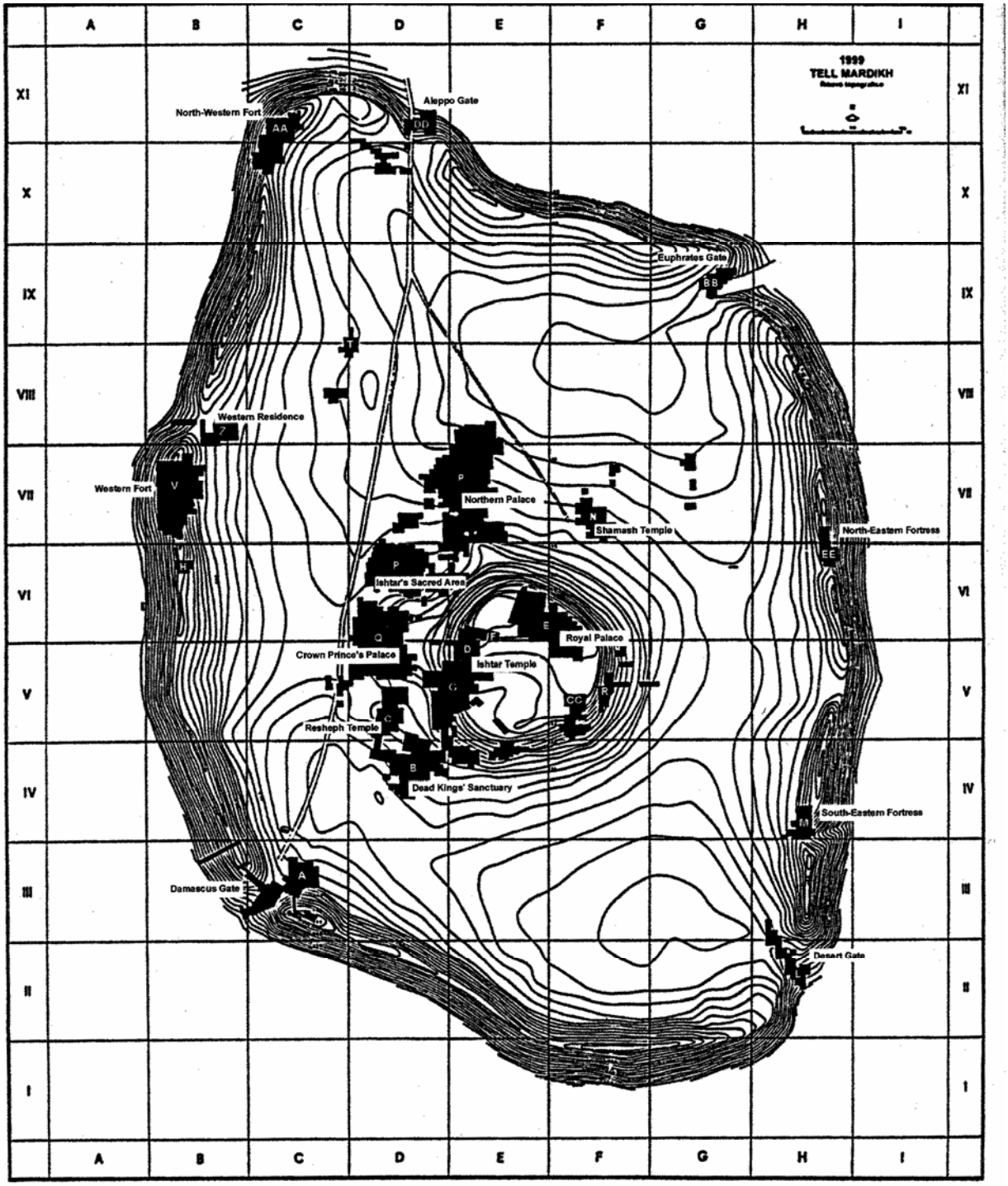
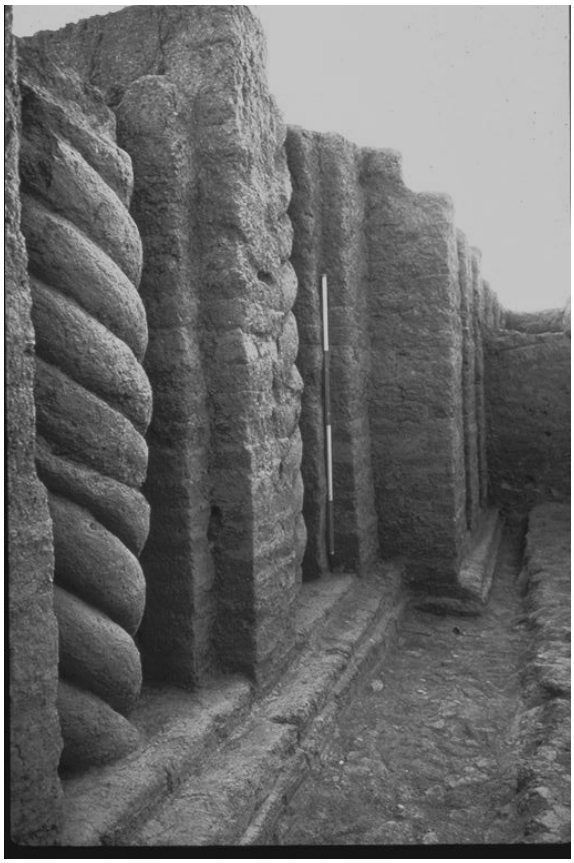
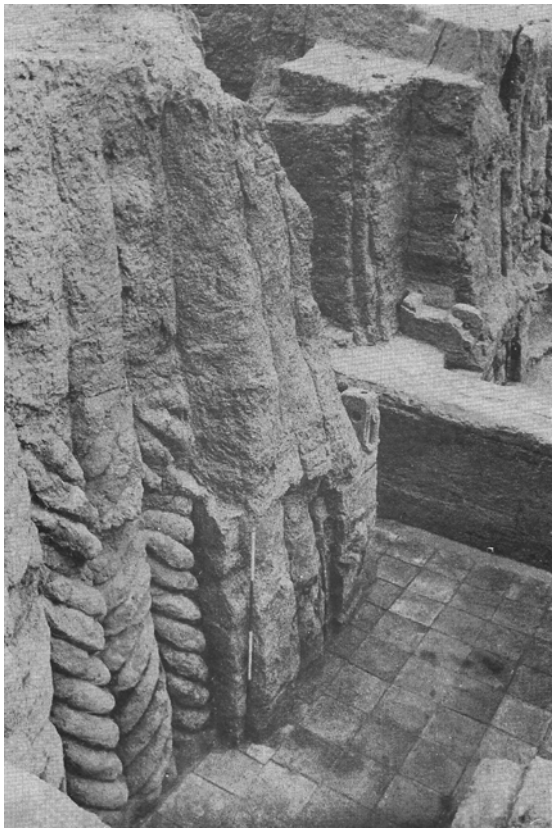


Fig. 4.13. Map of Ebla indicating phase 7 and 8 excavations.
(After Pinnock 2001: fig. 1).

Fig. 4.14. Chagar Bazar, Area G from North. Domestic housing.
(McMahon et al., 2001: Fig. 10)



a)



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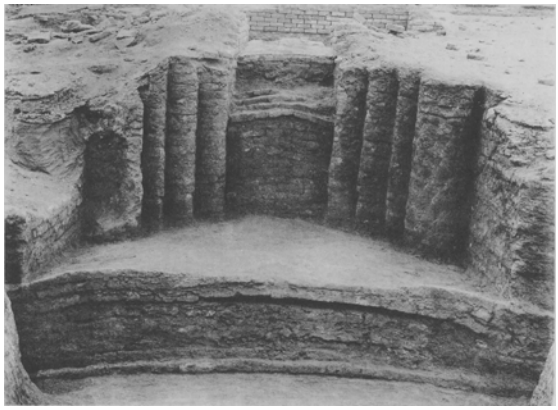


c)

d)

Fig. 4.15. The column-ornamented temple façade of a) the Leilan Acropolis Temple, b) the Rimah temple (Postgate 1997); c) the Ur Temple (Woolley 1939); d) the Larsa temple (Huot 1976)

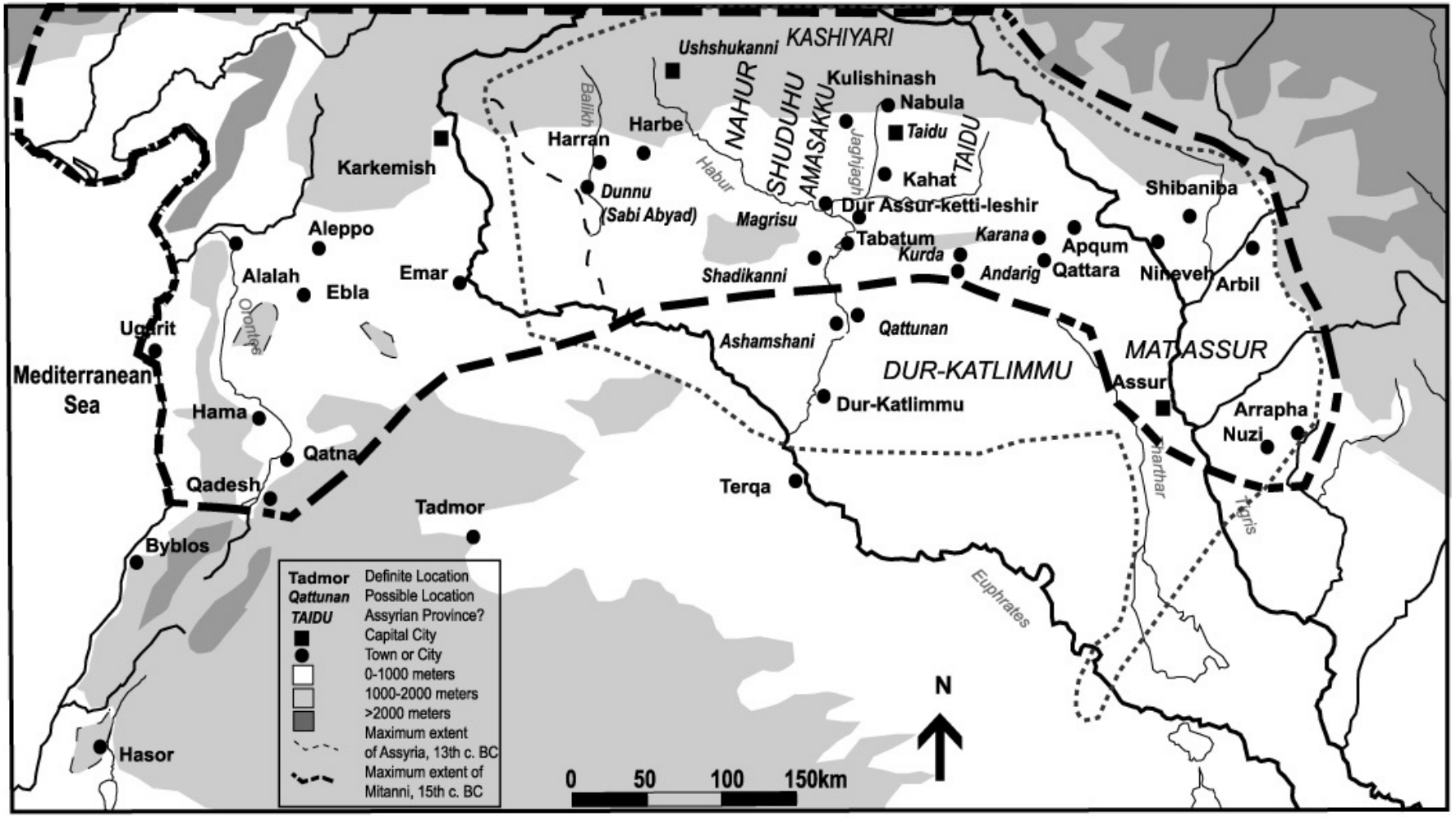


Fig. 5.1. Northern Mesopotamia, 1500-1000 BC, with the maximum area of Mitanni and Assyria indicated.

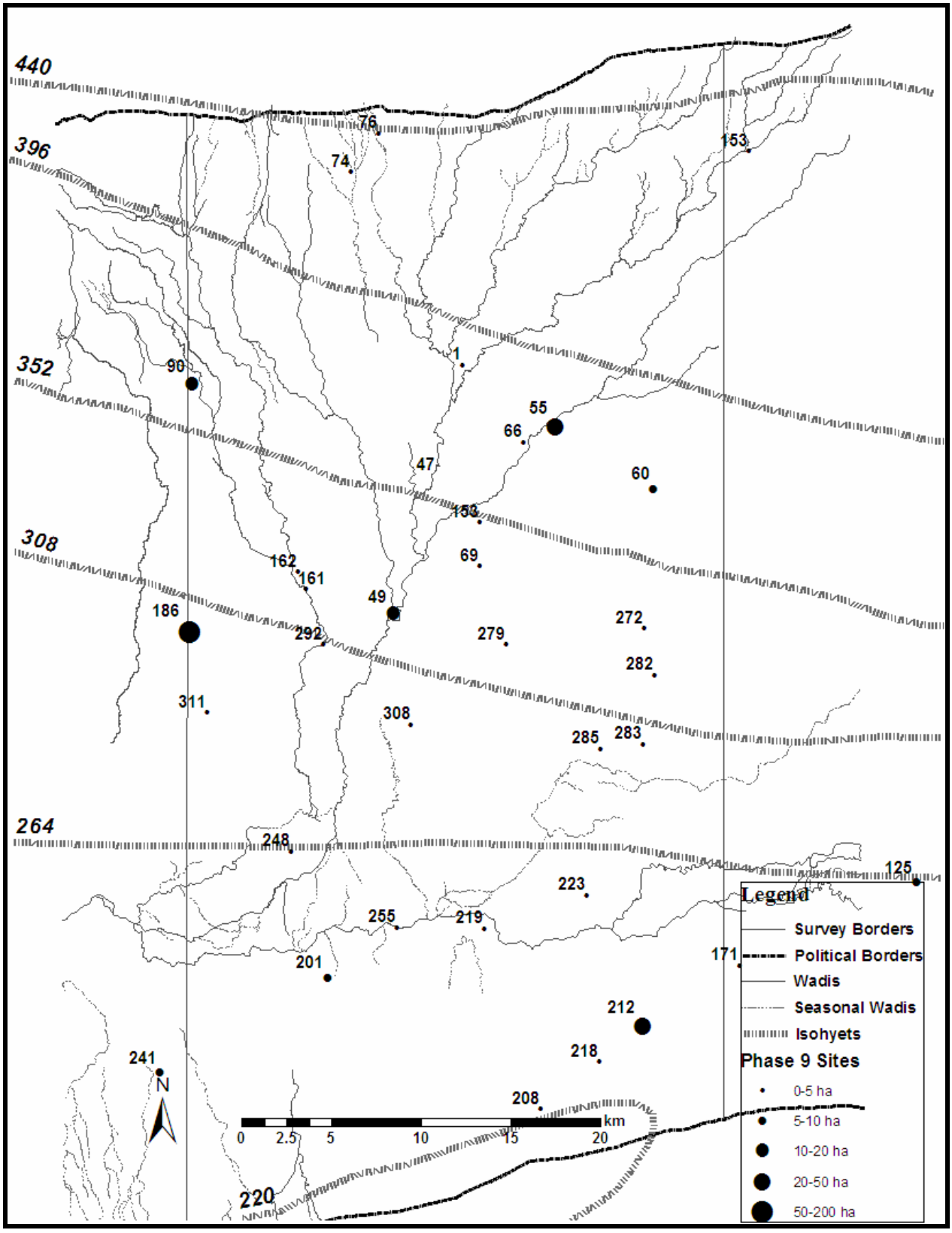


Fig. 5.2. LRS, phase 9 (1500-1300 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

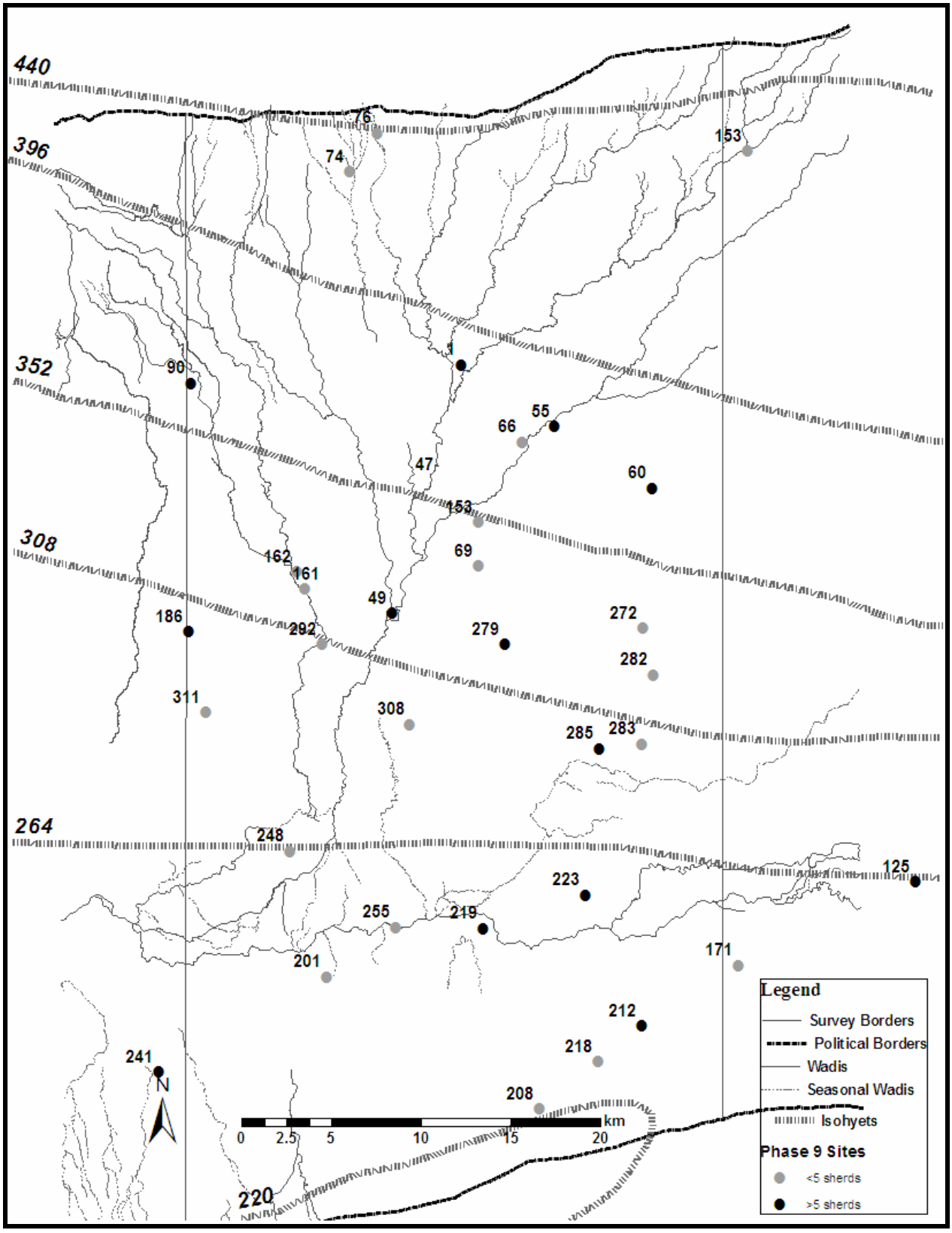


Fig. 5.3. LRS, phase 9. Major (>5 sherds) and minor (<5 sherds) occupations. Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

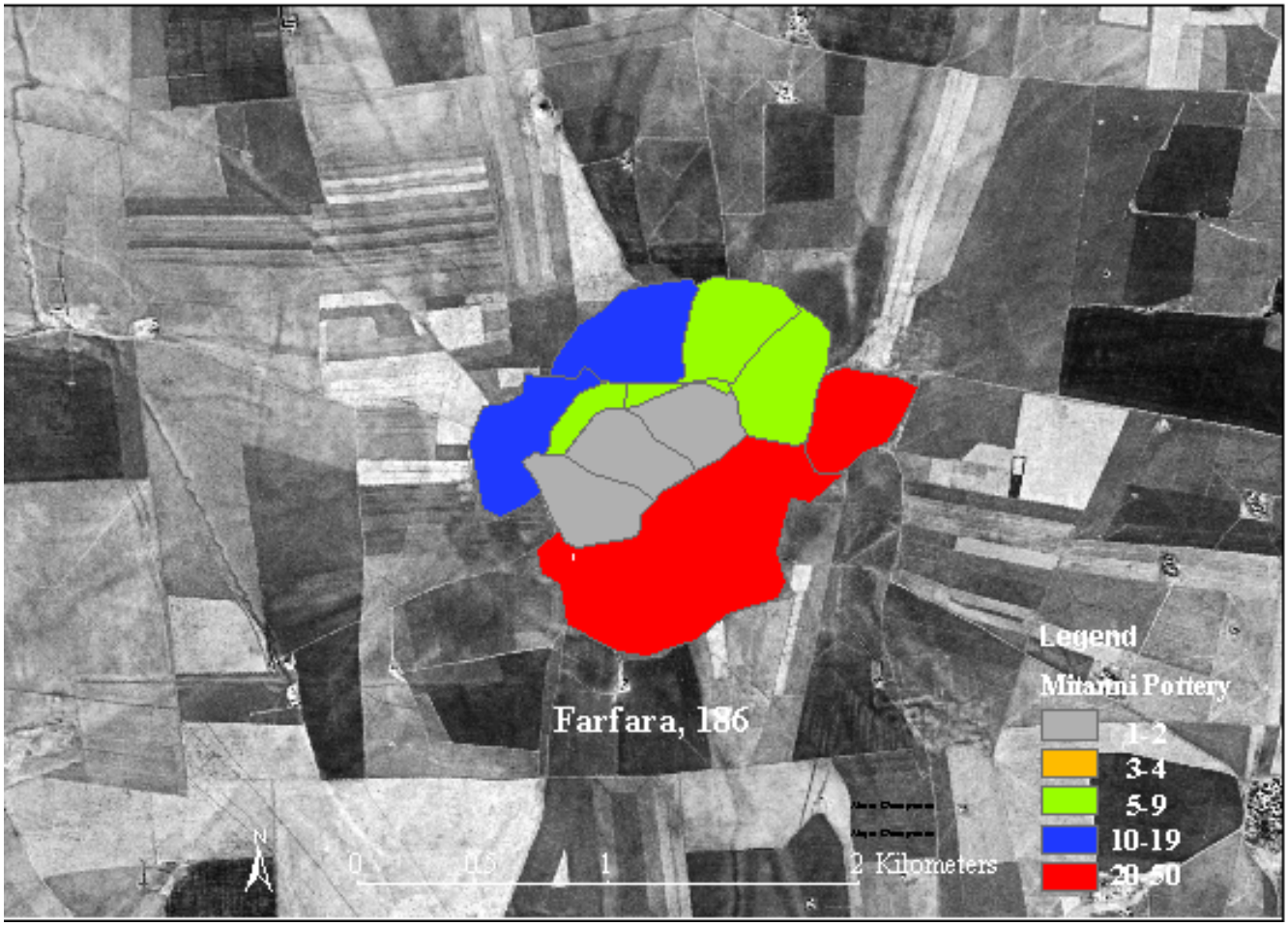


Fig. 5.4. Farfara (186), phase 9 occupation.
CORONA DS1108-1025DA005, (6 December, 1969).

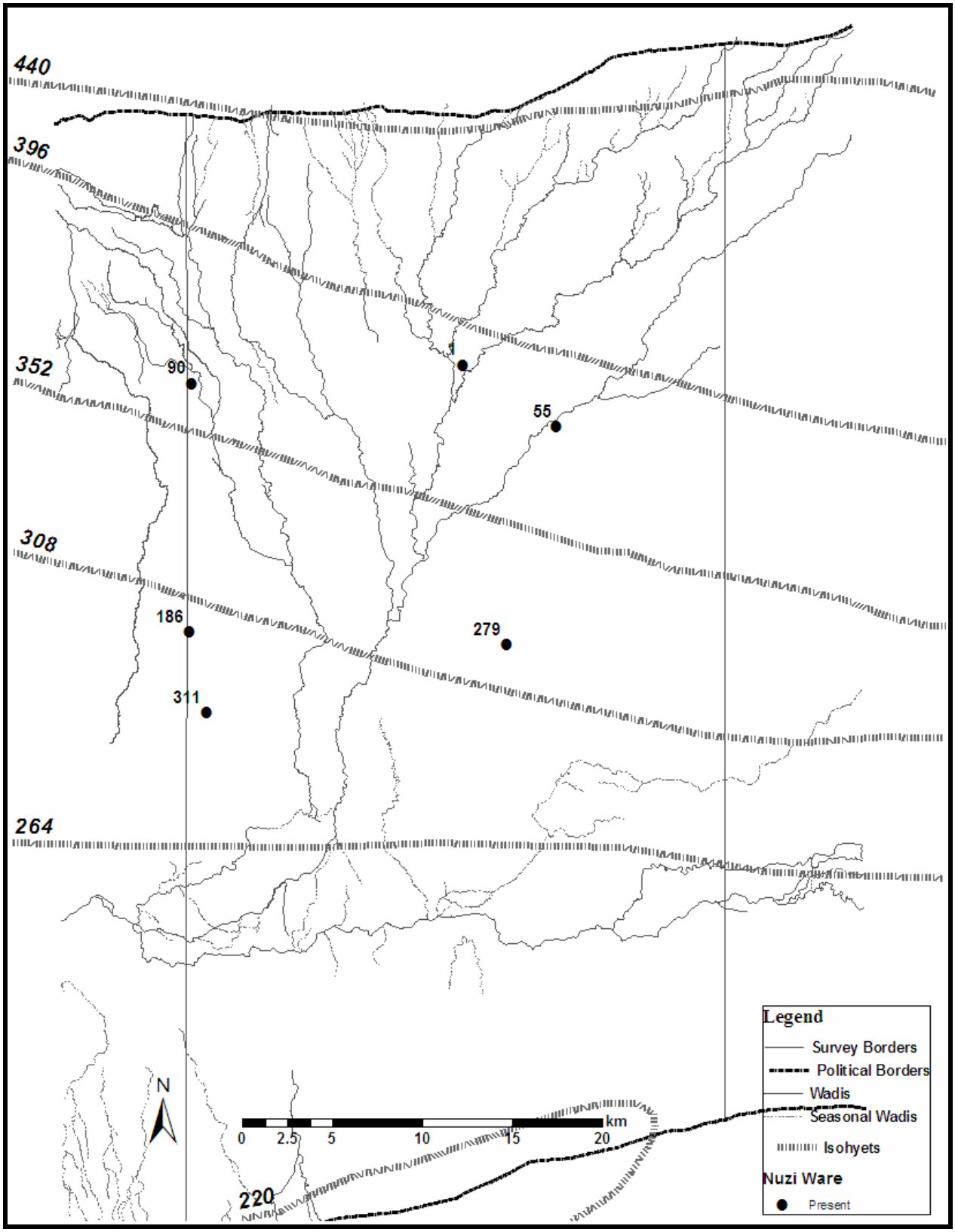


Fig. 5.5. LRS, phase 9, distribution of Nuzi ware.
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

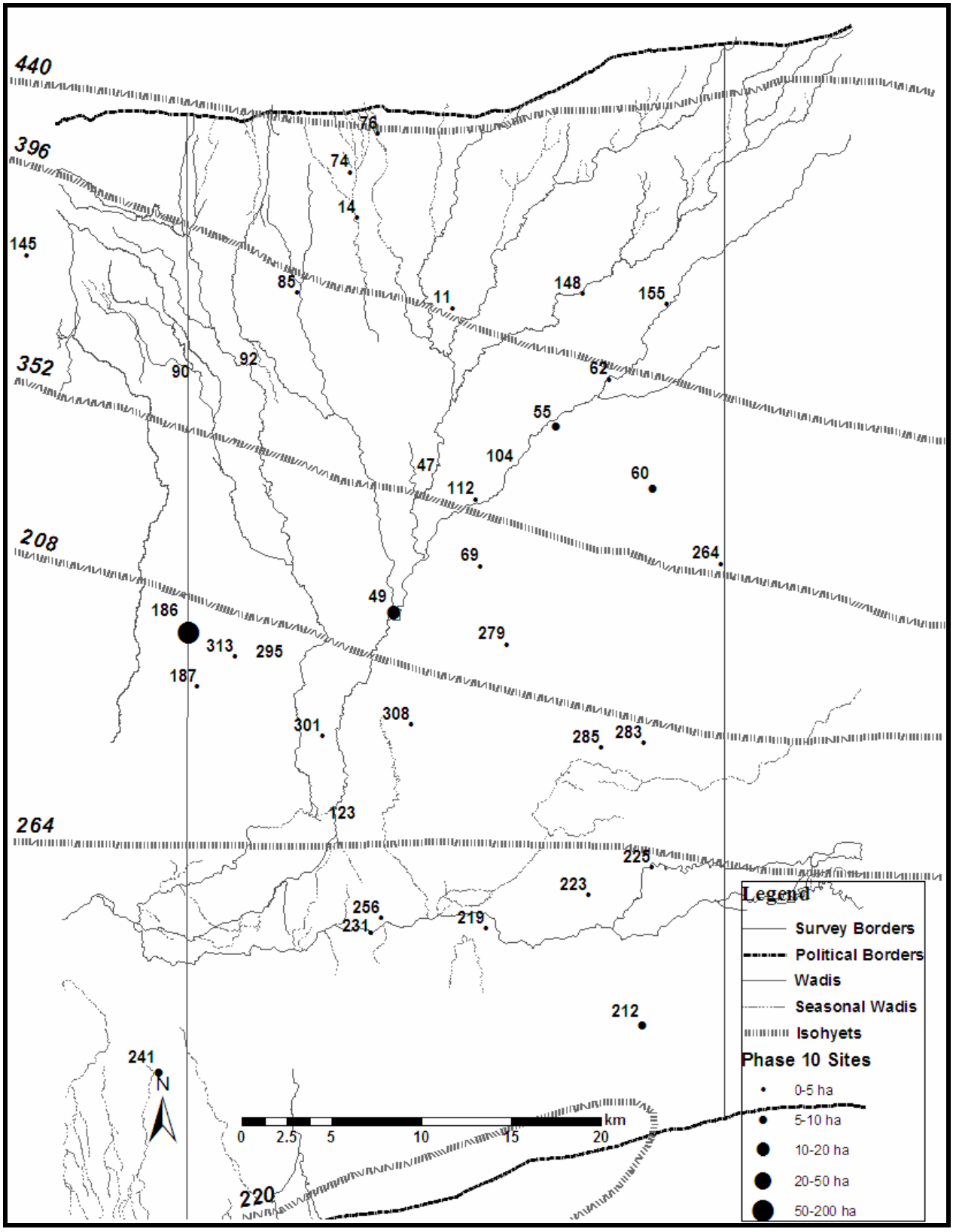


Fig. 5.6. LRS, phase 10, (1300-1000 BC).
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

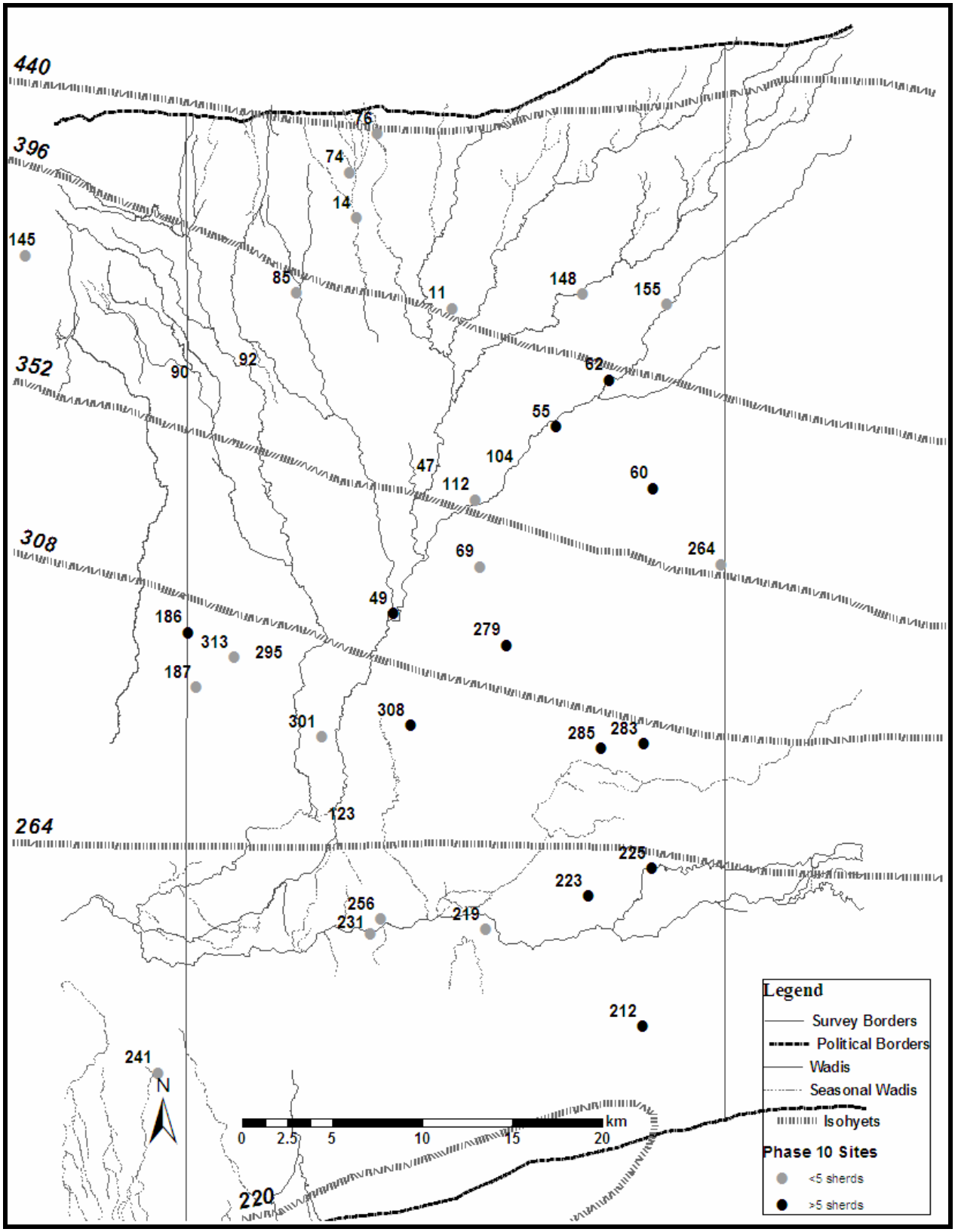


Fig. 5.7. LRS, phase 10, major (>5 sherds) and minor (<5 sherds) occupations. Isohyets calculated from centennial precipitation averages from Soreq cave and (Bar-Matthews et al. 1998).

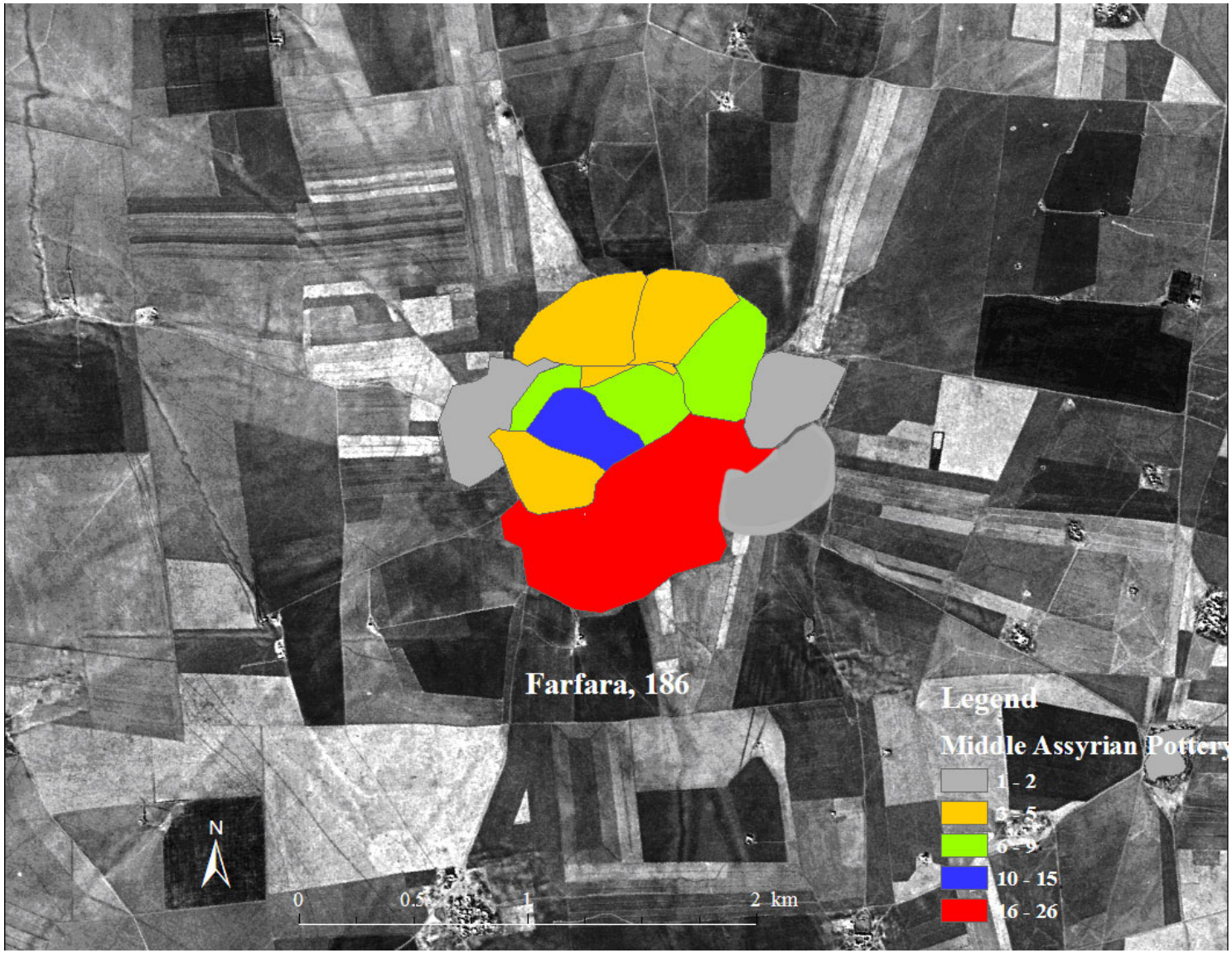


Fig. 5.8. Farfara (186), phase 10 occupation.
CORONA DS1108-1025DA005, (6 December, 1969).

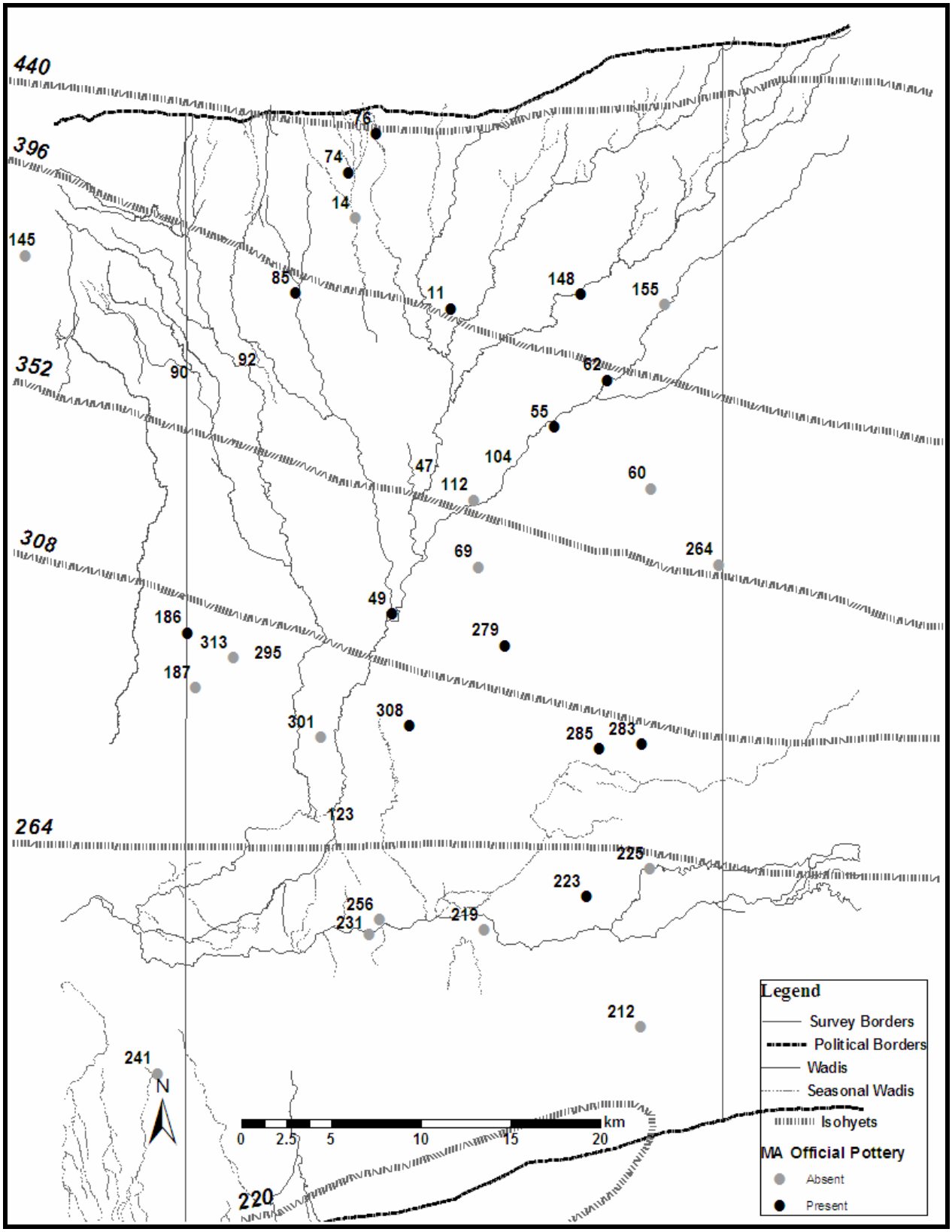


Fig. 5.9. LRS, phase 10, distribution of official Middle Assyrian pottery.
Isohyets calculated from centennial precipitation averages from Soreq cave (Bar-Matthews et al. 1998).

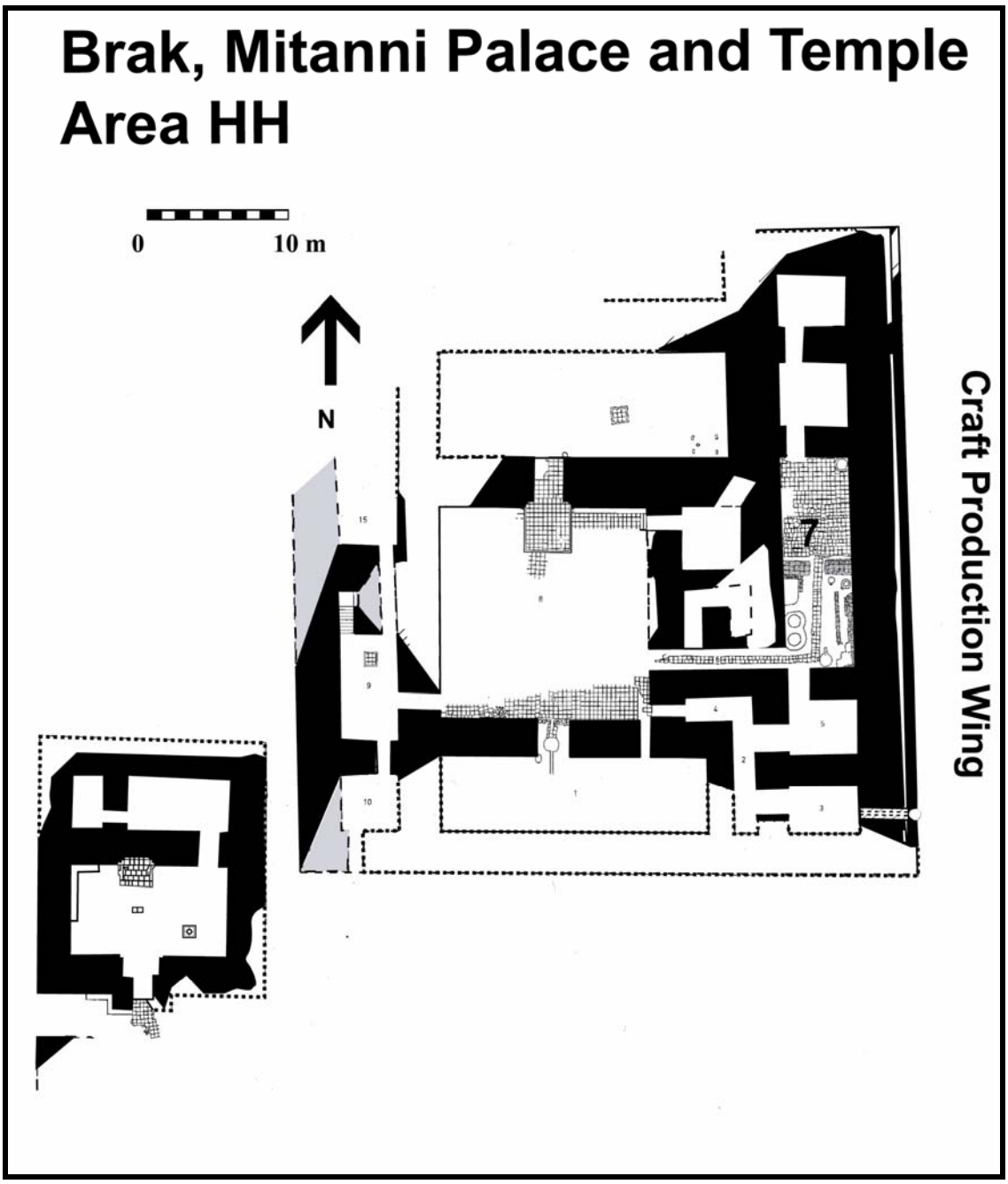


Fig. 5.10. Mitanni Palace at Brak, craft production wing to east.
(after Oates et al. 1997: fig. 12).

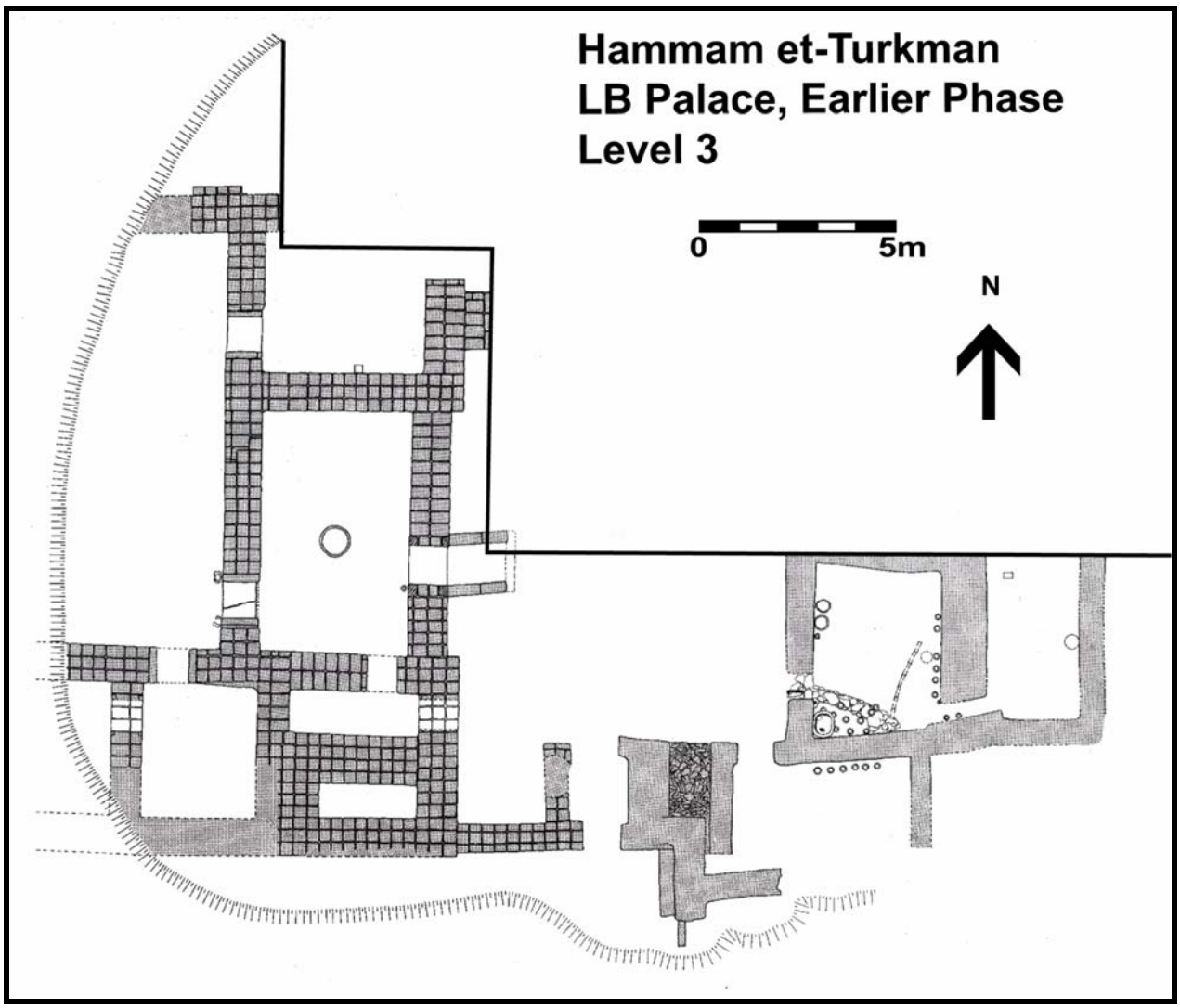


Fig. 5.11. Phase VIII:1b palace at Hammam et-Turkman.
Craft production area to the east (after Van Loon 1988: plate 43).

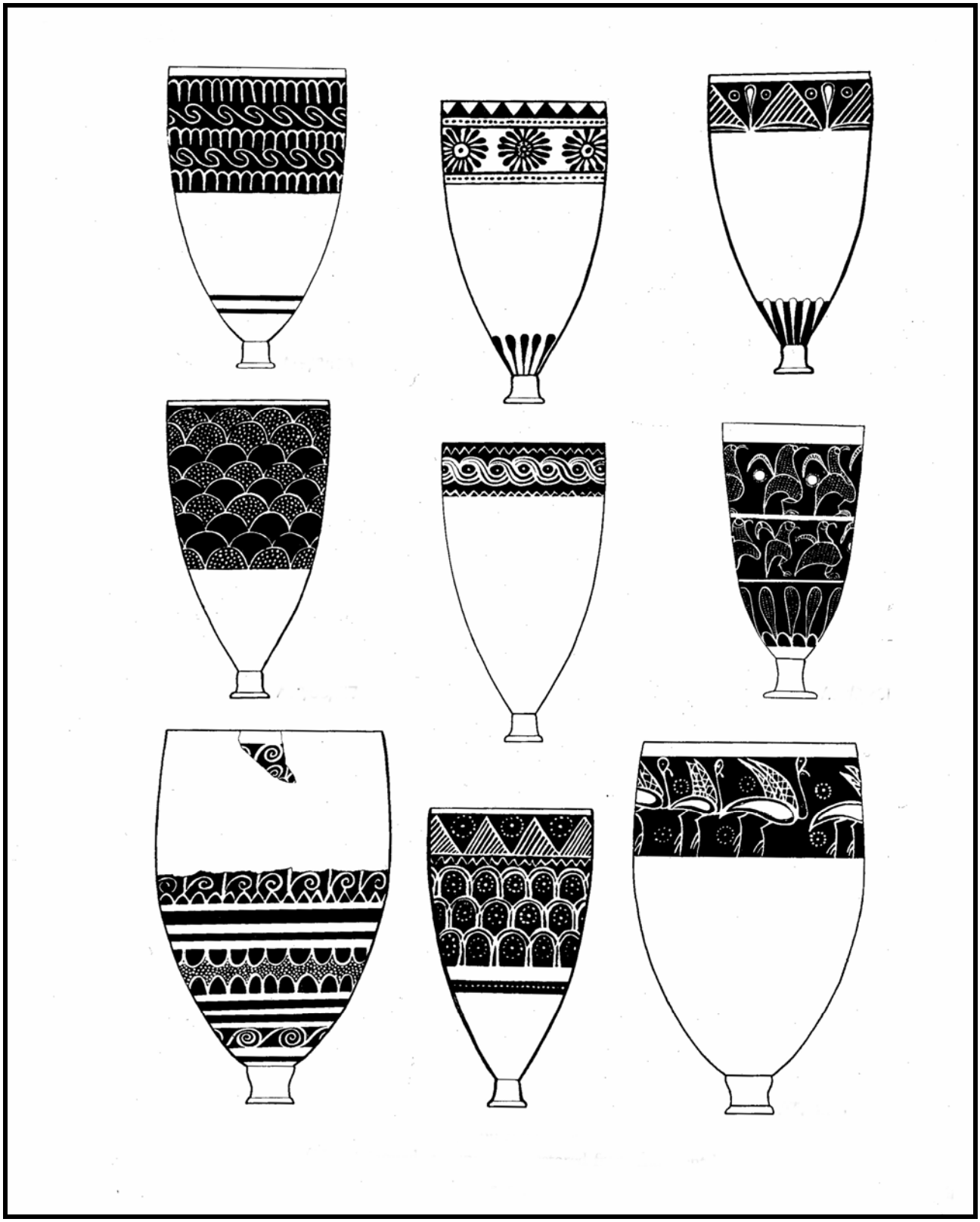


Fig. 5.12. Nuzi ware motifs at Alalakh.
(after Woolley 1955: plate CIV).

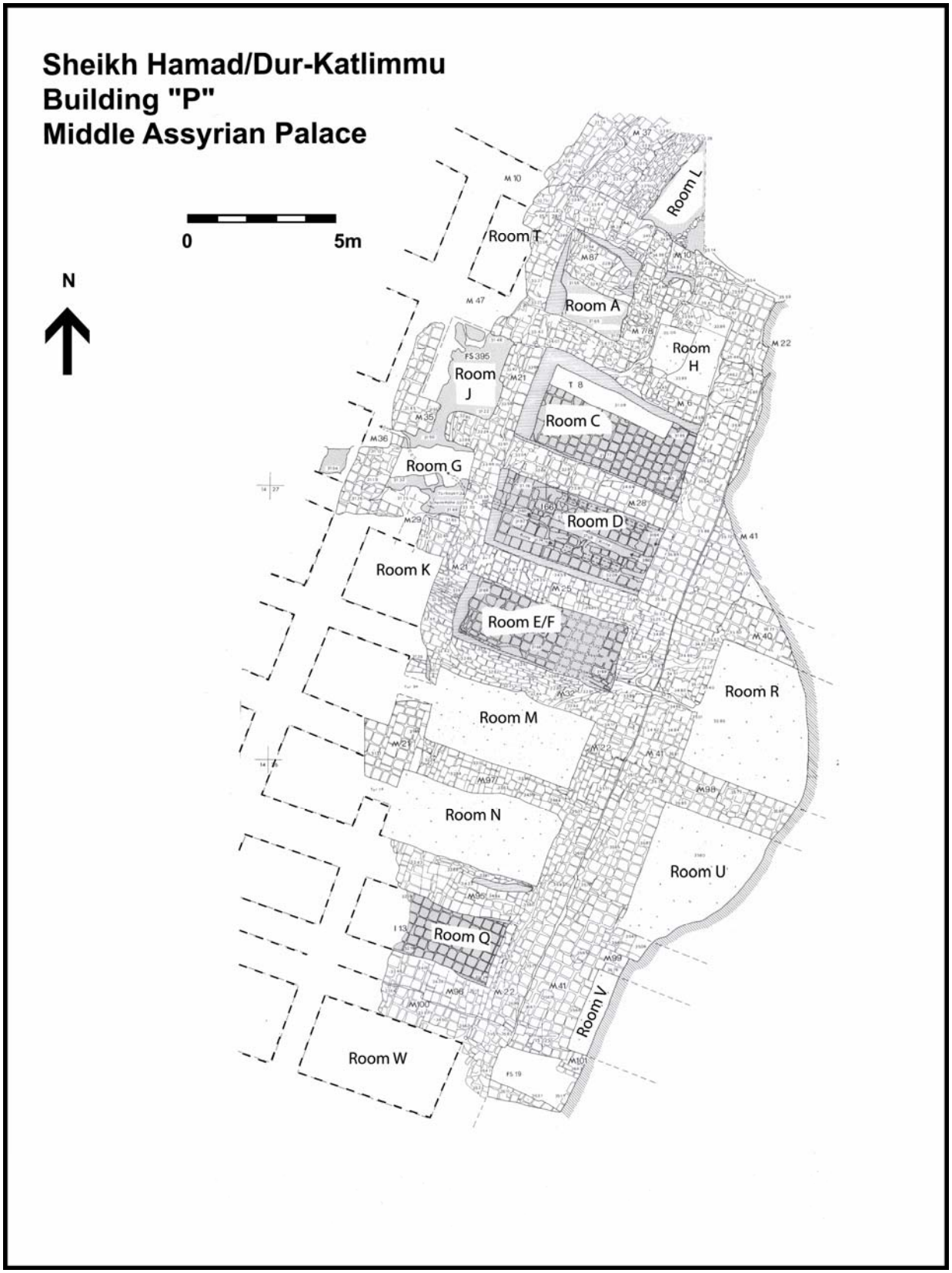


Fig. 5.13. Building P at Dur-Katlimmu (after Pfälzner 1995: Abb. 81B).

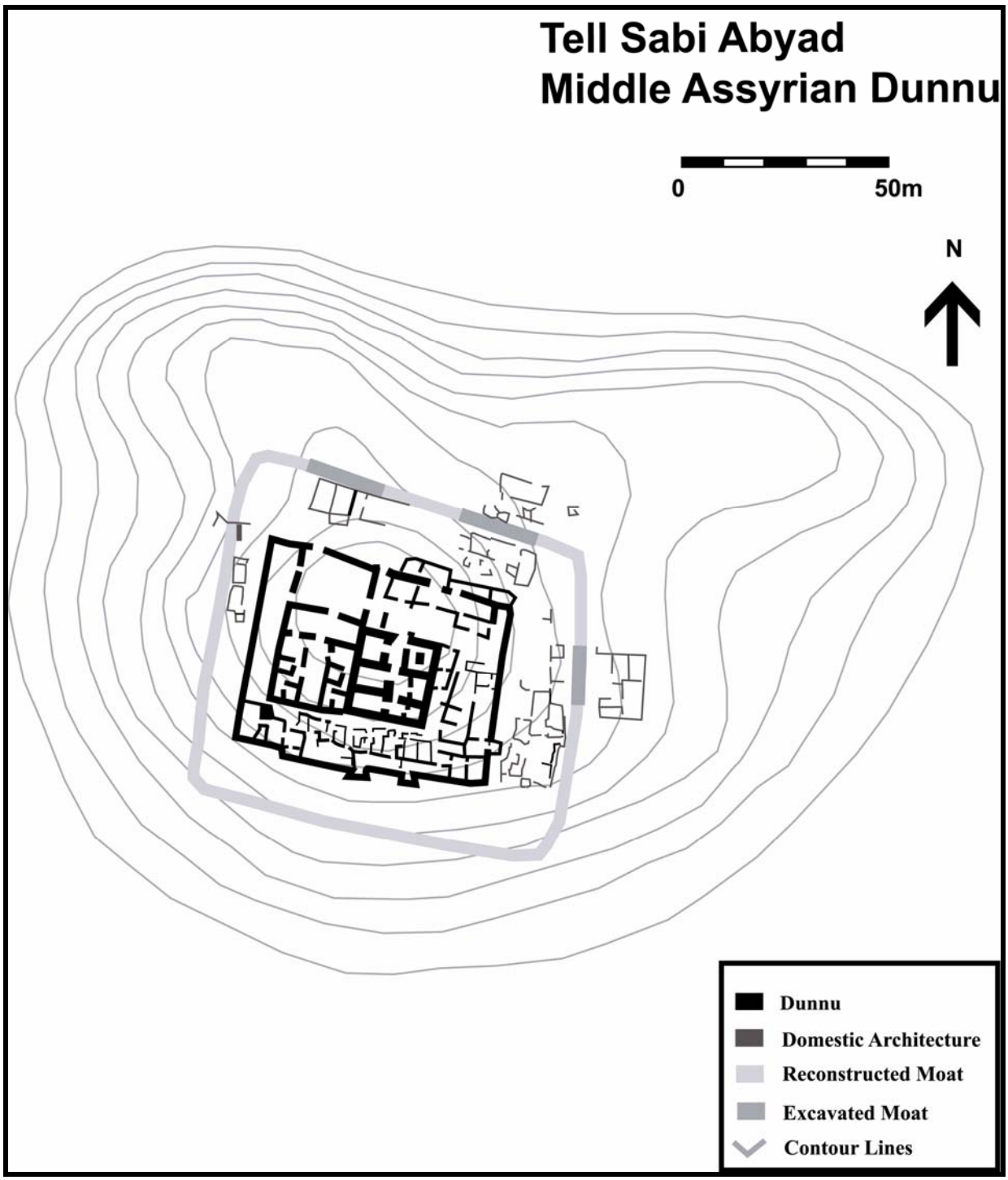


Fig. 5.14. Topographical map of Sabi Abyad with excavated Middle Assyrian architecture. (after Akkermans 2004, available on www.sabi-abyad.nl).

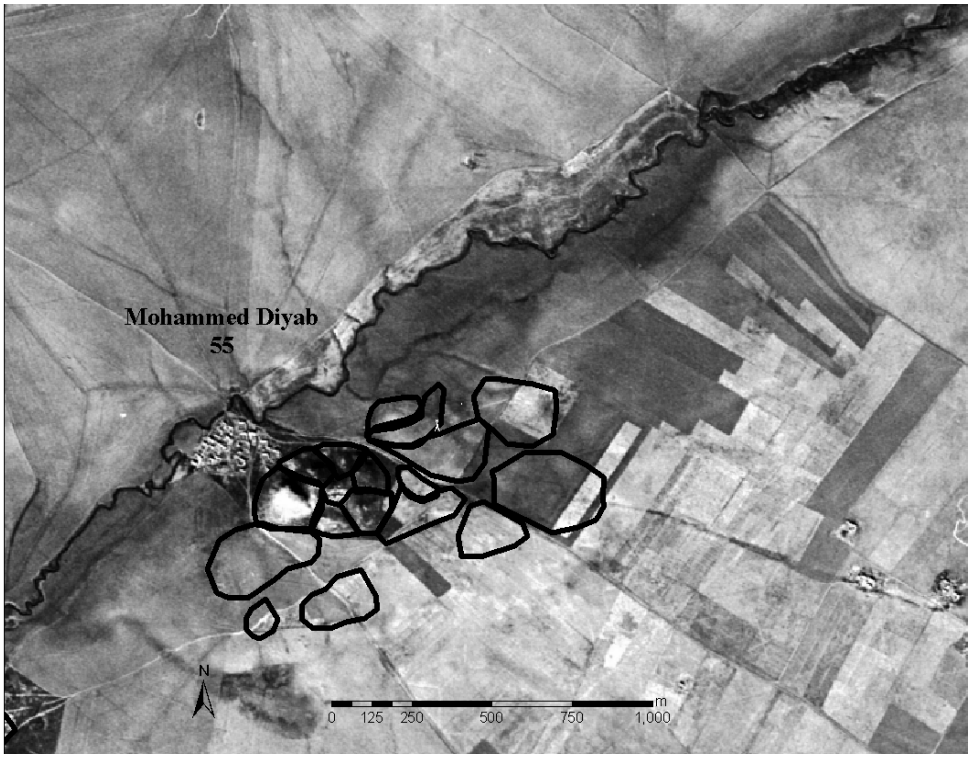


Fig. 6.1. Mohammed Diyab (55) with survey collections units.
CORONA DS1108-1025Da004 (6 December, 1969 and henceforth).

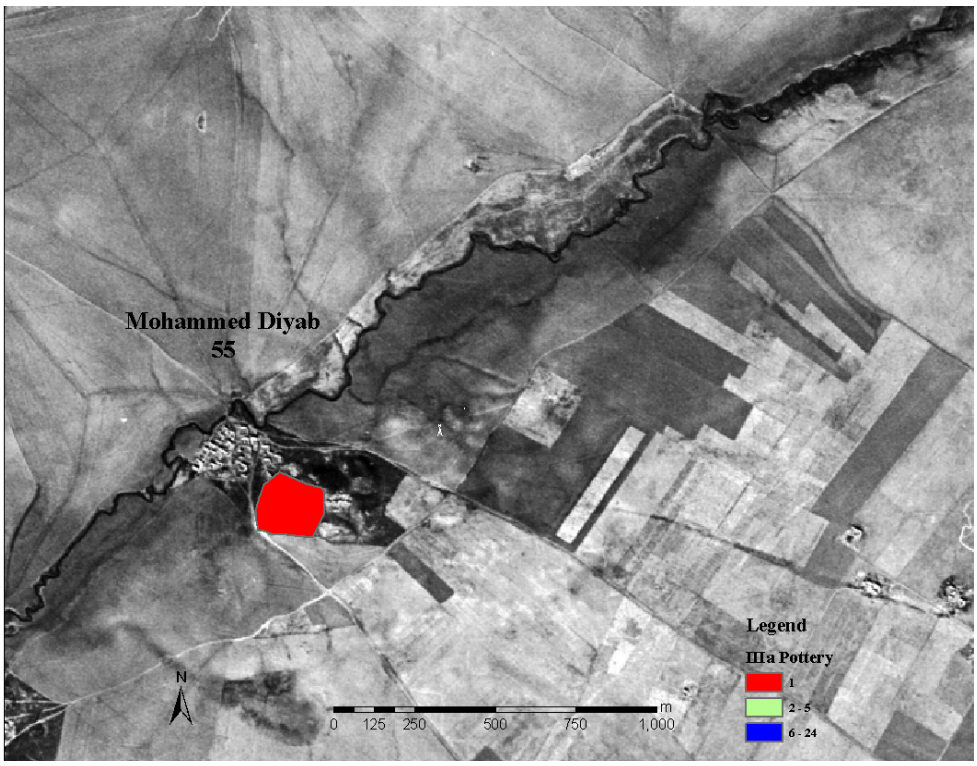


Fig. 6.2. a) Phase 1 at Mohammed Diyab (55).

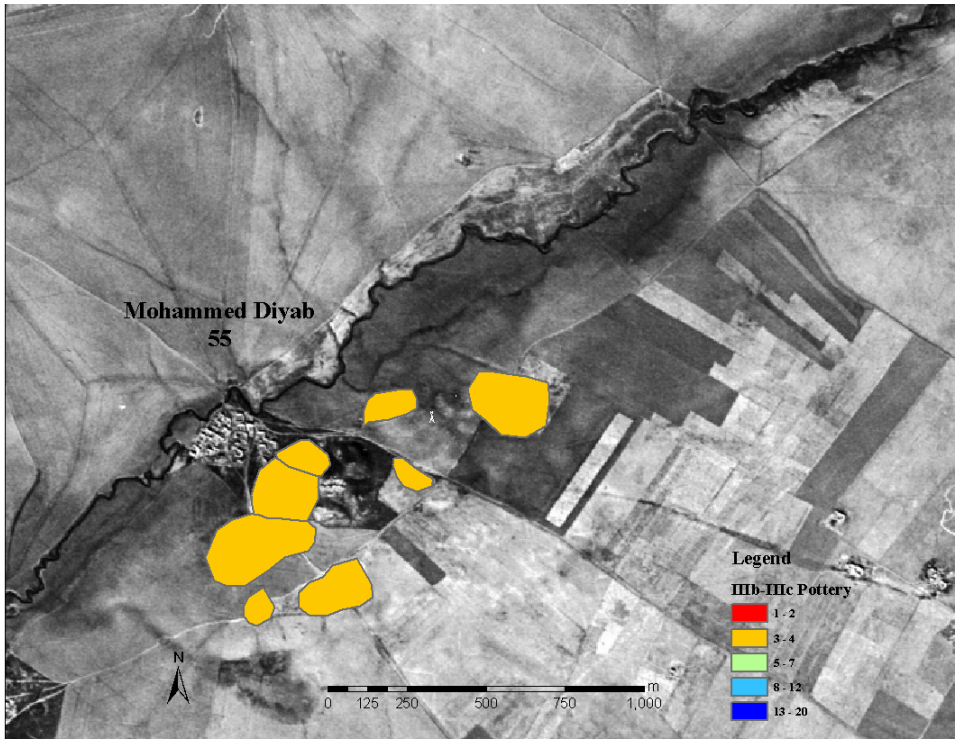


Fig. 6.2. b) Phase 2 at Mohammed Diyab (55).

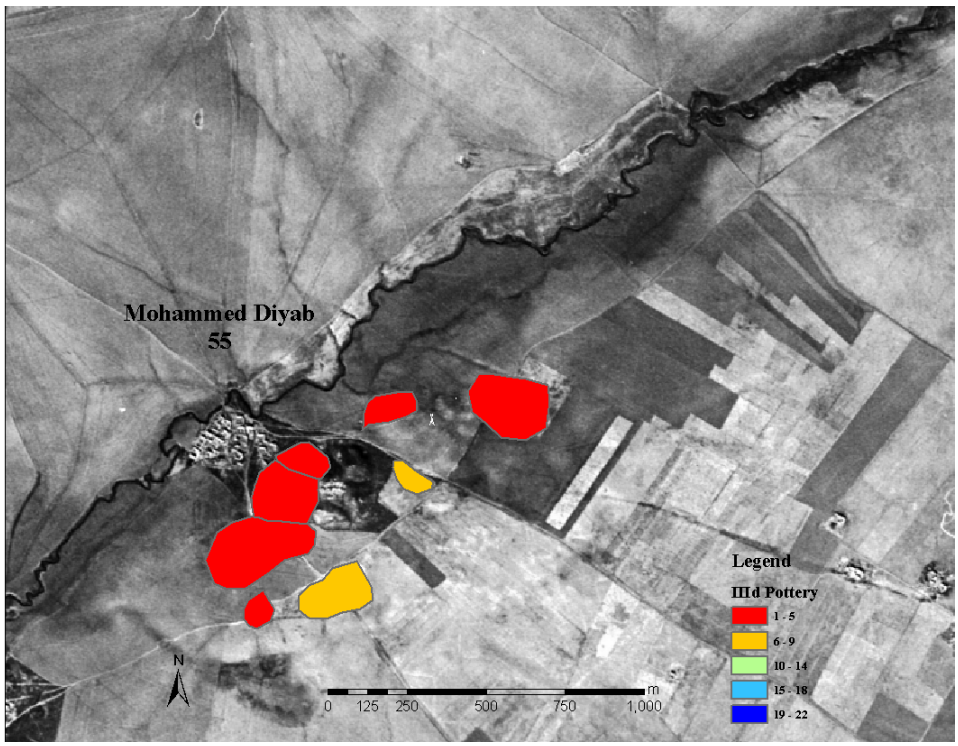


Fig. 6.2. c) Phase 3 at Mohammed Diyab (55).

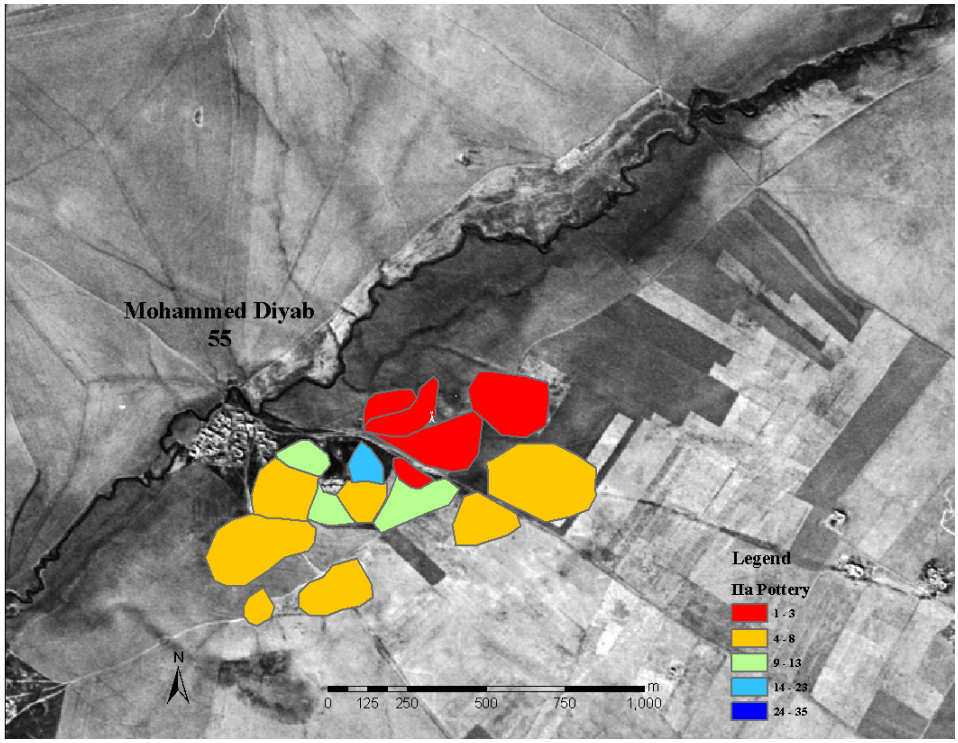


Fig. 6.2. d) Phase 4 at Mohammed Diyab (55).

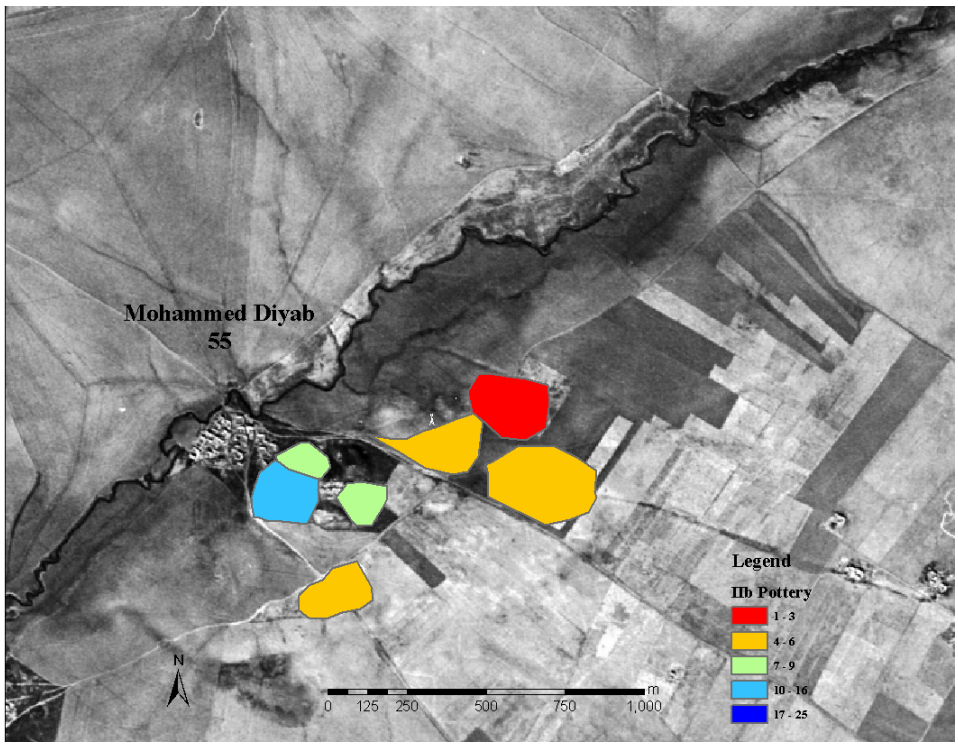


Fig. 6.2. e) Phase 5 at Mohammed Diyab (55).

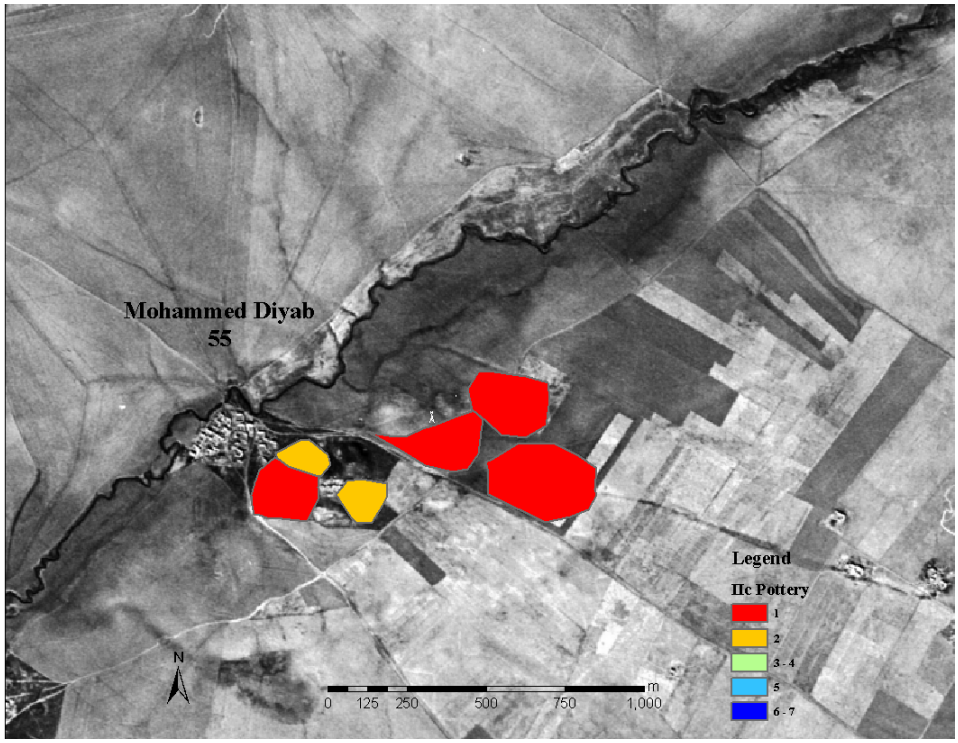


Fig. 6.2. f) Phase 6 at Mohammed Diyab (55)

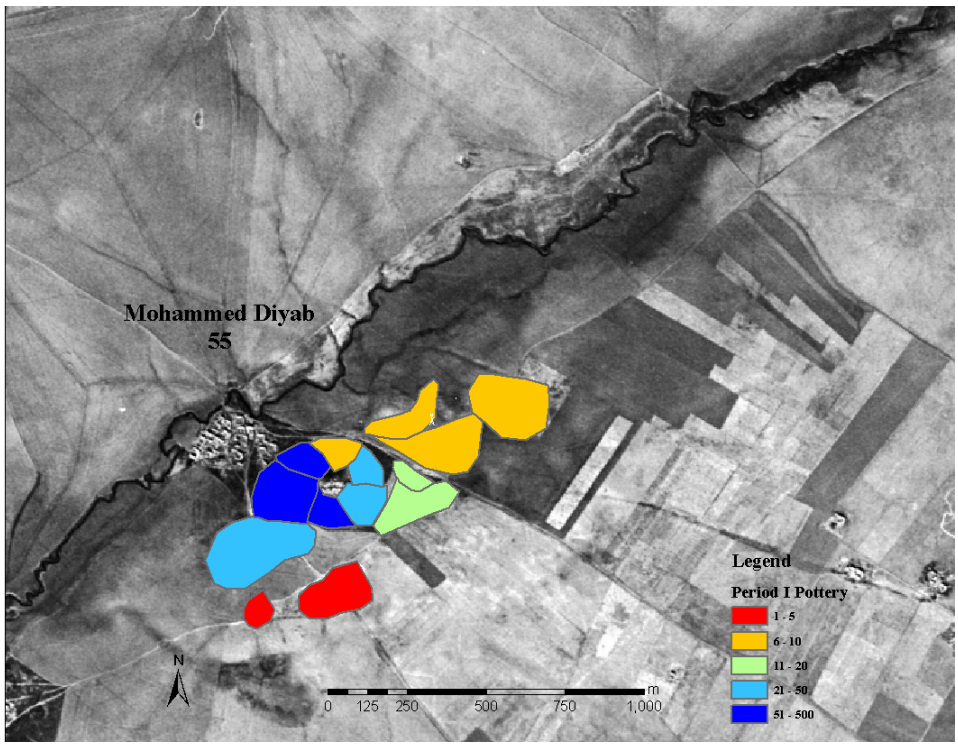


Fig. 6.2. g) Phase 7 at Mohammed Diyab (55)

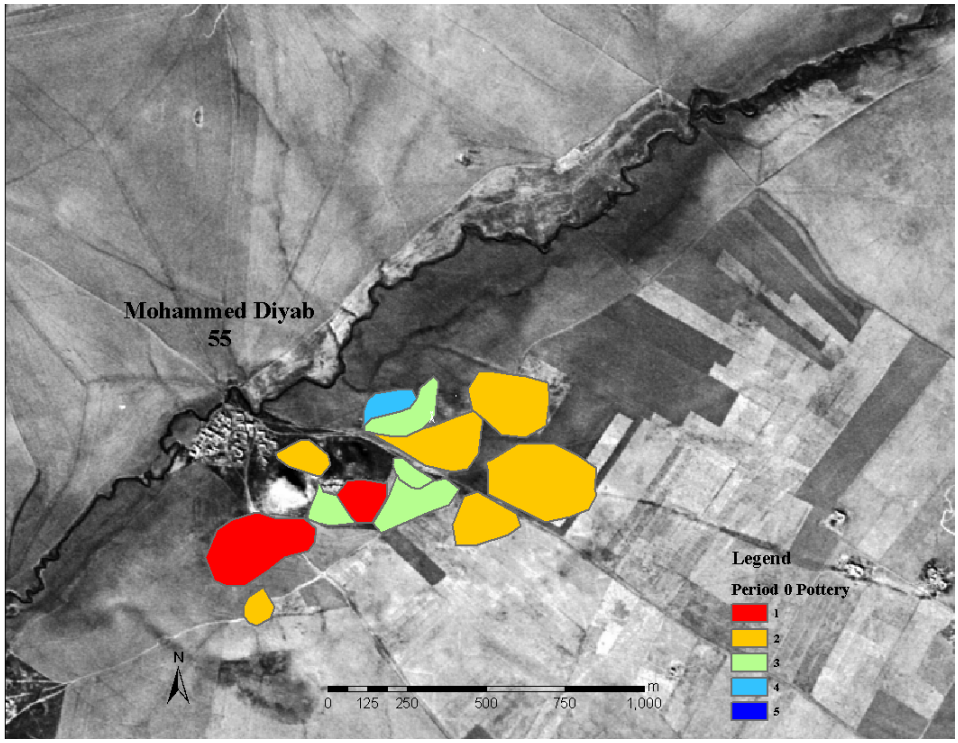


Fig. 6.2. h) Phase 8 at Mohammed Diyab (55).

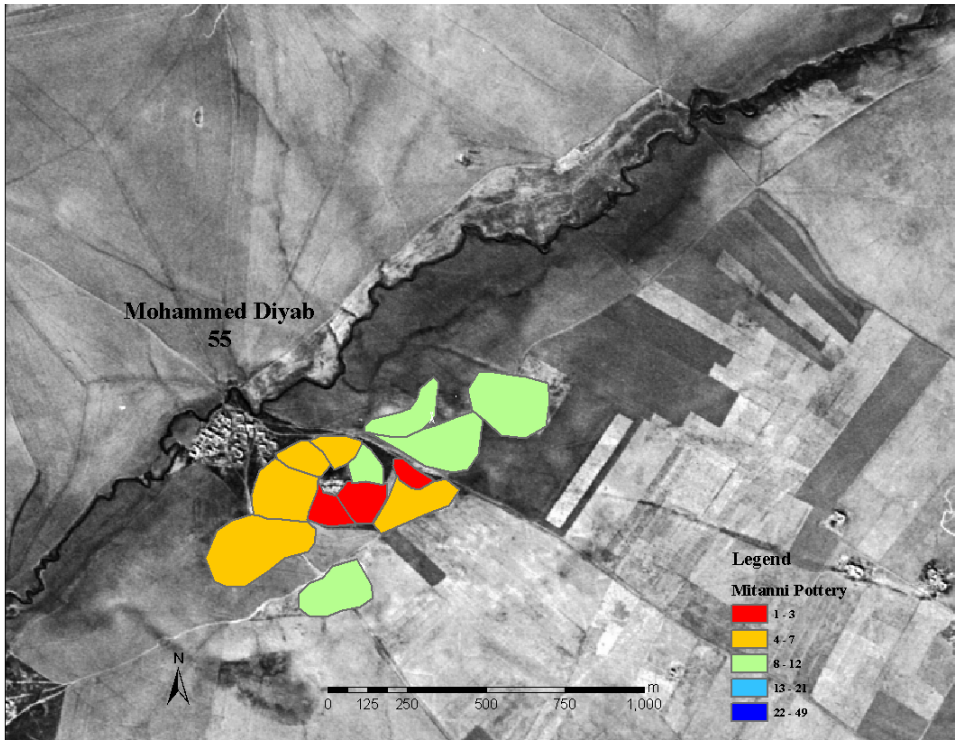


Fig. 6.2. i) Phase 9 at Mohammed Diyab (55).

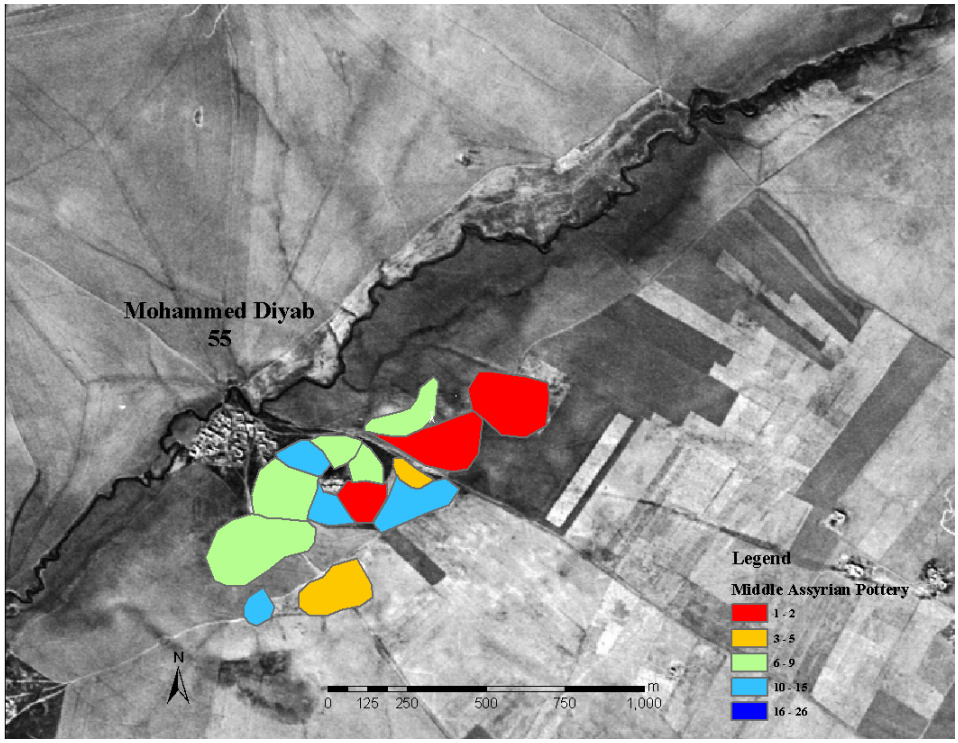


Fig. 6.2. j) Phase 10 at Mohammed Diyab (55).

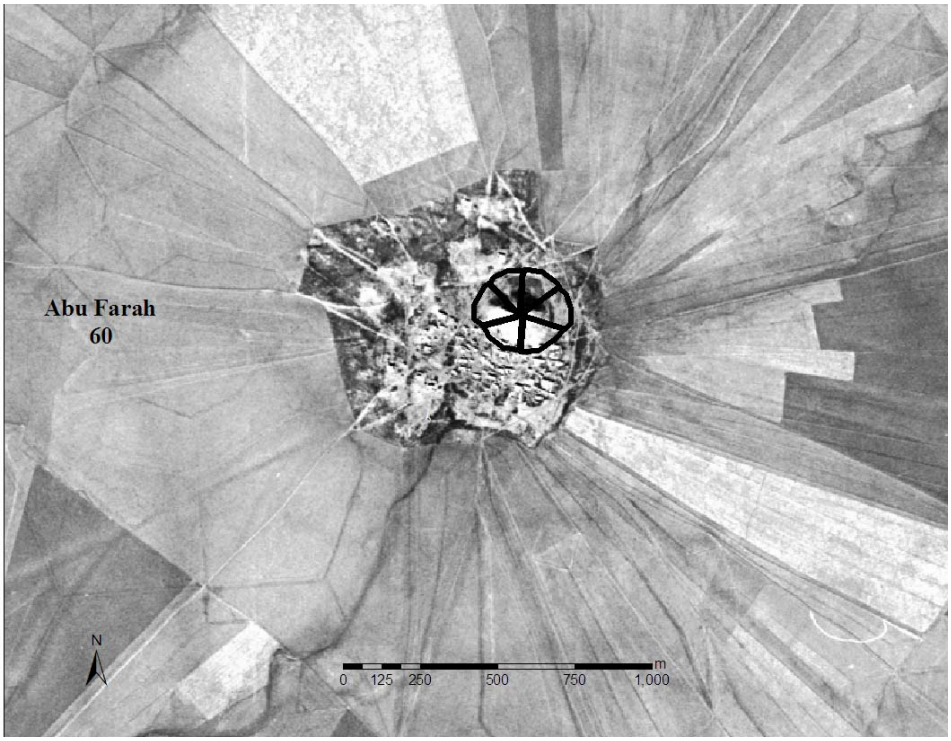


Fig. 6.3. Abu Farah (60) with survey collections units.
CORONA DS1108-1025Da005 (6 December, 1969 and henceforth).

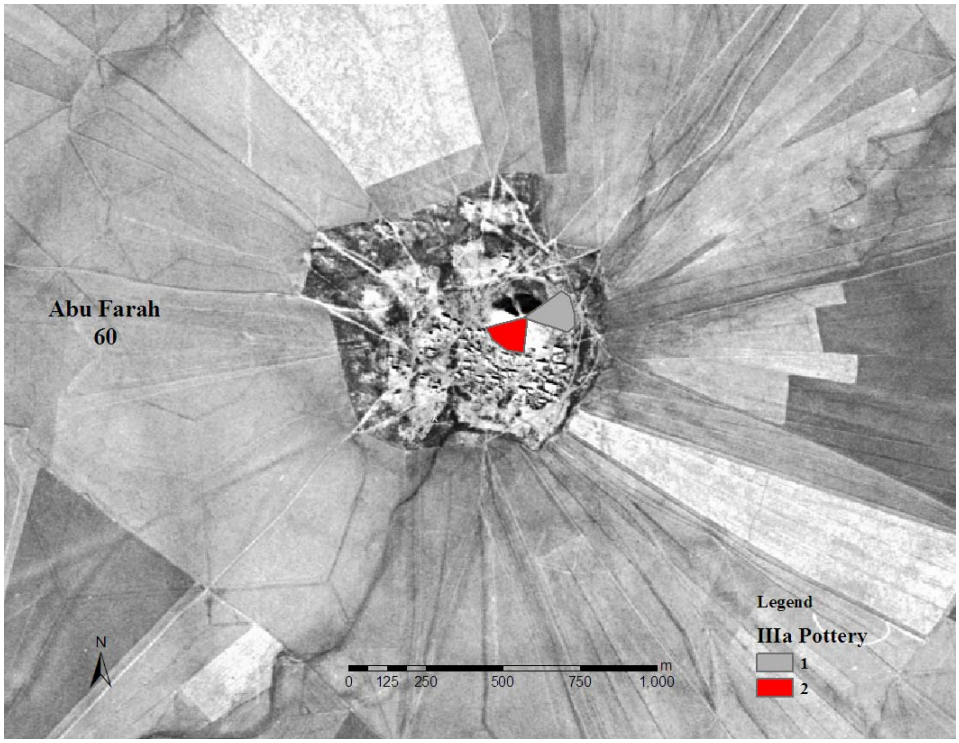


Fig. 6.4. a) Phase 1 at Abu Farah (60).

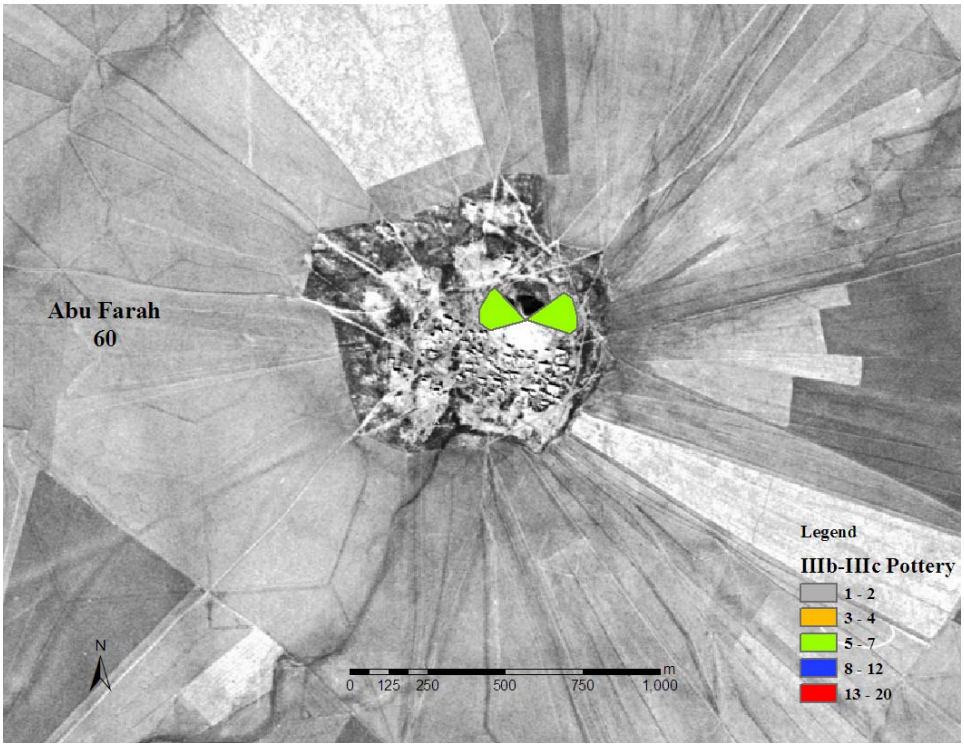


Fig. 6.4. b) Phase 2 at Abu Farah (60).

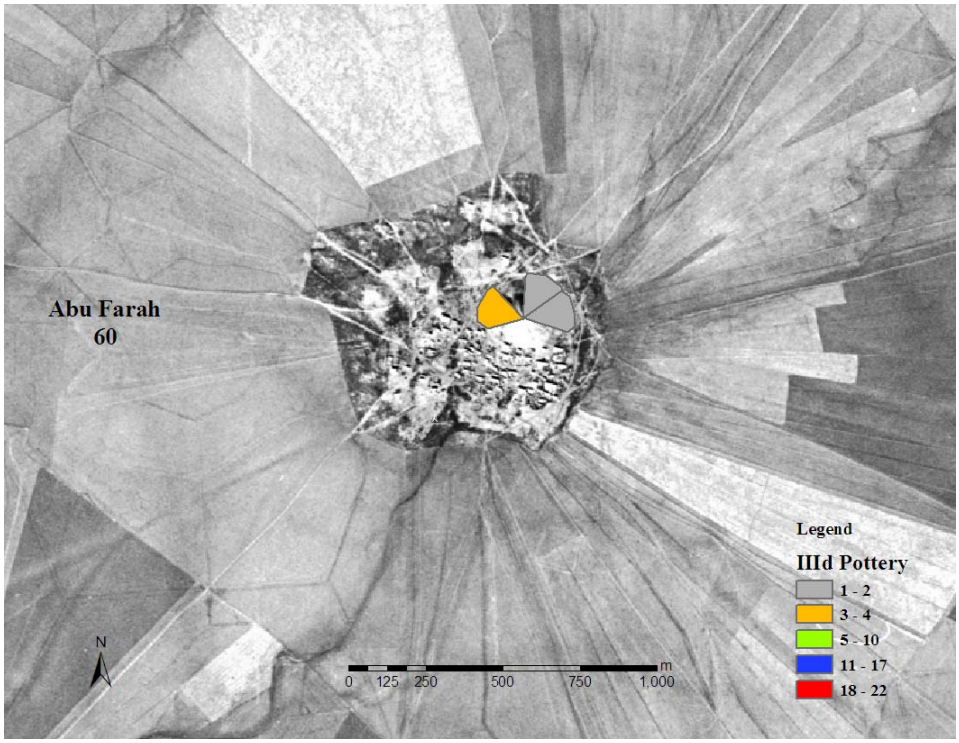


Fig. 6.4. c) Phase 3 at Abu Farah (60).

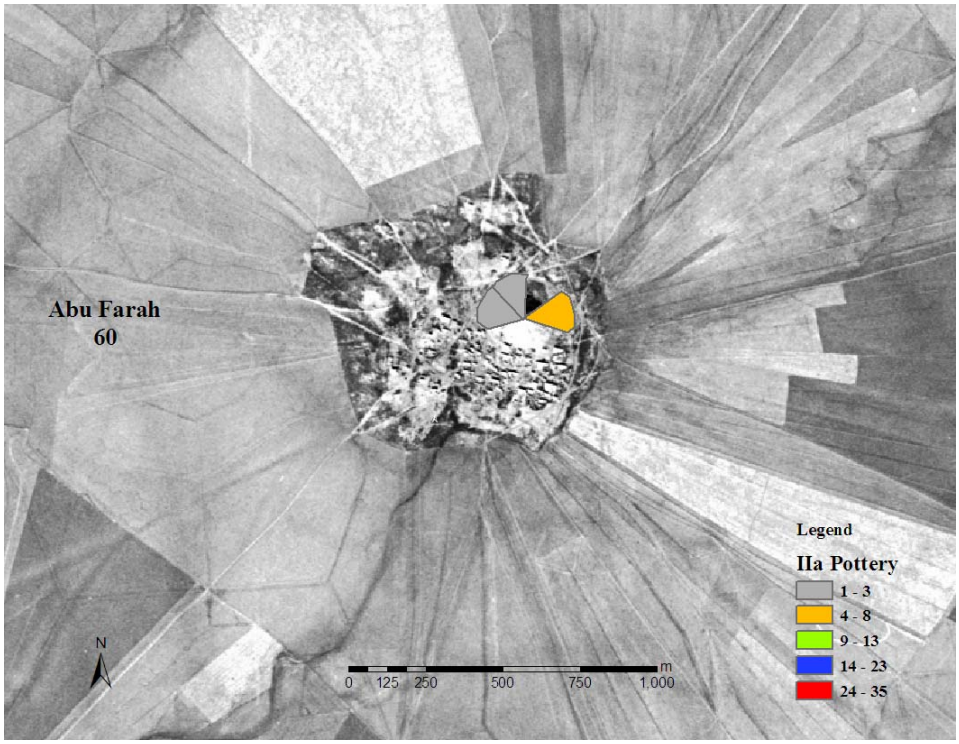


Fig. 6.4. d) Phase 4 at Abu Farah (60).

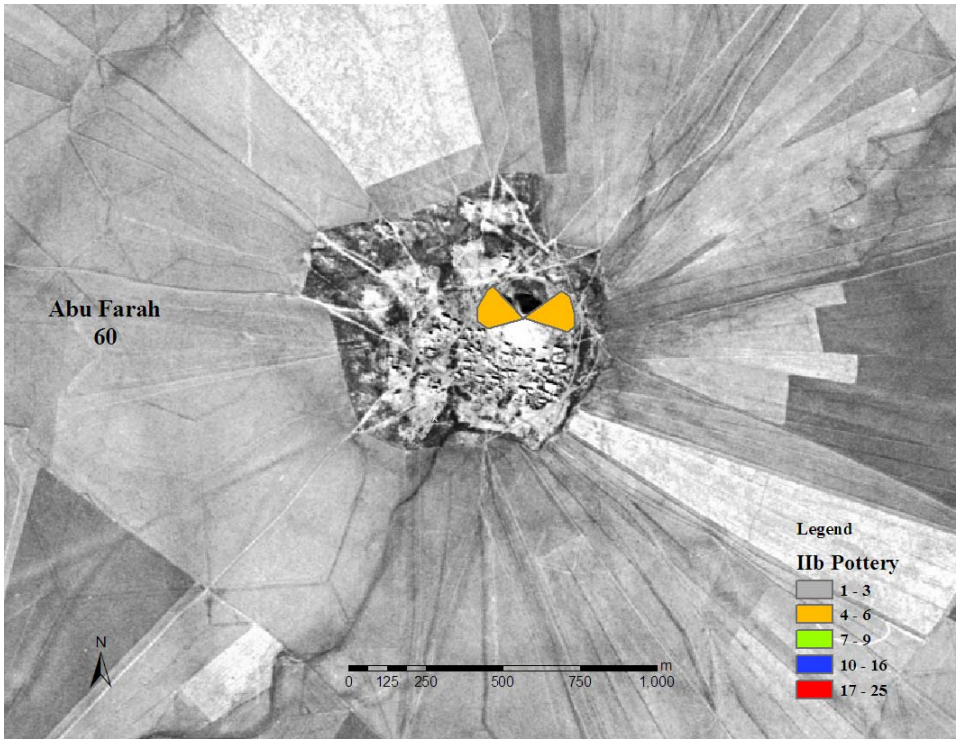


Fig. 6.4. e) Phase 5 at Abu Farah (60).

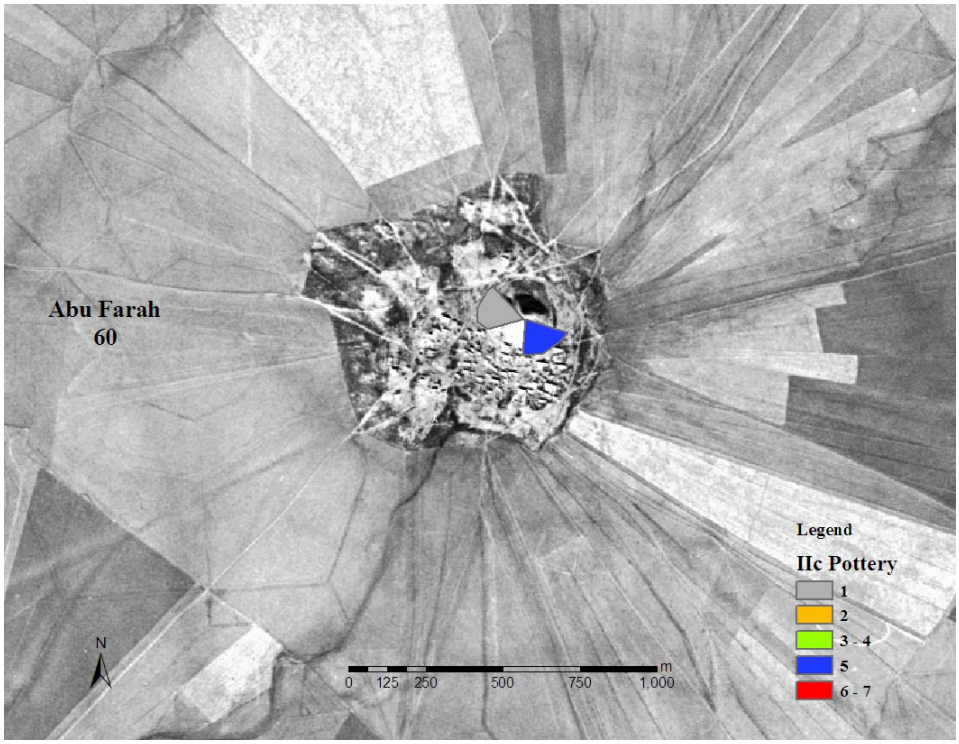


Fig. 6.4. f) Phase 6 at Abu Farah (60).

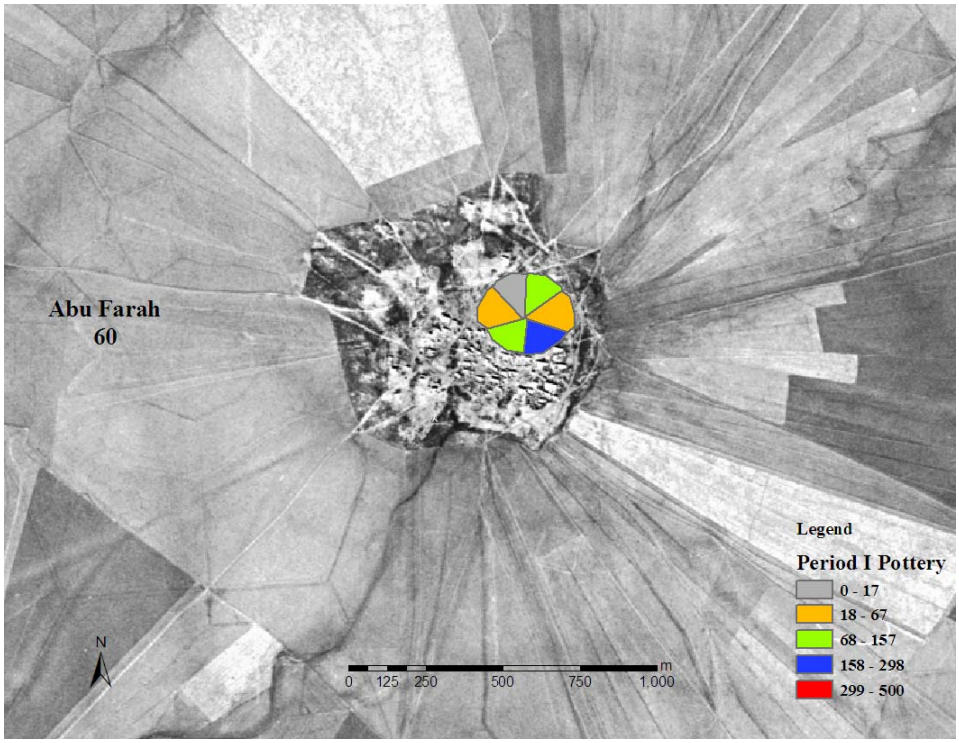


Fig. 6.4. g) Phase 7 at Abu Farah (60).

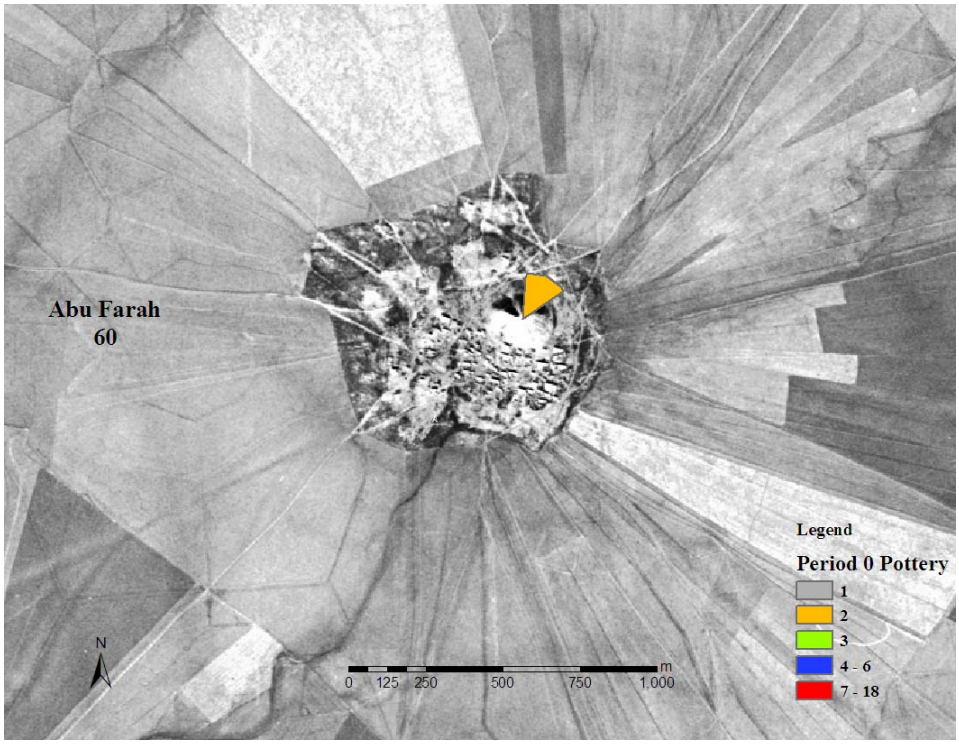


Fig. 6.4. h) Phase 8 at Abu Farah (60).

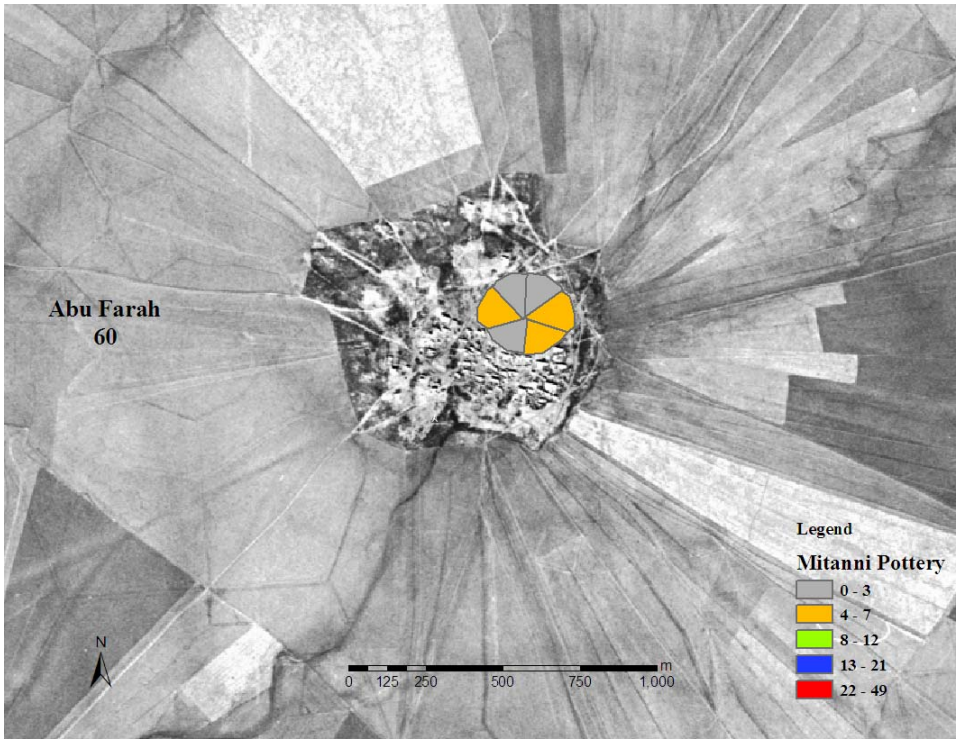


Fig. 6.4. i) Phase 9 at Abu Farah (60).

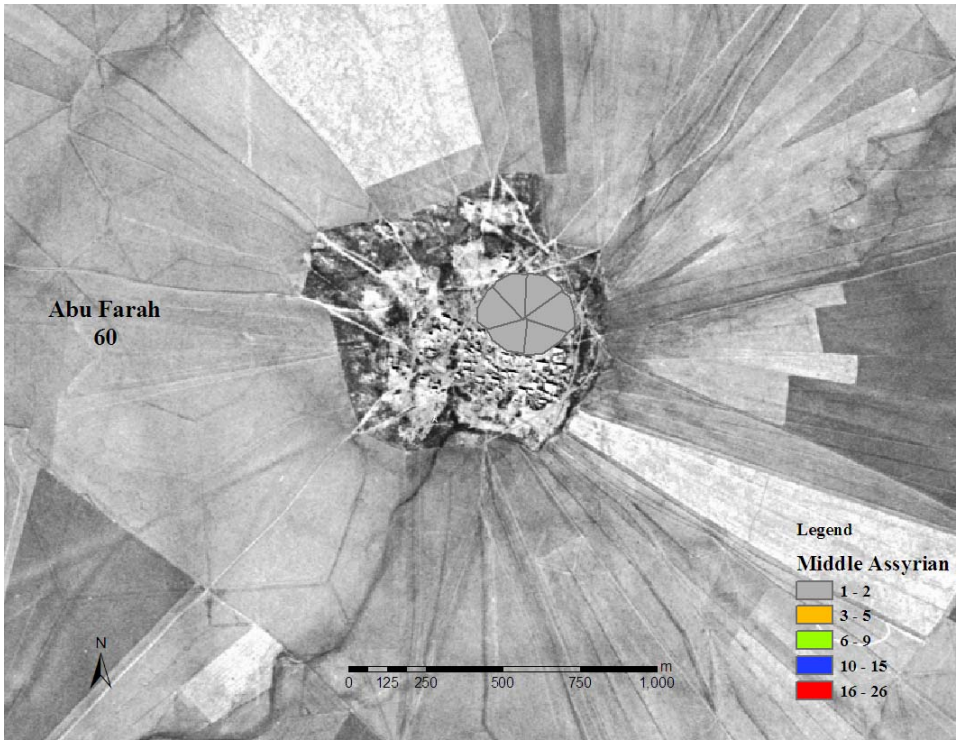


Fig. 6.4. j) Phase 10 at Abu Farah (60).

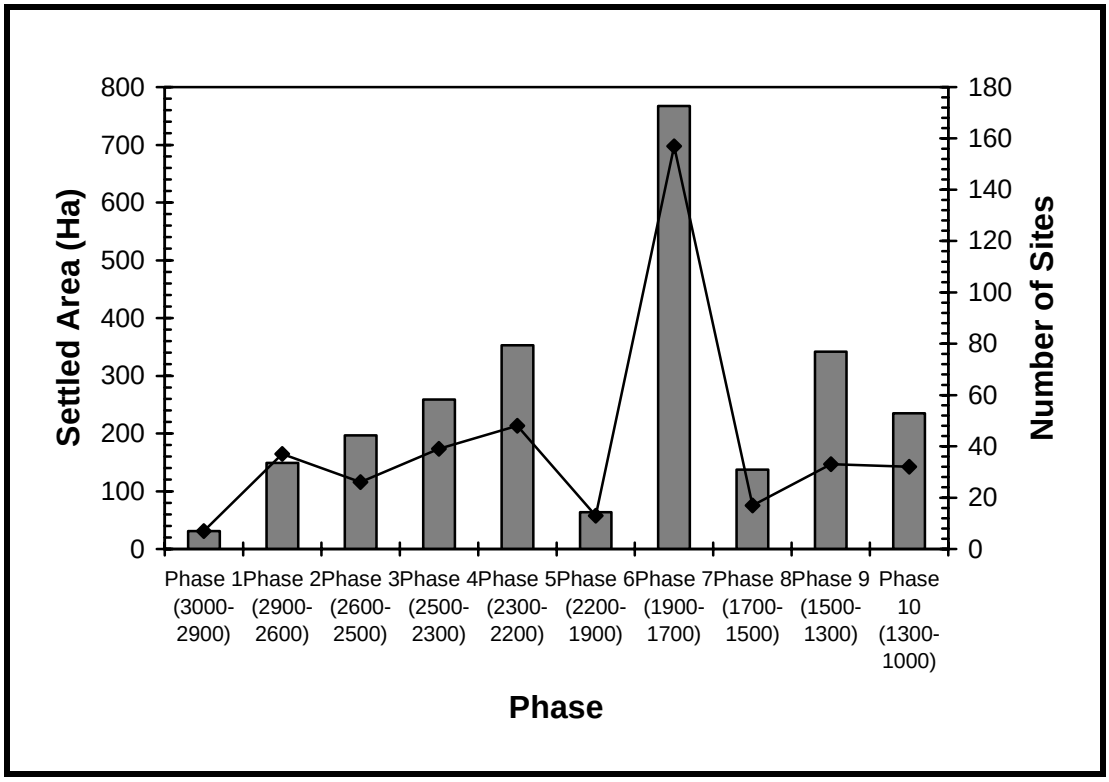


Fig. 6.5. Changes in settled area (bars) and site numbers (line) from 3000-1000 BC.

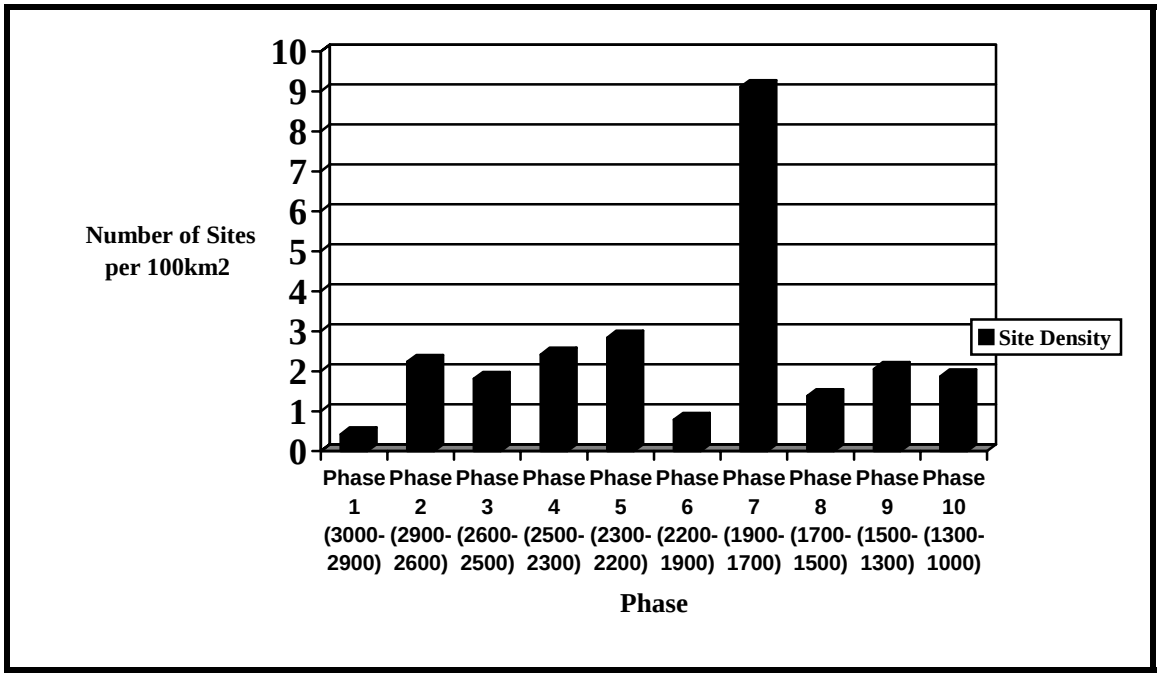


Fig. 6.6. Site density, the number of occupied sites per 100km^2 by phase.

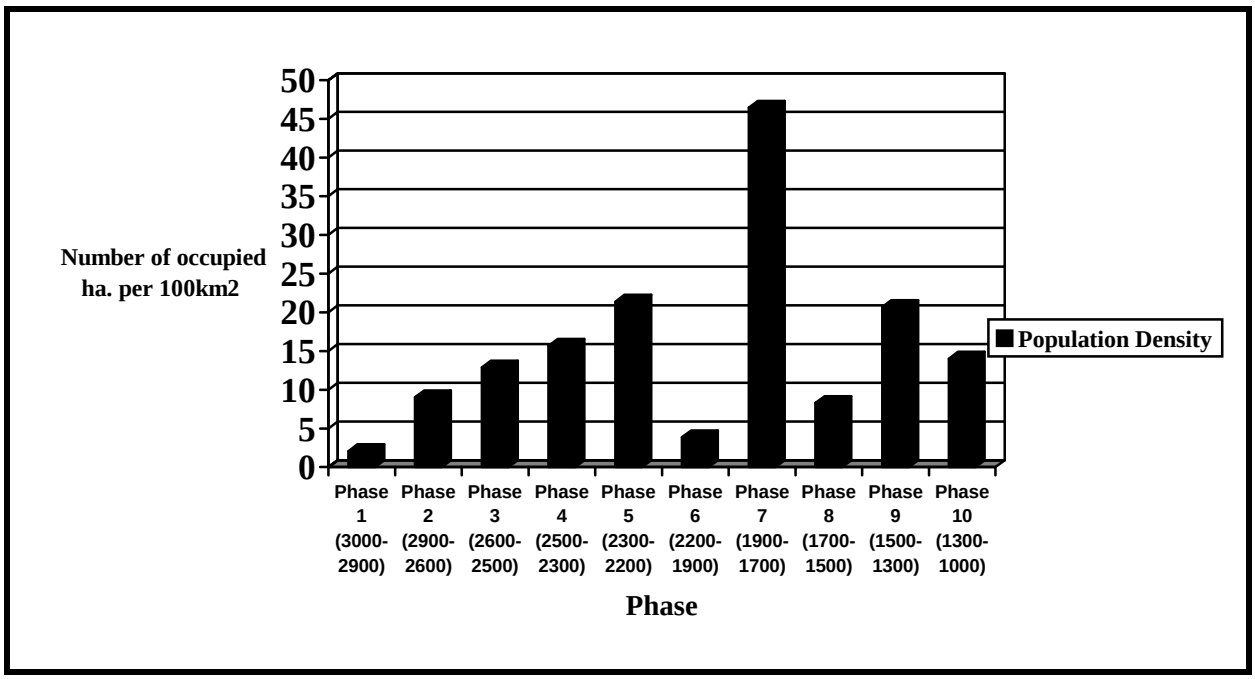


Fig. 6.7. Population density, the number of occupied hectares per 100km^2.

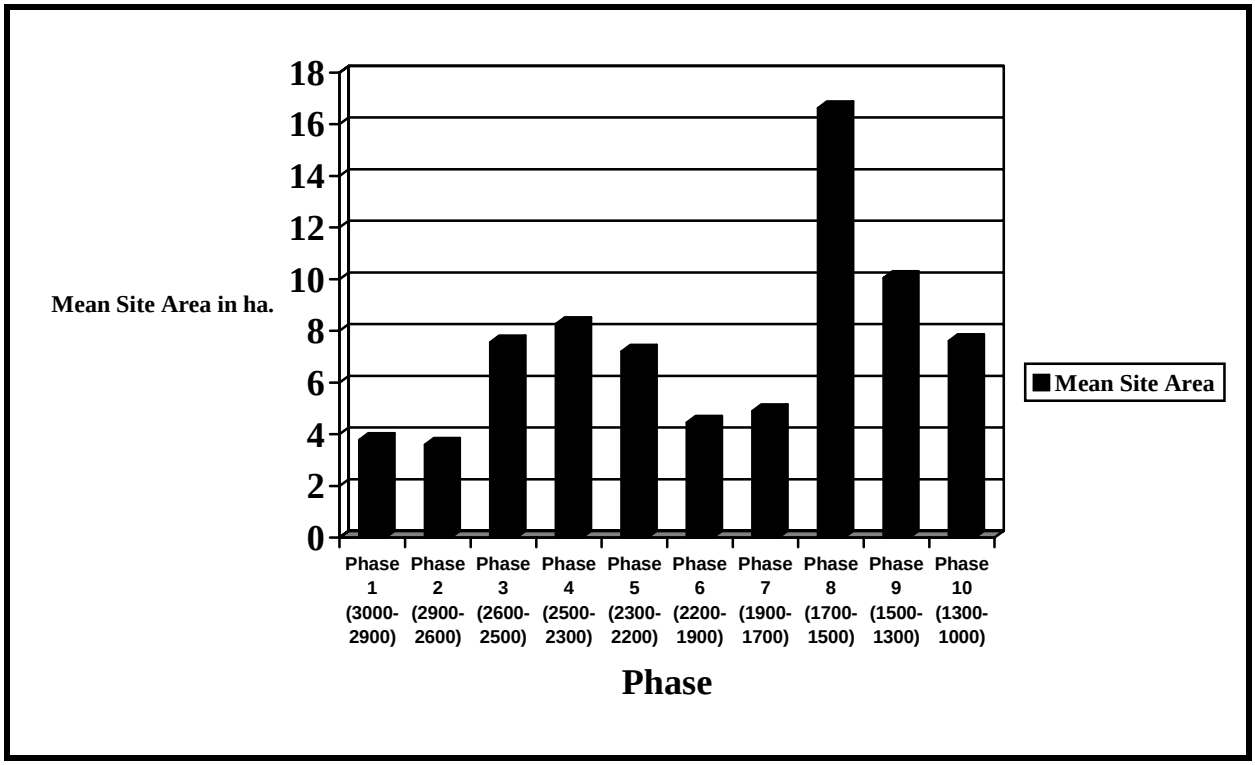


Fig. 6.8. Mean site area.

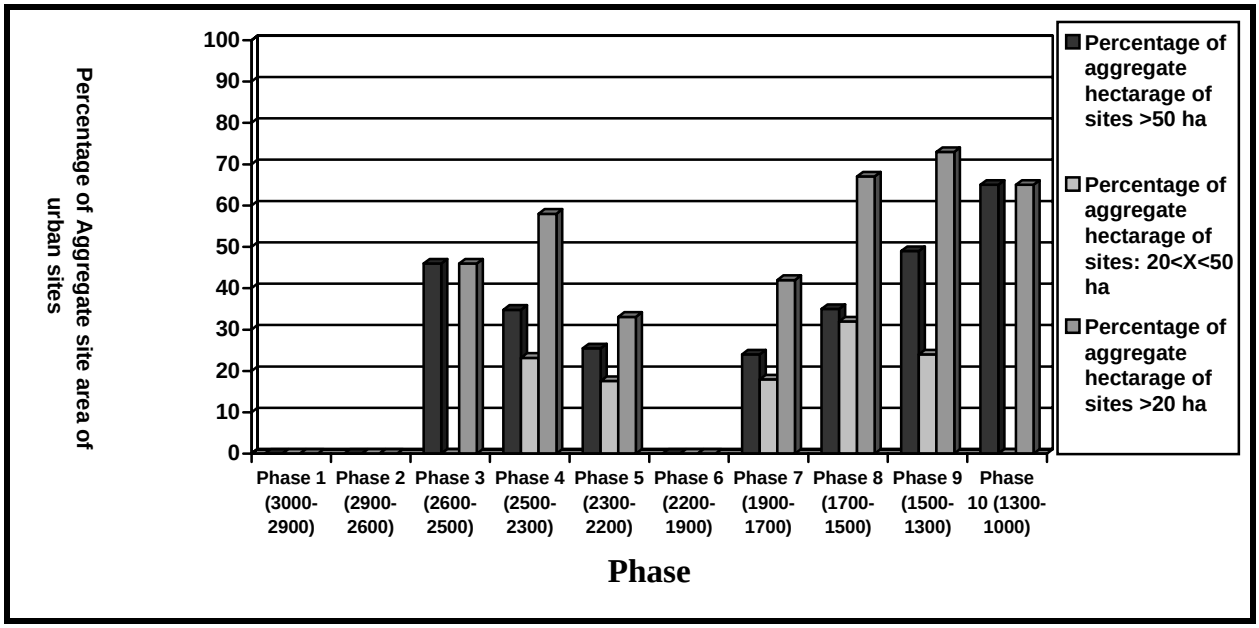


Fig. 6.9. Percentages of urban population
(the proportion of aggregate site area constituted by sites where X>10 ha)

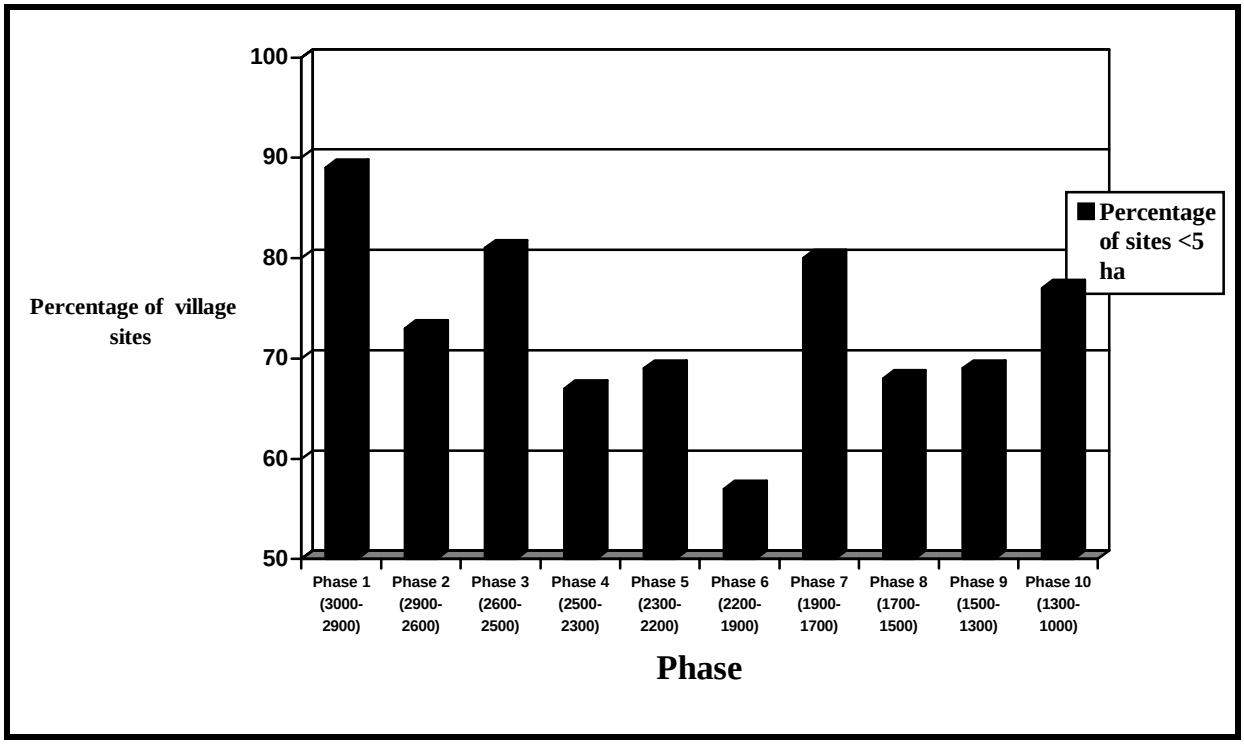


Fig. 6.10. Rural site frequency, frequency of sites smaller than 5 ha .

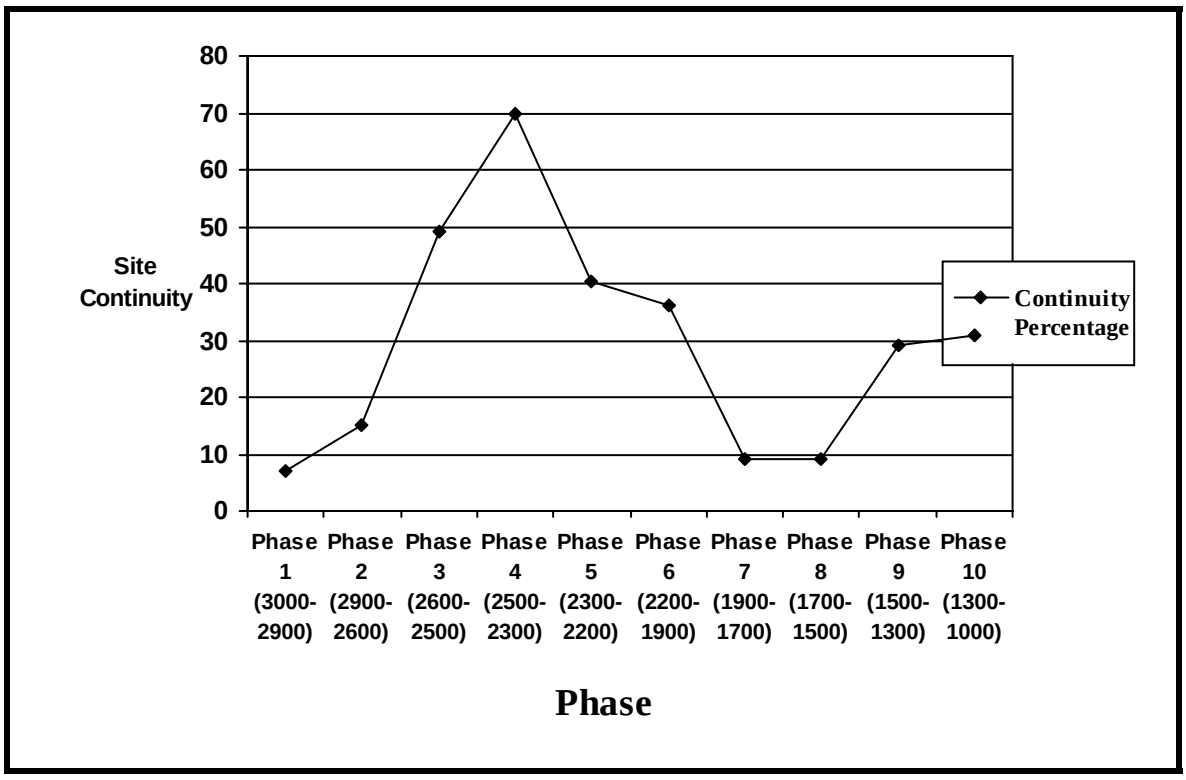


Fig. 6.11. Rates of settlement continuity between periods.

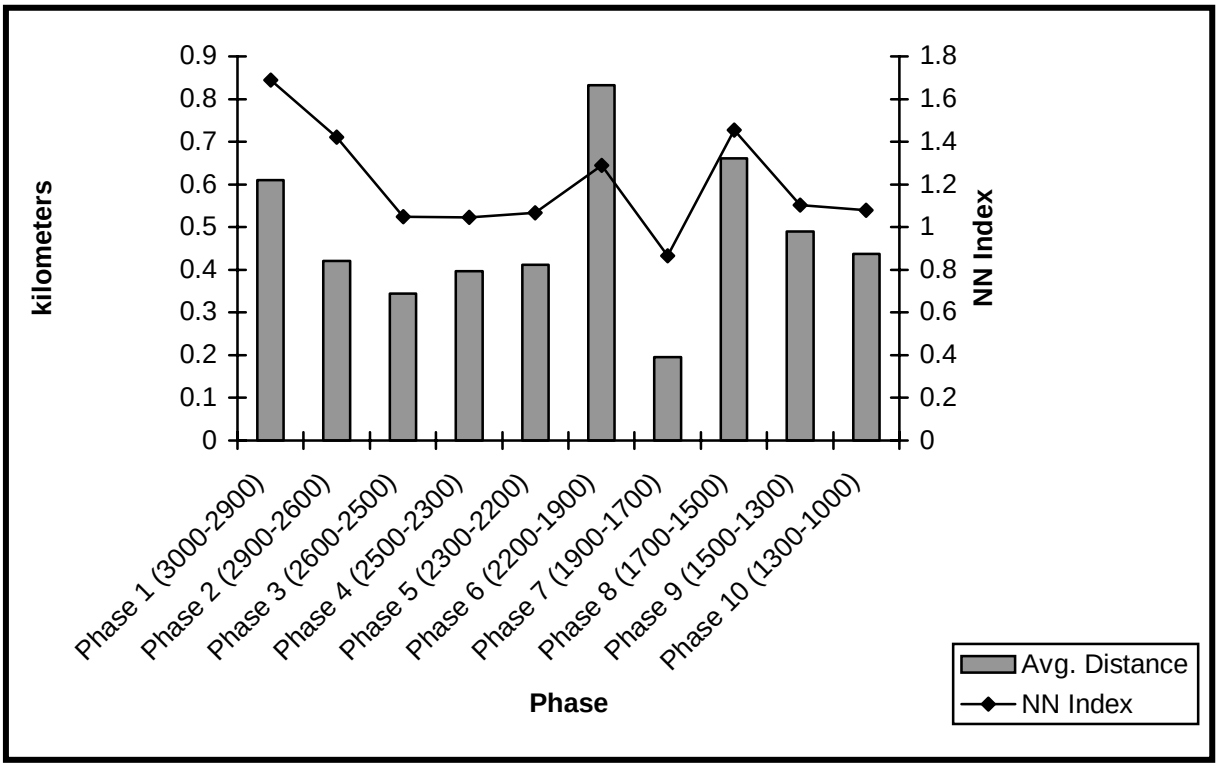


Fig. 6.12. Nearest neighbour index and average distances.

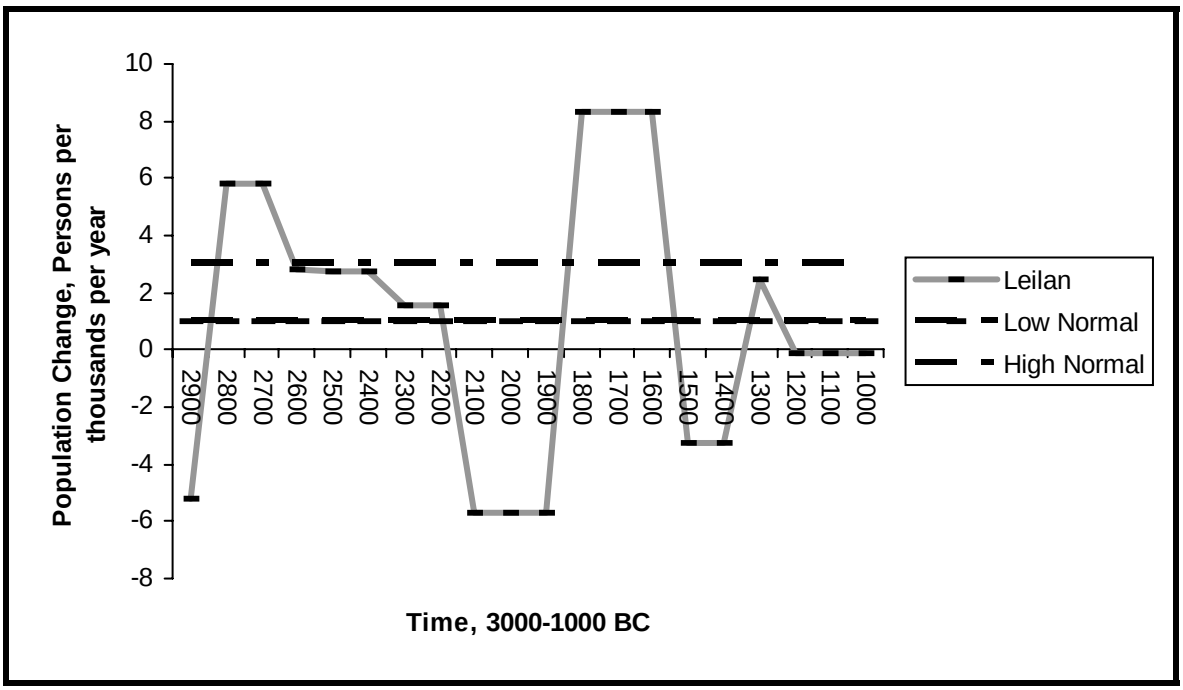


Fig. 6.13. Rate of population change, LRS.

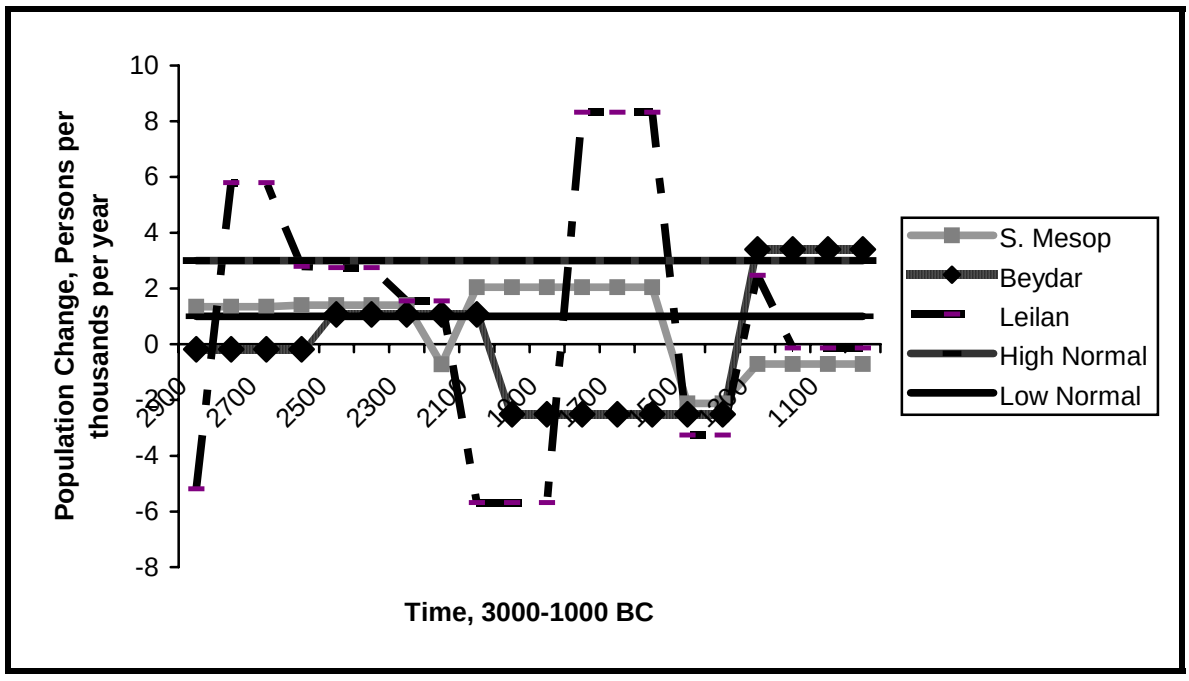


Fig. 6.14. Rate of population change, Greater Mesopotamia.

Appendix 2: Ceramic Typology, 3000-1000 BC

This appendix contains illustrations of some of the representative pottery types used to date sites to phases 1-10 from the LRS and Leilan excavations. Phases 1-2 are based upon the typology found in Schwartz 1988, although periods IIb and IIIc were combined into one phase, phase 2, due to their similarity. A fuller variety of drawings from phases 3-5 have been published in Senior 1998,Weiss 1990, Calderone and Weiss 2003 and are currently in preparation by the author. Ceramics from period I (phase 7) at Leilan may be found in Frane 1996. The publication of Leilan phase 8 ceramics is in preparation by Gül Pulhan. The phase 9 and 10 ceramics from the 1995 survey have been published in full by Viviana Donella (Donella 2002), some of whose illustrations are included here. Rova and her students will publish the full ceramic details from all the phases of the Leilan survey in the coming years.

A.2.1. Diagnostic Types for Phase 1 (Leilan IIIa, 3000-2900 BC)

All figures are 1:4

Type 1: Everted rim bowl with simple incising.
1) Gir Margue (34). D=12 cm. Wheel-made, white, fine, no visible temper. Incised.

Type 2: Beaded rim painted bowl.
2) Leilan (1), Op.1, stratum 35. D=17 cm. Wheel-made, yellow buff, cream slip?, medium straw-tempered. Violet paint. (Schwartz 1988: fig. 49, 13).

Type 3: Closed, inverted, thickened rim bowl.
3) Leilan (1), Op. 1, stratum 35. D=25 cm. Hand-made, light yellow buff, coarse chaff temper. Fingernail impressions (Schwartz 1988: fig. 51, 5).

Type 4: Open, flat rim bowl.
4) Leilan (1), Op. 1, strata 37-35. D=24.5 cm. Hand-made, pinkish brown/buff surface, gray/black core, medium, chaff temper. (Schwartz 1988: fig. 51, 6).

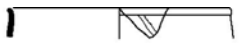
Type 5: Open, ledge rim bowl.
5) Leilan (1), Op. 1, strata 40-39. D=32 cm. Wheel-made?, yellow buff surface, gray/black core, medium, chaff temper. (Schwartz 1988: fig. 50, 5).

Type 6: Open, large beaded rim bowl
6) Leilan (1), Op. 1, stratum 35. D=37 cm. Wheel-made, light yellow buff, cream slip, medium chaff temper. Violet paint. (Schwartz 1988: fig. 49, 3).

Type 7: Early Ninevite 5 incised.
7) Leilan (1), Op.1, strata 38-37. Hand-made, pinkish brown-buff, gray/black core, medium, chaff temper. Incised. (Schwartz 1988: fig. 47, 3).

Type 8: Early Ninevite 5 painted.
8) Leilan (1), Op. 1, strata 38-37. Wheel-made, light yellow buff, cream slip, medium, chaff temper. Violet paint. (Schwartz 1988: fig. 49, 6).

Type 9: Painted goblet base
9) Leilan (1), Op. 1, strata 38-37. Base D=8cm. Wheel-made, light yellow buff, cream slip?, medium, chaff temper. Violet paint. (Schwartz 1988: fig. 49, 4).



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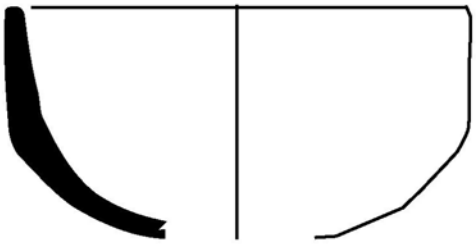

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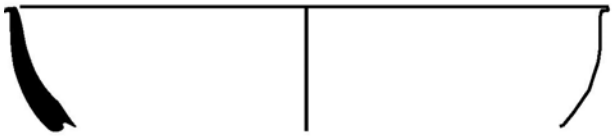

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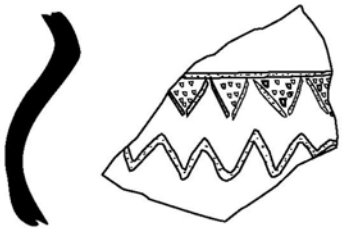

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A1.1. Diagnostic Types for Phase 1

A.2.2. Diagnostic Types for Phase 2 (Leilan IIIb-IIIc, 2900-2650 BC)

All figures are 1:3

Type 1: Everted ribbed rim bowl.
1) Farsouk Kebir (18). D=8 cm. Wheel-made, white, fine, lime pops.

Type 2: Inverted rim, ribbed bowl.
2) Gir Sheyran (20). D=11 cm. Wheel-made, white-gray, fine, lime pops. Incised.

Type 3: Everted rim round cup.
3) Farsouk Kebir (18). D=12 cm. Wheel-made, white-buff, fine, no visible temper.

Type 4: Beaded rim round cup.
4) Bayandur (14). D=8 cm. Wheel-made, light gray, fine, no visible temper. Incised.
5) Gir Margue (34). D=14 cm. Wheel-made, white, fine, no visible temper. Incised.

Type 5: Everted, rounded rim cup.
6) Gir Margue (34). D=15 cm. Wheel-made, light gray, fine, no visible temper. Incised.

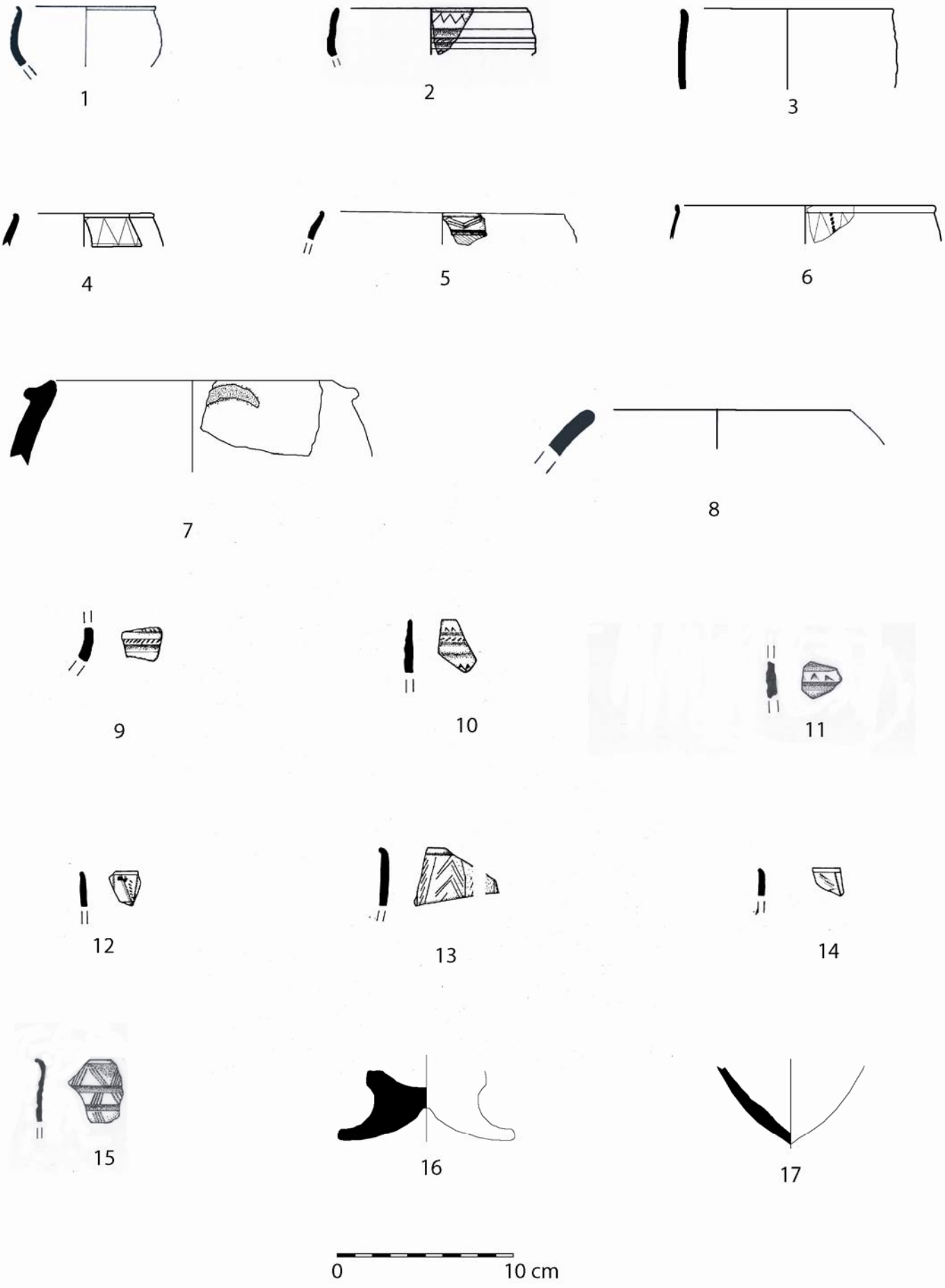
Type 6: Hole mouthed jar with exterior lug.
7) Awda (12). D=22 cm. Hand-made, light brown surface, dark brown core, heavy grit temper. Appliqué.

Type 7: Hole mouthed jar.
8) Gir Margue (34). D=15 cm. Hand-made, light brown surface, gray core, heavy grit temper.

Type 8: Ninevite 5 incised buff and gray ware.
9) Bayandur (14). Wheel-made, white to light brownish gray, fine, no visible temper. Incised.
10) Bayandur (14). Wheel-made, pale pink, fine, no visible temper. Incised.
11) Bayandur (14). Wheel-made, pale pink, fine, no visible temper. Incised.
12) Gir Margue (34). Wheel-made, white, fine, no visible temper. Incised.
13) Farsouk Kebir (18). Wheel-made, light gray, fine, lime pops. Incised.
14) Guirdem Halime (35). Wheel-made, very pale brown, fine, no visible temper. Incised.
15) Farsouk Kebir (18). Wheel-made, white, fine, no visible temper. Incised.

Type 9: Goblet base.
16) Bayandur (14). Hand-made, very dark gray, heavy chaff temper.

Type 10: Pointed base.
17) Ahmed (189). Wheel-made, light green, fine, no visible temper.



A1.2. Diagnostic Types for Phase 2

A.2.3. Diagnostic Types for Phase 3 (Leilan IIId, 2650-2500 BC)

All figures are 1:4

Type 1: Everted rim, incised carinated cup (chai tea cup).
1) Leilan (1), Op. CG, Phase 2, lot 45. D=10 cm. Wheel-made, buff, occasional black mineral temper. Incised.

Type 2: Beaded rim, incised banded cup.
2) Leilan (1), Op. CG, Phase 2, lot 45. D=11 cm. Wheel-made, buff, fine, no visible temper. Incised.

Type 3: Incised simple bowl with mini-flat base.
3) Leilan (1), 44X12. RD=11 cm, BD=1.4 cm, H=9cm. Wheel-made, green-buff fine ware, no visible temper. (Calderone and Weiss 2003: Fig. 5:1).

Type 4: Everted rim, excised cup.
4) Guirdem Halime (35). D=20 cm. Wheel-made, light gray, fine lime pops. Excised.
5) Guirdem Halime (35). D=16 cm, Wheel-made, white, fine, no visible temper. Excised.

Type 4: Everted bead, carinated cup
6) Leilan (1), Op. CG, Phase 2, lot 45. D=15 cm. Wheel-made, white, fine, no visible temper.

Type 5: Simple rim, panel incised bowl.
7) Leilan (1), Ziggurat survey. D=19 cm. Wheel-made, buff, fine, no visible temper, incised.

Type 6: Interior lug, medium ware bowl.
8) Leilan (1), Op CG, Phase 2, lot 42. D=28 cm. Wheel-made, red-orange, gray core, medium black grit temper. Lug.

Type 7: Drooped rimmed jar, fine ware.
9) Leilan (1), Op CG, Phase 1, lot 147. D=8 cm. Wheel-made, pale brown, cream slip, fine, no visible temper.
10) Leilan (1), 44W12, stratum 16. D=6 cm. Wheel-made, buff, fine, no visible temper, (Calderone and Weiss 2003: Fig. 7:2).

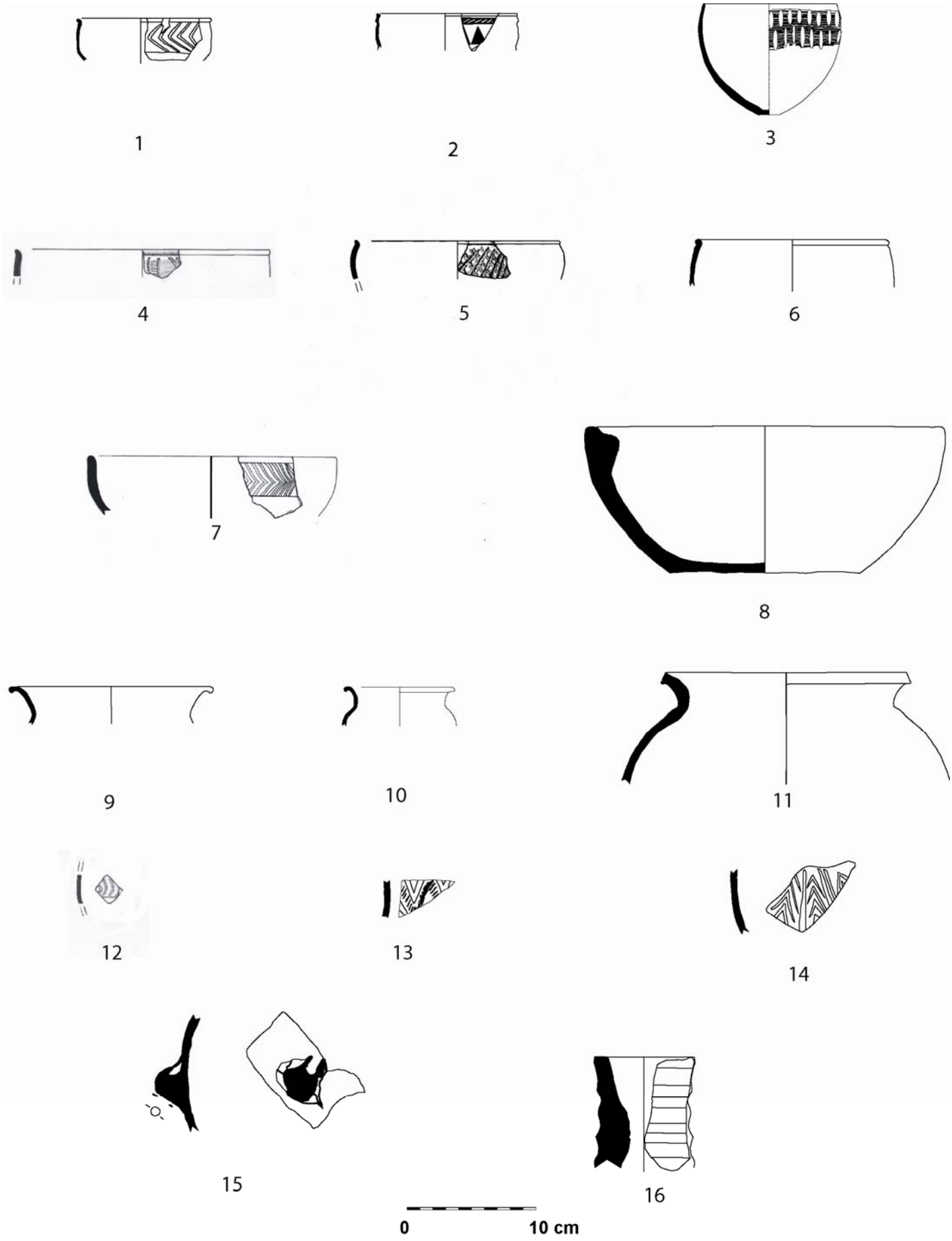
Type 8: Everted, triangular jar, medium ware.
11) Leilan (1), Op CG, Phase 2, lot 45.1. D=19 cm. Wheel-made, buff, gray core, medium chaff temper.

Type 9: Ninevite 5 excised buff ware.
12) Dogir (16). Wheel-made, interior white, exterior brown, fine, no visible temper. Excised.

Type 10: Ninevite 5 late incised ware.
13) Awda (12). Wheel-made, interior gray, exterior light gray, fine sand temper. Incised.
14) Leilan (1), Op CG, Phase 3a, lot 39. Wheel-made, buff, fine, no visible temper. Incised.

Type 11: Pierced lug
15) Leilan (1), Op CG, Phase 2, lot 45.4. Wheel-made, buff, occasional chaff temper. Pierced lug.

Type 12: Ribbed pot stand.
16) Awda (12). D=7.2, Hand-made?, brownish gray, darkened core, medium chaff temper.



A1.3. Diagnostic Types for Phase 3

A.2.4. Diagnostic Types for Phase 4 (Leilan IIa, 2500-2300 BC)

All figures are 1:3

Type 1: Simple rim, round-based cup
1) Dogir (16). D=8cm. Wheel-made, yellow-green, fine, no visible temper.
2) Leilan (1), 44X15. D=8.5 cm. Wheel-made, buff, fine, occasional chaff temper.
3) Gir Souar (13). D=8cm. Wheel-made, light gray, gray slip?, fine, no visible temper.

Type 2: Everted rim, carinated cup
4) Dogir (16). D=5.4 cm. Wheel-made, green-buff, fine, no visible temper.
5) Leilan (1), Op. CG. Phase 3, lot 42. D=6 cm, wheel made, buff, occasional black mineral temper.
6) Leilan (1), Op CG, Phase 4, lot 121. D=5.2 cm. Wheel-made, green-buff, fine, no visible temper.

Type 3: Everted rim cup
7) Gir Margue (34). D=10 cm. Wheel-made, white, fine, no visible temper.

Type 4: Beaded rim bowl
8) Dogir, North-east Mound (16). D=11 cm. Wheel-made, buff, fine, occasional black mineral temper.

Type 5: Collared rim jar with interior incising
9) Leilan (1), 44X12, stratum 14. D=38 cm. Pink-buff, gray-black core, coarse ware, frequent straw temper. (Calderone and Weiss 2003: Fig. 10:3)

Type 6: Everted medium pot, incised rim
10) Leilan (1), 44X12, stratum 14. D=20 cm. Pink-buff, coarse ware, frequent straw temper. (Calderone and Weiss 2003: Fig. 10:5)

11) Leilan (1), Op CG, Phase 5, lot 25.1. D=16 cm. Wheel-made, pale brown, buff slip, medium chaff temper.

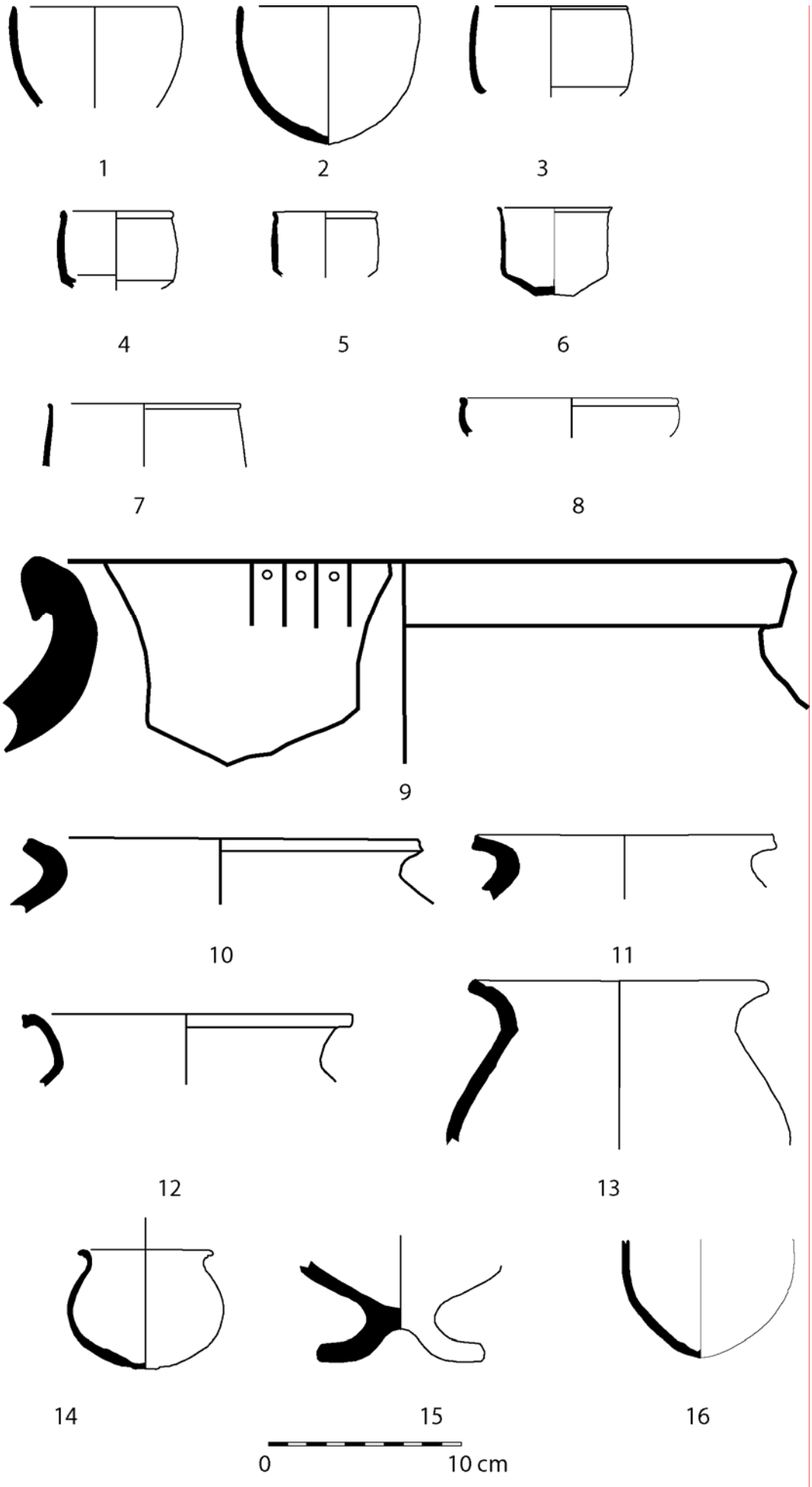
Type 7: Everted medium jar, incised rim
12) Leilan (1), 44X12, stratum 14. D=16 cm. Wheel-made, buff, fine ware, no visible temper. (Calderone and Weiss 2003: Fig. 9:11).

13) Leilan (1), Op CG, phase 3, lot 42. D=16 cm. Wheel-made, green-buff, medium occasional straw and sand temper.

Type 8: Everted fine pot
14) Leilan (1), Op CG, phase 3, lot 42.1. D=7.2 cm. Wheel-made, light brown, fine chaff temper.

Type 9: IIa pedestal base
15) Leilan (1), Op. CG, Phase 3a, lot 39. D=5.4 cm. Wheel-made, light buff, fine, no visible temper.

Type 10: Round, fine base
16) Dogir (16). Wheel-made, light buff, fine, no visible temper.



A1.4. Diagnostic Types for Phase 4

A.2.5. Diagnostic Types for Phase 5 (Leilan IIb, 2300-2200)

All figures are 1:3

Type 1: Sila bowl rims
1) Qarassa (49). D=15 cm. Wheel-made, gray-green, clinky ware, fine, no visible temper.
2) Dumdum (241). D=12 cm. Wheel-made, green, clinky ware, fine, no visible temper.

Type 2: Beaded, banded cup
3) Leilan (1), Ziggurat survey. D=11.5 cm. Wheel-made, buff-green, fine mineral temper.

Type 3: Ribbed, flat simple rim bowl
4) Leilan (1), 44W16, phase 2. D=10.2 cm. Wheel-made, orange-buff, fine mineral temper.

Type 4: Triangle rim bowl
5) Leilan (1), 44W15, phase 2. D=24 cm. Wheel-made, brown-buff, medium chaff and lime pop temper.

Type 5: Inverted, curved bowl.
6) Leilan (1), 44W16, phase 2. D=13.5 cm. Wheel-made, orange, medium-fine mineral temper.

Type 6: Everted fine-ware rim
7) Leilan (1), 44W16. D=10 cm. Wheel-made, buff-green, fine, chaff and grit temper.
8) Leilan (1), Ziggurat survey. D=11 cm. Wheel-made, buff-green, fine chaff temper.

Type 7: Big bead jar rim
9) Leilan (1), 44W15, phase 2. D=7 cm. Wheel-made, pinkish buff, cream slip, fine, no visible temper.
10) Leilan (1), Ziggurat survey. D=16.7 cm. Wheel-made, brown-buff, medium grit and chaff temper.
11) Leilan (1), Ziggurat survey. D= 15 cm. Wheel-made, buff, medium chaff and lime pop temper.

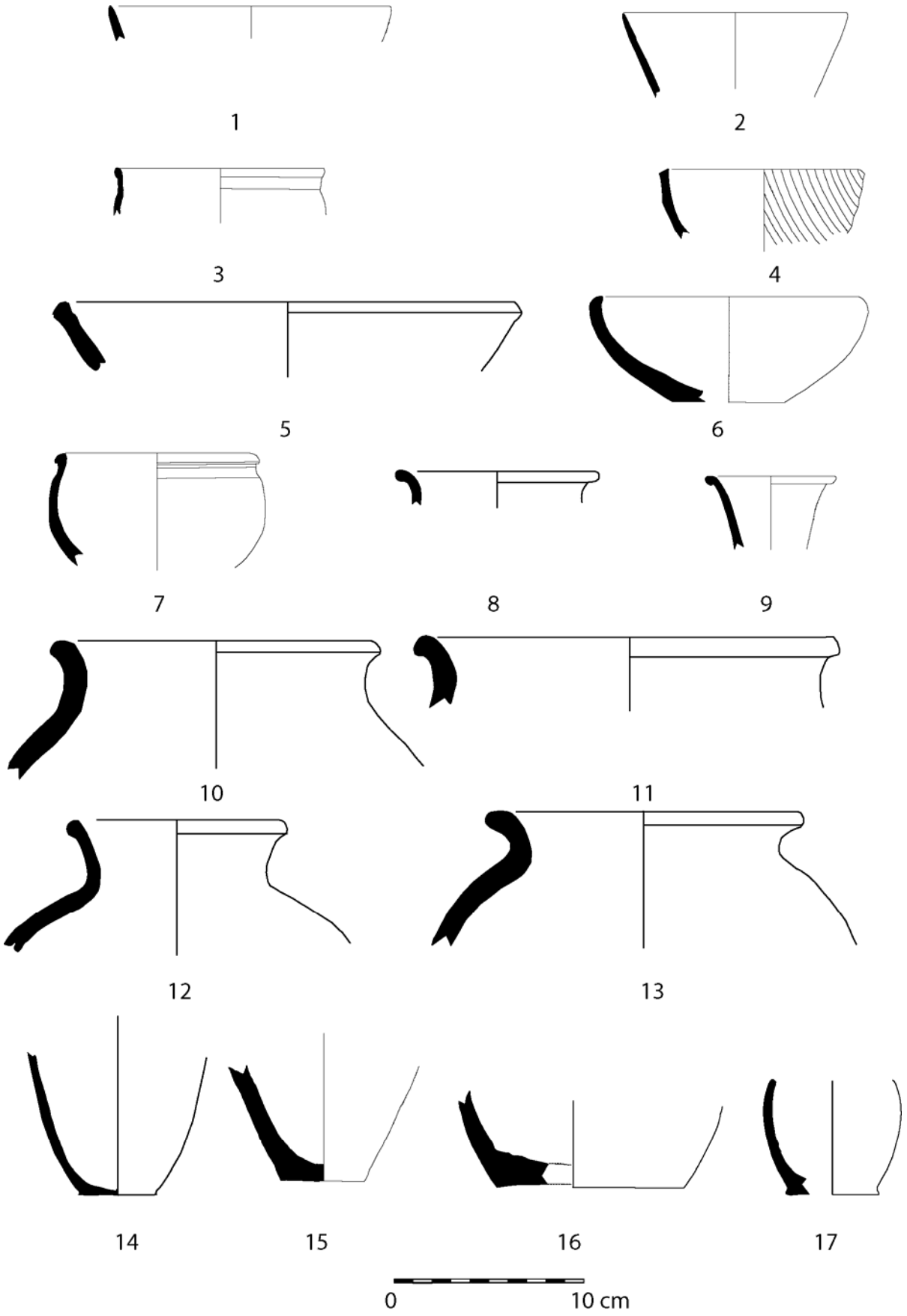
Type 8: Everted, rounded pot rim
12) Leilan (1), 44W15, phase 2. D=11 cm. Wheel-made, brown-buff, medium chaff and lime pop temper.

Type 9: Flat beaker bases
13) Leilan (1), Ziggurat survey. D=16.3 cm. Wheel-made, brown, medium chaff and lime pop temper.
14) Qarassa (49). D=4 cm. Wheel-made, buff, clinky ware, no visible temper.

Type 10: Sila bowl base
15) Leilan (1), 44W16, phase 2. D=4.2 cm. Wheel-made, green, clinky ware, fine chaff temper.
16) Leilan (1), Ziggurat survey. D=10 cm. Wheel-made, buff, medium chaff and lime pop temper.

Type 11: IIb simple rim cup flat base

17) Leilan (1), 44W16. RD= 6.2 cm, BD=5 cm. Wheel-made, yellow-green, fine chaff and grit temper.



A1.5. Diagnostic Types for Phase 5

A.2.6. Diagnostic Types for Phase 6 (Leilan IIc, 2200-1900 BC)

All figures are 1:3

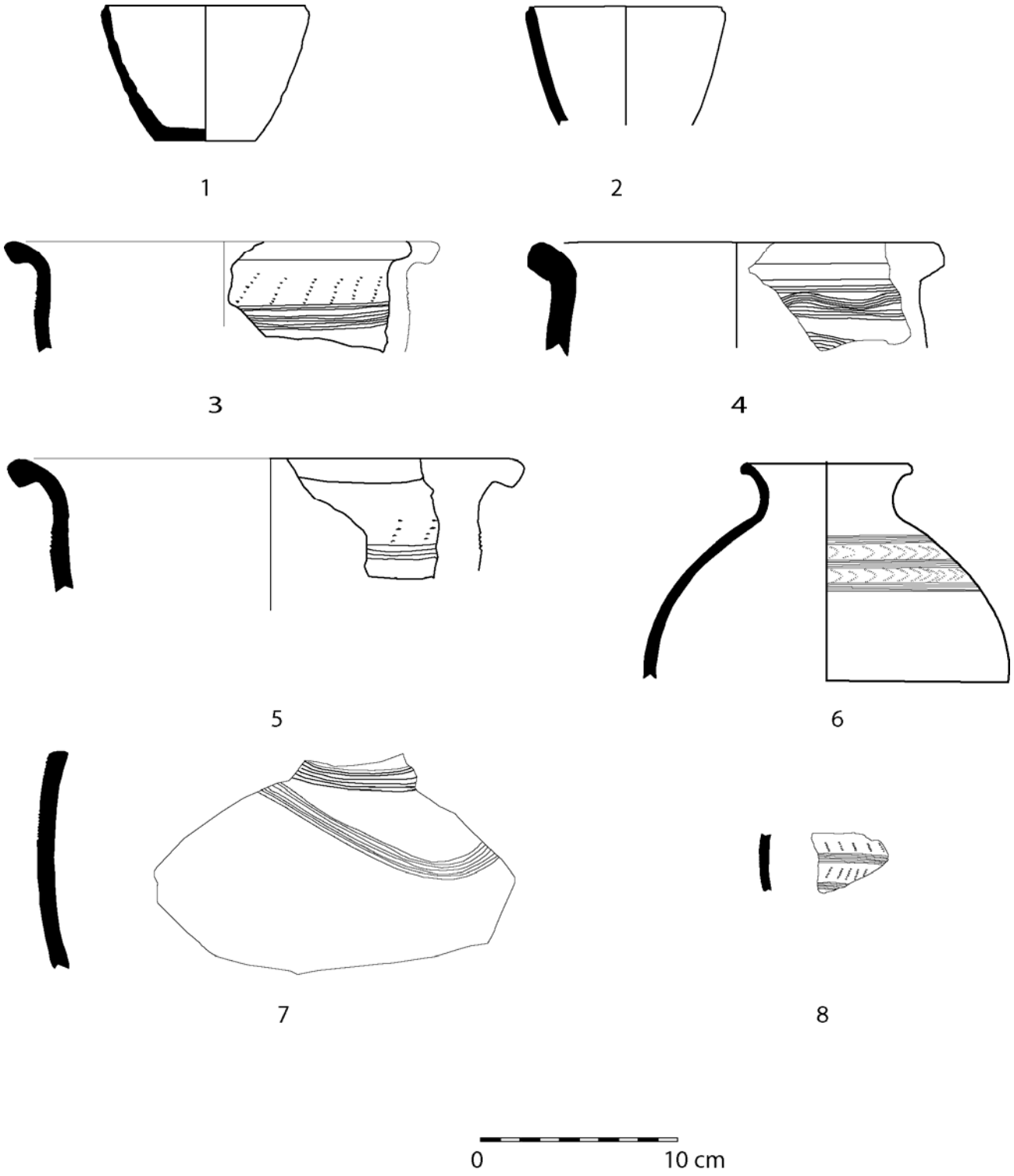
Type 1: Inverted rim beakers
1) Mohammed Diyab (55). D= 10cm. Orange buff, black core, medium-fine mineral temper.
2) Gir Souar (13). D=10 cm. Pinkish buff, medium fine straw and lime pop temper.

Type 2: Everted, straight pots, comb-incised, punctate ware
3) Leilan (1), 44W16, surface collection (1). D= 20 cm. Yellow-green, frequent fine chaff temper. Incised.
4) Leilan (1), Ziggurat survey. D=20 cm. Pale yellow, medium frequent chaff and lime pop temper. Incised.
5) Mohammed Diyab (55). D=25 cm. Yellow-green, medium chaff and lime pop temper. Incised-punctated.

Type 3: Everted, beaded rim jar, incised-punctated ware (Taya 6)
6) Leilan (1), Acropolis Temple, 55A11 (1). D=12.5 cm. Pinkish buff, cream slip, medium-fine chaff temper. Incised-punctated.

Type 4: Comb-incised ware
7) Gir Margue (34). Pinkish buff, cream slip, medium-fine chaff temper. Incised-punctated.

Type 5: Incised-punctated ware (Taya 6)
8) Qiru (2). Yellow-green, medium chaff and lime pop temper. Incised.



A1.6. Diagnostic Types for Phase 6

A.2.7. Diagnostic Types for Phase 7 (Leilan I, 1900-1700 BC)

All figures are 1:3

Type 1: Everted ledge rim, incised cup (Band of gold)
1) Hansa West (201). D=8 cm. Wheel-made, pale yellow-green, fine grit and sand temper.

Type 2: Carinated bowl, Habur ware
3) Leilan (1), Ziggurat survey. D=21.5 cm. Wheel-made, orange-buff, chaff and lime pop temper. Red brown paint.

Type 3: Banded rim, fine, carinated bowl.
8) Hamis West (251). D=14 cm. Wheel-made, light gray, fine sand, chaff, lime pops.

Type 4: Drooped square ledge rim, Habur ware
4) Sagar East (225). D=19 cm. Wheel-made, reddish yellow-pale brown, white slip, medium grit temper. Brown paint.

Type 5: Short ledge rim, carinated deep bowl, Habur ware.
5) Hansa East (251). D=23 cm. Wheel-made, very pale brown, smoothed white slip, medium chaff temper and lime pops. Dark brown paint.

Type 6: Duck head rim, carination and ridges, Habur ware
6) al-Andalus Acropolis Main Mound (212). D= 19 cm. Wheel-made, pink, medium sand, few lime pop temper. Brown paint.

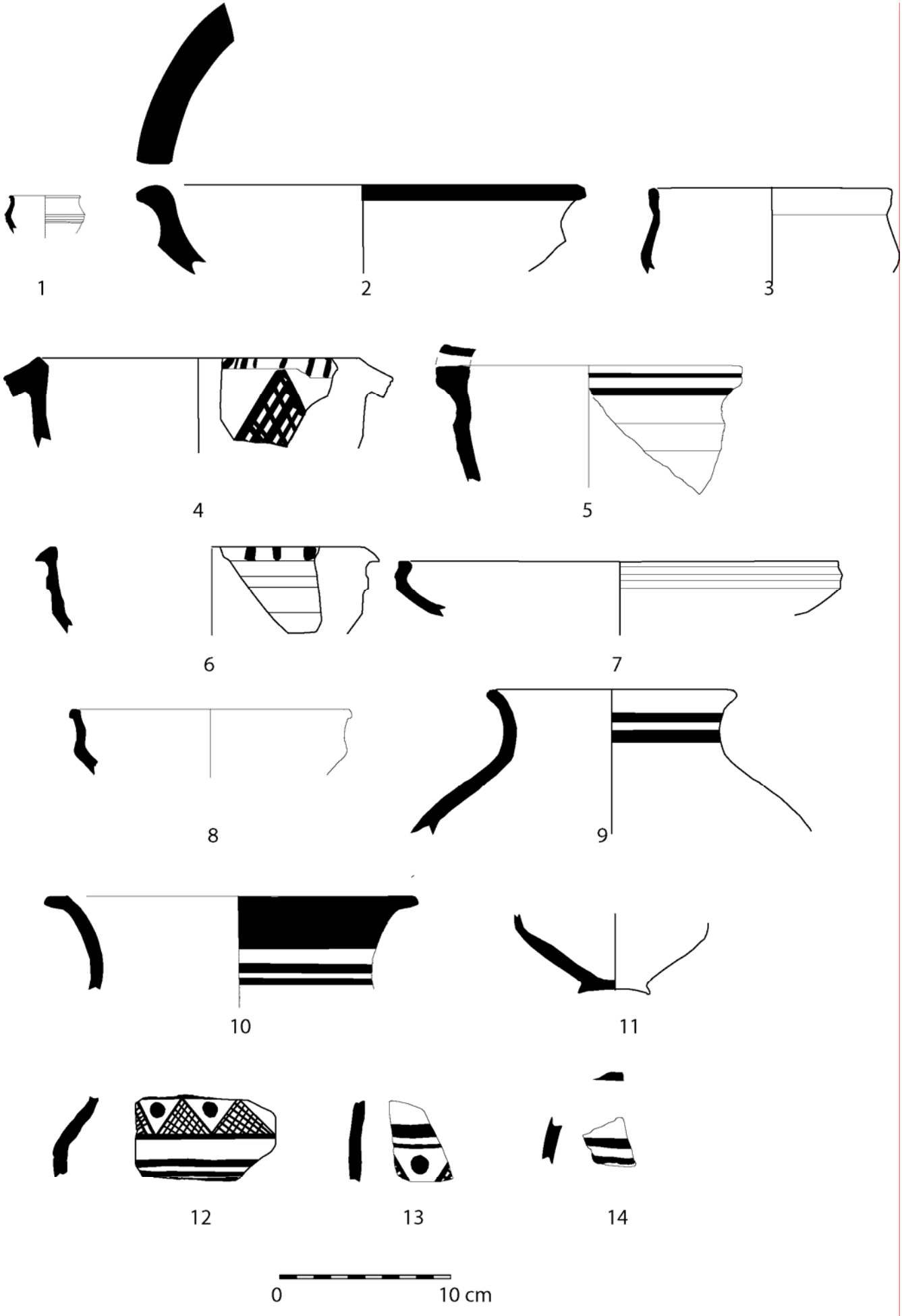
Type 7: Burnished, ridged, carinated bowl
7) Hamis East (251). D=16 cm. Wheel-made, burnished gray, slight grit temper.
8) Hansa East (251). D=26 cm. Wheel-made, burnished gray, heavy sand temper.

Type 8: Everted jar rim, Habur ware
9) al-Andalus Acropolis North Mound (212). D=14 cm. Wheel-made, pink, medium grit, chaff, lime pop temper. Reddish brown paint.

Type 10: Ledge rim jar, Habur ware
10) Abu Qadeir South (264). D=20 cm. Wheel-made, reddish yellow, pale brown slip, medium grit and straw temper. Brown paint.

Type 11: Ring base, fine ware
11) al-Andalus Acropolis Main Mound South (212). D=4 cm. Wheel-made, reddish yellow, fine straw temper.

Type 12: Habur ware
12) Hansa North-West Mound (201). Wheel-made, light gray, medium chaff and grit temper. Dark brown paint.
13) Hansa South (201). Wheel-made, pink, medium sand and lime pop temper. Brown paint.
14) Leilan (1), Ziggurat survey. Wheel-made, pinkish buff, medium chaff and lime pop temper. Dark brown paint.



A1.7. Diagnostic Types for Phase 7

A.2.8. Diagnostic Types for Phase 8 (Leilan I, 1900-1700 BC)

All figures are 1:3

Type 1: Rounded, painted triangle cups
1) Sagar East (225): D=8.2 cm. Wheel-made, pale brown, white slip, fine sand temper. Brown paint.
2) Hansa West (201). D= 10 cm. Wheel-made, fine sand temper, gray, light gray slip. Black paint.

Type 2: Everted rim, fine pots, "Young Habur ware"
3) Leilan (1), Op. 8 2. D=6.4 cm. Wheel-made, brown, cream slip, fine, no visible temper. Reddish brown paint.
4) Abu Qadeir, Top (264). D=8 cm. Wheel-made, fine grit and sand temper, brownish gray, buff slip. Brown paint.

Type 3: Square rim bowl
5) Leilan (1), Op 8 lot 6. D=27 cm. Wheel-made, orange-brown, chaff and grit temper. Incised.

Type 4: Inverted ledge rim bowl
6) Leilan (1), Op 8 lot 25. D=26.4. Wheel-made, orange-brown, grit temper. Interior and exterior light incised.

Type 5: Black burnished inverted ledge rim bowl
7) Leilan (1), Op 8 73. D=46 cm. Black burnished, gray interior, medium black mineral temper.

Type 5: Carinated, ridge bowl, ring base
8) Leilan (1), Op. 8 lot 2. D=15 cm. Wheel-made, red-orange, fine grit temper.

Type 6: Grain measure
9) Leilan (1), Op 8 lot 18. D=10.5 cm. Wheel-made, pale brown, pale brown slip, fine straw temper. Brown paint.

Type 7: Duck rim jar
10) Leilan (1), Op. 8 lot 16. D=19.5 cm. Wheel-made, buff, pale brown slip, medium straw, grit and lime pop temper.

Type 8: Incised ledge rim
11) Leilan (1), Op. 8 lot 13. D=15 cm. Wheel-made, buff, pinkish cream slip, medium straw temper.

Type 9: Slightly inverted, fine bead rim
12) Leilan (1), Op 8, lot 18. D=8 cm. Wheel-made, medium brown, fine, no visible temper.

Type 10: Late Habur ware

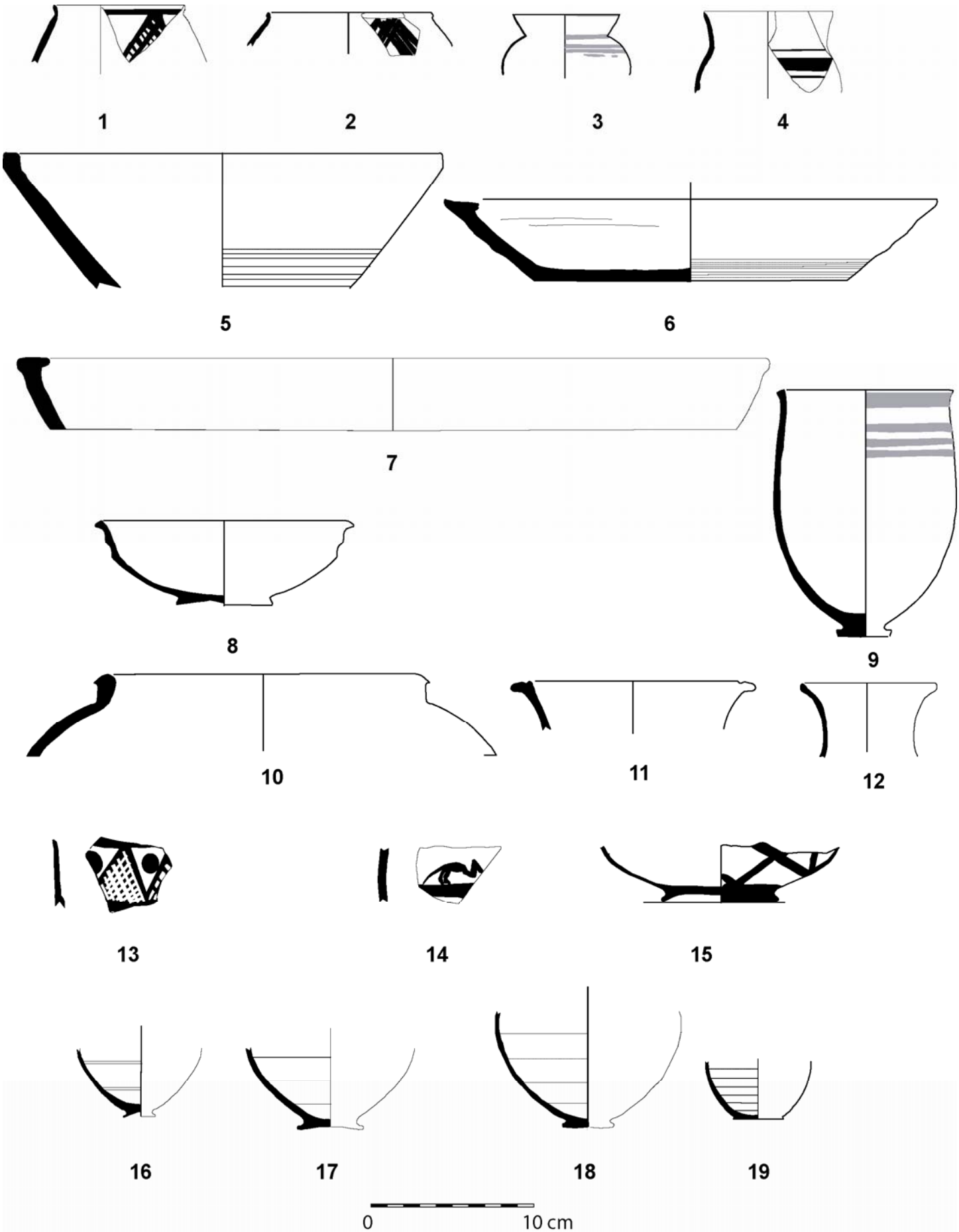
13) Mohammed Diyab A (25). Wheel-made, reddish-yellow, white slip. Fine sand, grit and lime pop temper. Red paint.

14) Sultan et-Tellul (223). Wheel-made, very pale brown, pale yellow slip. Heavy straw and lime pop temper. Red paint.

Type 11: Painted ring base
15) Leilan (1), Op 8 lot 18. D=7 cm. Wheel-made, buff-brown, brown slip, fine straw temper. Black paint.

Type 12: Small ring base
16) Leilan (1), Op 8 lot 26. D=1.8 cm. Wheel-made, orange-buff, fine, no visible temper.
17) Leilan (1), Op 8 lot 18. D=4 cm. Wheel-made, brown-buff, fine straw temper.

Type 13: Disk base
18) Leilan (1), Op 8 lot 18. D=3.2 cm. Wheel-made, pale brown, pale brown slip, fine straw and lime pop temper.
19) Leilan (1), Op 8 lot 20. D=3 cm. Wheel-made, pale-brownish orange, pale brown slip, fine, no visible temper.



A1.8. Diagnostic Types for Phase 8

A.2.9. Diagnostic Types for Phase 9 (Mitanni, 1500-1300 BC)

All figures are 1:3

Type 1: Round rim, sharp carinated bowl.
1) Abu Farah (60), β11 (60). D= 19 cm. Wheel-made, buff, green-slip, medium-fine ware, occasional lime pop temper. (Donella 2002: Tav. 14: 6).

Type 2: Everted rim, rounded carinated bowl.
2) Abu Farah (60), ε270. D=14 cm. Wheel-made, pink-buff, fine ware, fine mineral temper. (Donella 2002: Tav. 14: 4).

Type 3: Deep carinated bowl, with a single ridge.
3) Haid "Mill Mound" (90), 2. D=14 cm. Wheel-made, pink-buff, medium ware, medium chaff and lime pop temper. (Donella 2002: Tav. 20: 9).

Type 4: Round rimmed, low carinated bowl.
4) Abu Farah (60), γ 212. D=19 cm. Wheel-made, pink-buff, medium ware, medium mineral temper. (Donella 2002: Tav. 14: 5).

Type 5: Nuzi beaker, lightly everted rim.
5) Abtakh Fawqani (279), 1. D=8 cm. Wheel-made, chamois-colored, fine ware, fine mineral temper. White on dark red paint. (Donella 2002: Tav. 17: 1).

Type 6: Thickened rim, rounded bowl.
6) Shair (74), 201. D=12 cm. Wheel-made, orange, medium ware, medium mineral temper. (Donella 2002: Tav. 16: 1).

Type 7: Rounded inverted bowl.
7) Marjan East (69), 40. D=16 cm. Wheel-made, orange-buff, medium ware, medium mineral temper, occasional chaff temper. (Donella 2002: Tav. 15: 10).

Type 8: "Anti-splash" rim bowl.
8) "East of Bagheriya (124), 35." D=15 cm. Wheel-made, buff, medium ware, infrequent chaff, mineral, lime pop and quartz temper. (Donella 2002: Tav. 15: 7).

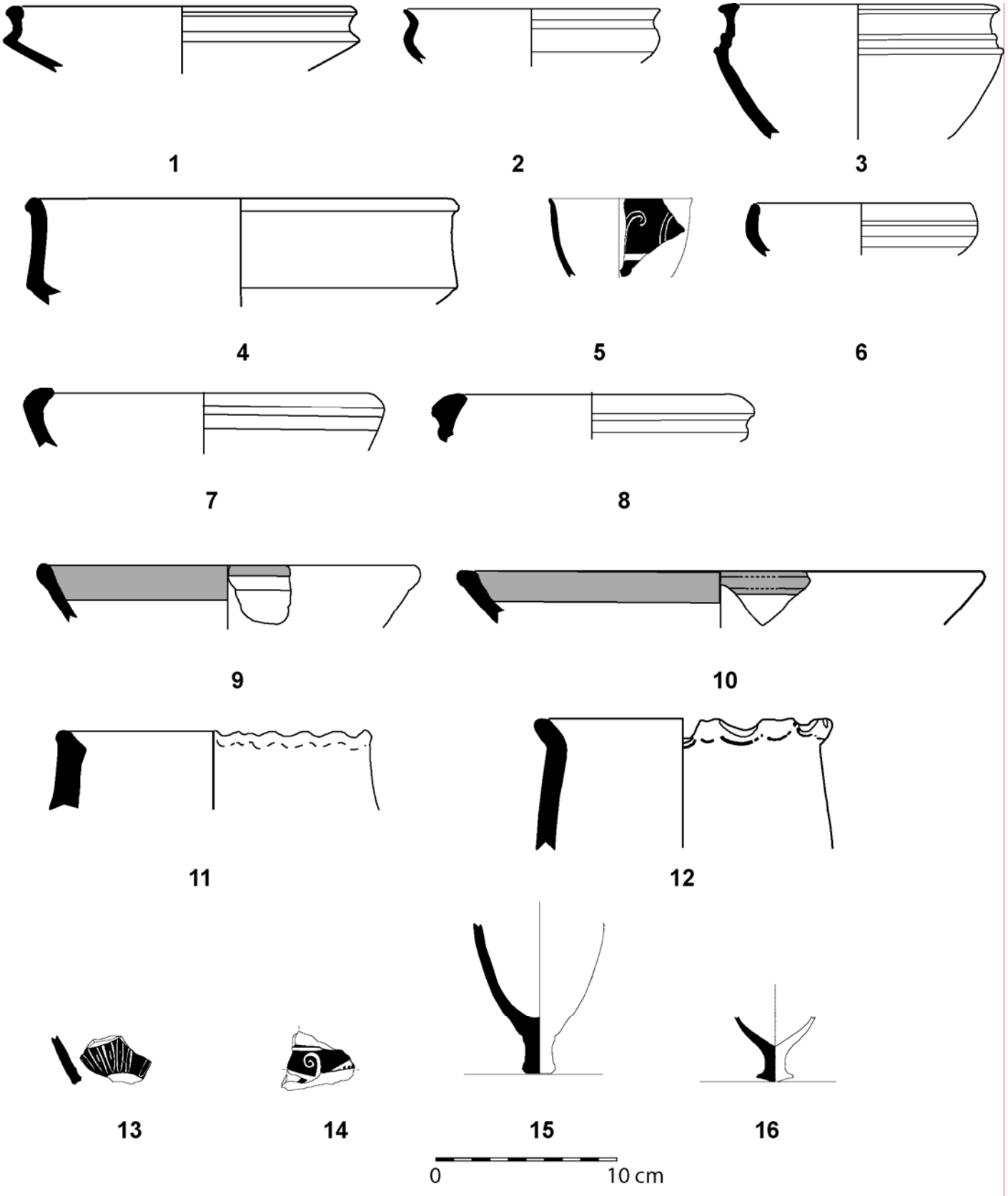
Type 9: "Banda rossa" bowl
9) Aid West Mound (90), 1. D=25.5 cm. Wheel-made, orange, coarse basalt and chaff temper. Red paint. (Donella 2002: Tav. 20: 8).
10) Aid Mill Mound (90), 7. D=36 cm. Wheel-made, orange-buff, medium lime pop ware. Red paint. (Donella 2002: Tav. 20: 6).

Type 10: Pie-crust pot-Stand
11) Hameid (125), 152 . D=16cm. Wheel-made, buff-orange, medium chaff temper. (Donella 2002: Tav. 16: 10).
12) Abu Farah (60), T3 53. D=12 cm. Wheel-made, buff, orange core, coarse mineral and chaff temper. (Donella 2002: Tav. 14: 13).

Type 11: Nuzi ware

13) Haid NE 1 (90). Wheel-made, buff, fine-medium mineral temper. White on black paint. (Donella 2002: Tav. 20: 1).
14) Abtakh Fawqani (279), 2. Wheel-made, buff, gray core, medium chaff and lime pop temper. White on dark red paint. (Donella 2002: Tav. 17: 2).

Type 12: Nuzi pedestal base
15) al-Andalus Lower Town (212). D=1.5 cm. Wheel-made, light gray, fine sand temper.
16) Dumdum Top (241). D=2 cm. Wheel-made, pale brown, fine sand temper.



A1.9. Diagnostic Types for Phase 9

A.2.10. Diagnostic Types for Phase 10 (Middle Assyrian, 1300-1000 BC)

All figures are 1:3

Type 1: "Middle Assyrian Official" carinated dish.
1) Shair (74), 262. D=14 cm. Wheel-made, buff-brown, buff slip, medium-heavy lime pop temper. (Donella 2002: Tav. 16: 2).

Type 2: Carinated, beaded bowl.
2) Tartab 1 (145), S 42 . D=14 cm. Wheel-made, green-buff, coarse ware, heavy chaff and mineral temper. (Donella 2002: Tav. 21: 6).
3) Tartab 1 (145), S 41. D=14 cm. Wheel-made, chamois, medium ware, occasional chaff and heavy grit temper. (Donella 2002: Tav. 21: 7).

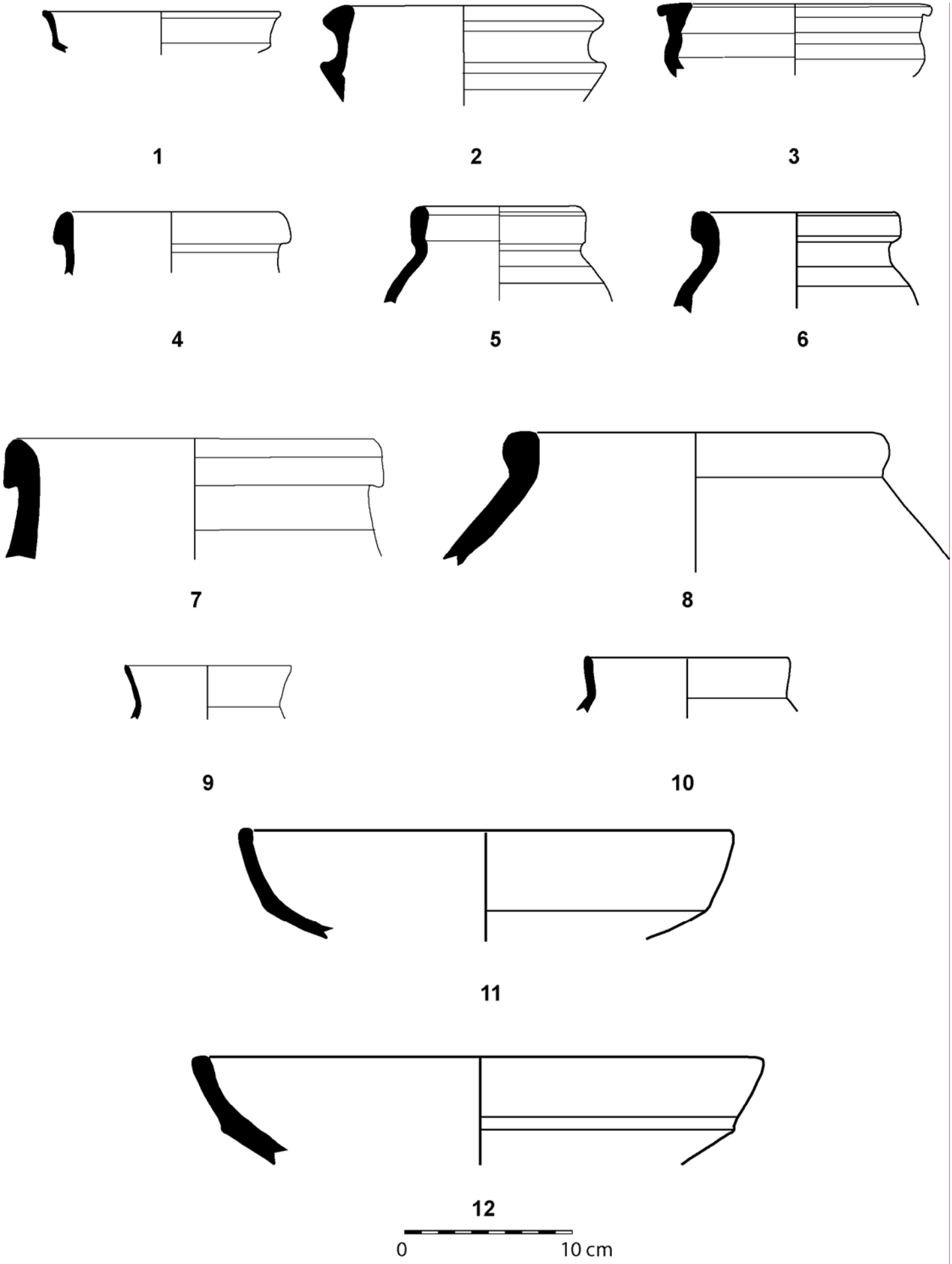
Type 3: "Middle Assyrian Official" ribbon-rim jar.
4) Abtakh Fawqani (279), 7. D=12 cm. Wheel-made, green-buff, medium ware, occasional chaff and heavy grit temper. (Donella 2002: Tav. 17: 5).
5) Rehaya (11), 20. D=12 cm. Wheel-made, green-buff, medium-coarse ware, heavy chaff and grit temper. (Donella 2002: Tav. 18: 5).
6) Nabua (62), 21. D=12 cm. Wheel-made, very light green, medium ware, medium chaff and grit temper. (Donella 2002: Tav. 17: 3).
7) Umm Adam (280), 51. D=21 cm. Wheel-made, brown-buff, coarse ware, heavy mineral temper. (Donella 2002: Tav. 21: 8).

Type 4: Square collared jar.
8) Abu Farah (60), α17. D=21 cm. Wheel-made, beige, gray core, coarse ware, coarse basalt temper. (Donella 2002: Tav. 15: 5).

Type 5: Everted rim beaker.
9) Abu Farah (60), α220. D=10 cm. Wheel-made, buff, fine ware, fine mineral temper.
10) Khazna (185), 126. D=8 cm. Wheel-made, pink-buff, fine ware, fine mineral temper. (Donella 2002: Tav. 16: 14).

Type 6: Simple rim carinated medium bowl (Non-official).
11) Sultan-et-Tellul (223), 97/3. D=28 cm. Wheel-made, gray, gray slip, medium mineral temper. (Donella 2002: Tav. 19: 3).

Type 7: "Official Middle Assyrian" carinated bowl
12) Sultan-et-Tellul(223), 97/4. D=33 cm. Wheel-made, beige-brown, fine mineral temper. (Donella 2002: Tav. 19: 4).



A1.10. Diagnostic Types for Phase 10

Appendix 3: Catalogue of Second and Third Millennium Sites from the Leilan Regional Survey

No.	Name	P1[161]	P2	P3	P4	P5	P6	P7	P8	P9	P10	Size[162]
1	Leilan	1.0000	1.0000	1.0000	1.0000	1.0000		1.0000	1.0000	1.0000		90 ha
2	Qiru				1.0000	1.0000	1.0000	1.0000				170X120X6
3	Nasran							1.0000				70X50X3
9	Rehaya 1							0.0010				285X175X6
10	Rehaya 2				0.0010	0.0010		0.0010				Main=145X87.5X8, Smaller=92.5X50X1
11	Rehaya 3										0.0010	290X120X6
12	Awda		1.0000	1.0000	1.0000	1.0000		1.0000				220X160X20
13	Gir Souar		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000				320X160X23
14	Bayandur		1.0000	1.0000	1.0000	1.0000		1.0000	1.0000		0.0010	230X420X14
15	Blaij		1.0000	1.0000	1.0000	1.0000		1.0000				310X200X24
16	Dougird		1.0000	1.0000	1.0000			1.0000				16 ha
17	Kulurah		1.0000	1.0000	1.0000			1.0000				2 ha
18	Farsouk Kebir				1.0000	1.0000		1.0000				200X100X14 (also extension)
20	Gir Sheyran		1.0000	1.0000	1.0000			1.0000				240X160X14
22	Gir Dahul				1.0000			1.0000				West=250X150X3
25	Barham Qadim				1.0000			1.0000				250X218
34	Gir Margue		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000				180X140X16
35	Guirdem Halime		1.0000	1.0000	1.0000	1.0000		1.0000				250X200x19
44	Mutu				0.0010							4.1 ha
47	Hamara		1.0000	1.0000	1.0000			1.0000		1.0000	1.0000	170X120X11
49	Qarassa		1.0000			1.0000		1.0000	1.0000	1.0000	1.0000	10.9 ha
51	Qotba Tahtani		1.0000	1.0000	1.0000			1.0000				150X150X3
52	Aziz		1.0000	1.0000	1.0000	1.0000		1.0000				192X133
54	Abu Khazaf					1.0000		1.0000				340X200X23
55	Mohammed Diyab	0.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	43 ha
58	Zahara Saghira							0.0010				390X150X2
59	Sharmouk Central Mound	1.0000	1.0000		1.0000	0.0001		1.0000				300X200X23
60	Abu Farah		1.0000	0.0010	1.0000	1.0000	1.0000	1.0000		1.0000	1.0000	290X220X26
61	Abu Hajjeira					0.0010		1.0000	1.0000			195X156X16
62	Nabua				0.0010			1.0000			1.0000	D=150m, H=5m.
63	Wulayqi Thirthar				0.0001	0.0010		1.0000				200X100X6
64	Wulayqi West/Duhaym							1.0000				350X150X8
66	Sufiyah			0.0010				1.0000		0.0010		100X100X3

[161] P corresponds to Leilan survey phase. 1.000 indicates that more than four sherds definitely dating to that phase were identified; .001 indicates the presence of fewer than four "definite" sherds; .0001 indicates the presence of sherds that may date to each phase.
[162] If not otherwise noted, size is in metres.

68	84.25							1.0000				0.5 ha
69	Marjan							1.0000		0.0010	0.0010	West=250X150X6, East=200X100X5.
70	84.37							1.0000				0.5 ha
71	84.39							1.0000				150X80X3
72	84.40							1.0000				110X100X3
73	Maharkan							1.0000				180X230X6
74	Shair	0.0001	1.0000		1.0000	1.0000	1.0000	1.0000		0.0010	1.0000	200X200X20
75	84.44							1.0000				0.5 ha
76	Jihan							1.0000		0.0010	0.0010	216X106X15
77	84.48							1.0000				0.5 ha
78	Khirbet ed-Dib							1.0000				d=100, h=1
79	Bouair							1.0000				80X60X3
80	Khirbet Khalil							1.0000				100X100X3
81	Kharaydjka II							1.0000				100X100X5
82	Kharaydjka I							1.0000				70X70X2
83	84.61							1.0000				50X50X1
84	Gunduk				0.0010	0.0010		1.0000				70X60X2
85	Khazne						0.0001	1.0000	0.0010		0.0010	220X140X13
86	Dakshuriya							1.0000				D=250m, H=8m
87	Bazouna Kabira							1.0000				5 ha
88	Braish							1.0000	0.0010			300X100X15
89	Qabr Ahmad al Shim							1.0000				50X40X4
90	Aid	0.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		1.0000	0.0010	20 ha
91	El Aatchance							1.0000				360X180X19
92	Nasr			0.0001				1.0000			0.0010	360X250X20
93	Shibaniyat Dahham							1.0000				170X150X10
94	Amarin							1.0000				130X70X12
95	Hajji Kabir							1.0000				60X60X2
96	Koubeiba	1.0000	1.0000		1.0000			1.0000	0.0010			220X120X10
97	Hajji Kabir 2							1.0000				100X80X2
101	Abbas		0.0010									d=100m, h=10m.
102	Bum							1.0000				0.5 ha
104	Magreinat West							0.0000			0.0010	150X150X6
106	Toueiyel		1.0000	1.0000	1.0000	1.0000		1.0000	1.0000			240X170X18
107	Hansa al-Boutha							1.0000				d=.95, h=1 for each mound
108	Jalak					0.0010		0.0010				150X100X4
112	Taya							1.0000			0.0010	200X170X20
114	Hormor 2							1.0000				1.02 ha
115	Siha Kabira							1.0000				250X200X4
118	Shibaniyeh							1.0000				150X80X3
120	Arbat		0.0010	0.0010	0.0010			1.0000				120X90X12

123	Khodr		1.0000		0.0010	1.0000	1.0000	1.0000			0.0010	350X350X17
124	East of Bagheriya									0.0001		.3 ha
125	Hameid					1.0000	1.0000	1.0000		1.0000		23 ha
130	Daharan 2							0.0010				0.5 ha
132	Wadi near Mitaniye							0.0010				.4 ha
133	Abu Qassayeb		1.0000	1.0000	1.0000	1.0000	0.0001					60X50X12
134	Mitaniye							1.0000				440X200X8
136	Gir Tav		1.0000	1.0000								6 ha
137	Barham		1.0000					1.0000				D=130, H=10
138	Sharmoukh Village							1.0000				300X200X23
142	Suwaidiya Kabira							1.0000				D=176, H=7
143	Buludiya							0.0010				D=140, H=8
144	Awena							1.0000				2.5 ha
145	Tartab 1			0.0010	1.0000			1.0000			0.0010	6 ha
147	Abu Hajjeira village							1.0000				3.2 ha
148	Gunduk Said							1.0000			0.0010	D=125, H=6
149	Malish 1							1.0000				D=100
151	Gre Pre			0.0001	1.0000	1.0000		1.0000	1.0000			240X200X12
153	Qatraniya									0.0010		232X60X8
154	Samer					1.0000		1.0000				1.1 ha
155	Maqbara		0.0010					0.0010			0.0010	120X120X.5
156	Aaramish							0.0010				100X100X2
157	Madhluma	0.0000							0.0000			1.2 ha
158	Shibaniyeh 2							1.0000				4.1 ha
161	Mathlutheh Hillal							0.0010	0.0010	0.0010		140X140X4
162	Mathlutheh Halag									0.0010		300X150X.8
165	Amri Kabir		0.0010	1.0000	1.0000	1.0000		1.0000				200X100X10
166	Mathlutheh Tawila		0.0010			0.0010						300X250X8
169	Qasr Faris		1.0000		0.0010	1.0000		0.0010				125X125X5
171	Kharab al-Bus									0.0010		3 ha
179	Tartab 3		1.0000	0.0010	1.0000	0.0010		1.0000				320X200X35
180	Ghazal		1.0000	1.0000	1.0000	1.0000	0.0001	1.0000				520X230X10
181	Bayazeh Kabira 1							1.0000				D=137.5, H=10
182	Bayaza Kabira 2							1.0000				150X75X4
183	Banja							0.0010	1.0000	0.0001		R=100m, H=4m
184	Qubur al-harb							1.0000				100X100
185	Khazna 2							0.0010				150X150
186	Farfara			0.0010	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1600X1100X20
187	Doueitch	1.0000	1.0000		0.0001	0.0001					0.0010	60X40X8
189	Ahmed	1.0000	1.0000		0.0010	0.0010		1.0000				150X150X10

190	Abu Tuwain							0.0010				1.5 ha
193	Ambar							1.0000		0.0001		High=75X100X10, low mounds to East and South.
196	Shalumiyah		0.0001					1.0000				190X210X4
197	Mezgaft							0.0010				0.7 ha
198	Qubik			0.0001	0.0001	0.0010		1.0000				110X160X11
201	Hansa		0.0010			1.0000	1.0000	1.0000		0.0010		500X650X14
203	Khzeimok							0.0010				120X70X6
206	Ahwain					1.0000						300X200X6
208	Farhan er-Rashid									0.0010		150X140X3.5
210	Umm et-Tlal							0.0010				520X330X5
212	al-Andalus							1.0000	1.0000	1.0000	1.0000	800X800X12
218	Qortoba Kabira							1.0000		0.0010		240X230X2
219	D'ba'a							1.0000	1.0000	1.0000	0.0010	180X350X8
220	Abra		0.0010									0.6 ha
221	Abu Zayyan							1.0000				150X70XNil
223	Sultan et-Tellul		0.0001			1.0000		1.0000	1.0000	1.0000	1.0000	300X260X12
225	Sagar East							1.0000	1.0000	0.0001	1.0000	360X270X7
226	Haman							1.0000				1.3 ha
227	Bouwaitikh							0.0010				300X190X5
231	Aweinat ibn Harshan							1.0000			1.0000	480X230X.5
233	Aweinat ibn Harshan 3							1.0000				220X220X4
236	Bouwaitikh North							0.0010				1.1 ha
237	Zahara							1.0000				400X370X2
238	Dabagh				0.0010	0.0010		0.0010				270X350X8
240	Taif							1.0000				270X270X6
241	Dumdum				0.0001	1.0000		1.0000	1.0000	1.0000	1.0000	D=592, H=?
245	Gibsi					1.0000		1.0000			0.0001	30X135X8
248	Gasi West							1.0000		0.0010		160X210X2
249	Gasi							0.0010				130X185X6
251	Hamis					0.0010		1.0000	1.0000			330X300X16
255	Aweinat ibn Harshan 5							0.0010		0.0010		230X170X6
256	Aweinat ibn Harshan 6							0.0010			0.0010	150X200X2
257	Lazzaga			1.0000	0.0010	0.0001		1.0000				450X360X4
261	Graga Fowqani							0.0010				400X370X3
264	Abu Qadeir	0.0001		0.0010	1.0000	1.0000	1.0000	1.0000			0.0010	250X250
267	Hissu Ratla							1.0000				100X100X4
270	Tubiz					0.0001		1.0000				290X140X2
271	Abu Kabira West							1.0000				95X100X4
272	Abu Kabira					0.0010	0.0010	1.0000		0.0010		Main= 385X200X24, NE=80X105X8
273	Tahin				0.0001	0.0010		1.0000				320X260X14

276	Atwiyeh							1.0000				290X190X6
277	Hbeth							0.0010				800X450X*1, 2.5, 6
279	Abtakh Fowqani					0.0001		1.0000	1.0000	1.0000	1.0000	200X300X15
280	Umm Adam							0.0010				380X480X1.5
282	Saadun							1.0000		0.0010		500X320, Main=120X160X17
283	Abu Batakh							1.0000		0.0010	1.0000	120X110X2.5
285	Wadahiya							1.0000	1.0000	1.0000	1.0000	160X140X3
292	Aweinat el-Amrin 3					0.0010		1.0000		0.0010	0.0001	160X170X2.5
293	Aweinat el-Amrin 4						0.0001	0.0010		0.0001		170X125X2
295	Shura West										0.0010	120X230X2
296	Abu Qbeir North							0.0010				160X270X2.5
301	Majjreinat North							1.0000			0.0010	D=102, H=4
302	Na'am Jallad					0.0010	0.0010	1.0000				140X170X7
307	Hassawiyah Tahtani					1.0000		0.0010			0.0001	85X100X2.5
308	Na'am Hayar					0.0010		1.0000		0.0010	1.0000	160X160X8
311	Hilwet Beni Seba									0.0010		Main =D=125, H=3, Smaller=37X62X2
313	Khuwaith al-Ri'aydat										0.0010	220X140X3
315	Qabbaniyat Awda							1.0000				d= 225m, h= 3m.
322	Outeldja		0.0001					0.0010				120m (E-W).
323	Said							0.0010				D=100, H=4
330	Ziwan							0.0010				d=110m, h=1.
332	Abu Geri							1.0000				Main=200X150X9, Cem.=50X20X2
335	Boutha					0.0001						100X70X1.5

Works Cited

Adams, R.M. 1965. *Land Behind Baghdad: A History of Settlement on the Diyala Plains*. Chicago and London: University of Chicago Press.

—. 1966. *The Evolution of Urban Society: Early Mesopotamia and Prehispanic Mexico*. Chicago: Aldine.

—. 1981. *Heartland of Cities: Surveys of Ancient Settlement and Land Use on the Central Floodplain of the Euphrates*. Chicago and London: University of Chicago Press.

—. 1982. Property Rights and Functional Tenure in Mesopotamian Rural Communities. In *Societies and Languages of the Ancient Near East: Studies in Honour of I.M. Diakonoff* (ed.) M.A. Dandamayev, et al., pp. 1-14. Warminster: Aris and Phillips.

—. 1984. Mesopotamian Social Evolution: Old Outlooks, New Goals. In *On the Evolution of Complex Societies. Essays in Honor of Harry Hoijer 1982* (ed.) T. Earle, pp. 79-129. Malibu: Undena Publications.

—. 2001. Complexity in Archaic States. *Journal of Anthropological Archaeology* 20, 345-360.

—. 2002. Steps toward Regional Understanding of the Mesopotamian Plain. In *Material Culture and Mental Spheres: Rezeptions archäologischen Denkrichtungen in der Vorderasiatischen Altertumskunde (Nissen FS)* (eds) A. Hausleiter, S. Kerner & B. Müller-Neuhoff, pp. 33-47. Münster: Ugarit-Verlag.

Adams, R.M. & H. Nissen. 1972. *The Uruk Countryside: The Natural Setting of Urban Societies.* Chicago and London: University of Chicago Press.

Akkermans, P.M.M.G. 1984. Archäologische Geländebegehung im Balih-Tall. *AfO* 31, 188-190.

—. 1991. An Administrative Building of the King of Andarig at Shubat-Enlil. *NABU* 4, 68-70.

Akkermans, P.M.M.G., J. Limpens & R.H. Spoor. 1993. On the Frontier of Assyria: Excavations at Tell Sabi Abyad, 1991. *Akkadica* 69, 1-52.

Akkermans, P.M.M.G. & I. Rossmeisl. 1990. Excavations at Tell Sabi Abyad, Northern Syria: A Regional Centre on the Assyrian Frontier. *Akkadica* 66, 13-60.

Akkermans, P.M.M.G. & H. Weiss. 1991. Tell Leilan 1987: Operation 3. A Preliminary Report on the Lower Town Palace. *AAAS* 37/38, 91-109.

Algaze, G. 1989. The Tigris-Euphrates Reconnaissance Project, 1988. *JNES* 48, 241-281.

—. 1993. *The Uruk World System: The Dynamics and Expansion of Early Mesopotamian Civilization*. Chicago: University of Chicago Press.

Algaze, G., R. Breuninger & J. Knudstad. 1994. The Tigris-Euphrates Archaeological Reconnaissance Project: Final report of the Birecik and Carchemish Dam survey areas. *Anatolica* 20, 1-96.

Algaze, G. & A. Misir. 1992. Sanliurfa Musem/University of California Excavations and Surveys at Titrish Höyük, 1991. *KST* 14, 155-174.

al-Khalesi, Y.M. 1976. Tell al-Fakhar (Kurruhanni), a *dimtu* Settlement. *Assur* 1, 1-42.

Almogi-Labin, A., M. Bar-Matthews, M. Paterne, A. Ayalon & B. Schilman. 2002. The Relationship between the Marine and the Terrestrial (Speleotherms) Climatic Record during the Last 80 ka in the Eastern Mediterranean. *Geochimica Et Cosmochimica Acta* 66, A14-A14.

Anschuetz, K.F., R.H. Wilshusen & C.L. Scheick. 2001. An Archaeology of Landscapes: Perspective and Directions. *Journal of Archaeological Research* 9, 157-211.

Arafat, K.W. 1990. Fact and Artifact, Texts and Archaeology. *Hermathena*, 45-67.

Archi, A. 1986. Ebla du III^{e} millénaire: institutions et documents juridiques. *Studia et Documenta Historiae et Iuris* 52, 286-301.

—. 1987. Les titres de En et Lugal à Ebla et des cadeaux pour le roi de Kish. *M.A.R.I.* 7, 37-52.

—. 1988a. Cult of the Ancestors and Tutelary Gods at Ebla. In *Fucus: A Semitic/Afroasian Gathering in Remembrance of Albert Ehrman* (ed.) Y. Arbeitman. CILT, pp. 109-110.

—. 1988b. *Testi amministrativi: registrazioni di metalli e tessuti (L.2769)* (ARET VII). Roma: Missione Archeologica Italiana in Syria.

—. 1992. The City of Ebla and the Organization of its Rural Territory. *AoF* 19, 24-28.

—. 1997-1998. Review of G. Pettinato, *Thesaurus Inscriptionum Eblaicorum*. *AfO* 44-45, 272-275.

—. 1998. The Regional State of Nagar According to the Texts of Ebla. In *About Subartu, Studies devoted to Upper Mesopotamia/ À propos de Subartu, Études consacrées à la Haute Mésopotamie* (ed.) M. Lebeau, pp. 1-15. Turnhout: Brepols.

Archi, A. & M.-G. Biga. 1982. *Testi amministrativi di vario contenuto (Archivio L.2769: TM.75.G.3000-4101)* (Archivi Reali De Ebla, Testi (ARET) III). Roma: Missione Archeologica Italiana in Syria.

Archi, A., P. Piacentini & F. Pomponio. 1993. *I Nomi di Luogo dei Testi di Ebla*. Roma: Missione Archeologica Italiana in Syria.

Arnaud, D. 1991. *Textes syriens de l'age du Bronze Récent* (Aula Orientalis Supplementa 1). Barcelona: Editorial AUSA.

Ashmore, W. 2002. "Decisions and dispositions": Socializing spatial archaeology. *American Anthropologist* 104, 1172-1183.

Astour, M. 1992. "An Outline of the History of Ebla (Part I)". In *Eblaitica* (eds) C.H. Gordon & G.A. Rendsburg, pp. 3-83. Winona Lake, IN: Eisenbrauns.

—. 2002. A Reconstruction of the History of Ebla (Part 2). In *Eblaitica: Essays on the Ebla Archives and Eblaite Language* (eds) C.H. Gordon & G.A. Rendsburg, pp. 57-197. Winona Lake, IN: Eisenbrauns.

Aström, P. (ed.) 1987. *High, Middle or Low?* (Studies in Mediterranean Archaeology and Literature 56, 57 and 80). Gothenburg: Paul Astöms Förlag.

Aynard, J.-M. & J.-M. Durand. 1980. Documents d'Epoque Médio-Assyrienne. *Assur* 3, 2-54.

Aynard, J.-M. & A. Spycket. 1987-90. Mari. B. Archäologisch. *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 7, 390-418.

Bachelot, L. 1987. The French Archaeological Excavation to Saddam Dam. The Second Campaign at Kutan, May/June 1984. In *Research[e]s on the Antiquities of Saddam Dam Salvage and Other Researches* (ed.) A.A. V.V., pp. 89-98. Baghdad: State Organization of Antiquities and Heritage. Ministry of Information.

—. 2003. Tell Kutan. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (eds) E. Rova & H. Weiss, pp. 153-191. Turnhout: Brepols.

Ball, W., D.J. Tucker & T.J. Wilkinson. 1989. The Tell al-Hawa Project: Archaeological investigations in the north Jazira 1986-1987. *Iraq* 51, 1-66.

Barbanes, E. 1999. Heartland and Province: Urban and Rural Settlement in the Neo-Assyrian Empire. PhD: University of California, Berkeley.

Bar-Matthews, M. & A. Ayalon. 1997. Late Quaternary Paleoclimate in the Eastern Mediterranean Region from Stable Isotope Analysis of Speleotherms in Soreq Cave, Israel. *Quaternary Research* 47, 155-168.

Bar-Matthews, M., A. Ayalon, M. Gilmour, A. Matthews & C.J. Hawkesworth. 2002. Implications for Post-Sapropel Aridity on Land in the Eastern Mediterranean Region. *Geochimica Et Cosmochimica Acta* 66, A49-A49.

—. 2003. Sea-land Oxygen Isotopic Relationships from Planktonic Foraminifera and Speleothems in the Eastern Mediterranean Region and their Implication for Paleorainfall During Interglacial Intervals. *Geochimica Et Cosmochimica Acta* 67, 3181-3199.

Bar-Matthews, M., A. Ayalon & A. Kaufman. 1998. Middle to Late Holocene Paleoclimate in the Eastern Mediterranean Region from Stable Isotopic Composition of Speleotherms from Soreq Cave, Israel. In *Water, Environment and Society in Times of Climatic Change* (eds) A.S. Issar & N. Brown, pp. 203-214. Amsterdam: Kluwer.

Bar-Matthews, M., A. Ayalon, A. Kaufman & G. Wasserburg. 1999. The Eastern Mediterranean Paleoclimate as a Reflection of Regional Events: Soreq Cave, Israel. *Earth and Planetary Science Letters* 166, 85-95.

Barth, F. 1961. *Nomads of South Persia*. Boston: Little and Brown.

—. 1969. Introduction. In *Ethnic Groups and Boundaries: The Social Organization of Culture Difference* (ed.) F. Barth. Boston: Little and Brown.

Bartov, Y., S.L. Goldstein, M. Stein & Y. Enzel. 2003. Catastrophic Arid Episodes in the Eastern Mediterranean Linked with the North Atlantic Heinrich events. *Geology* 31, 439-442.

Batto, B.F. 1980. Land Tenure and Women at Mari. *JESHO* 23, 209-239.

Becker, C. 1988. Die Tierknochenfunde vom Tell Bderi 1985. *DaM* 3, 379-86.

—. 1991. Erste Ergebnisse zu den Tierknochen aus Tall Sheh Hamad: Die Funde aus Raum A des Gebäudes P. In *Die rezente Umwelt von Tall Šeh Hamad und Daten zur Umweltrekonstruktion der Assyrischen Stadt Dur-Katlimmu* (eds) H. Kühne, M. As'ad & W. Röllig. Berichte der Ausgrabung Tall Šeh Hamad/Dur-Katlimmu, pp. 117-132. Berlin: Dietrich Reimer Verlag.

Bernbeck, R. 1993. *Steppe als Kulturlandschaft. Das 'Agig-Gebiet Ostsyriens vom Neolithikum bis zur islamischen Zeit, mit beiträgen von P. Pfälzner* (Berliner Beiträge zum Vorderen Orient, Ausgrabungen 1. Berlin.

Besonen, M. & M. Cremaschi. N.D. Geomorphological Field Survey Report, Tell Leilan June 2002.

Biagov, L.N. 1976. Zur Interpretation der Termini É und É*dunnu*/URU*dunnu* in den Urkunden der Mittelassyrischen Periode. *Acta Antiqua Academiae Scientiarum Hungaricae* 22, 333-335.

Bielínski, P. 1998. Tell Arbid: Preliminary Report, 1998. *Polish Archaeology in the Mediterranean* X, 205-216.

—. 1999. Tell Arbid, The Fourth Season. *Polish Archaeology in the Mediterranean* XI, 273-284.

—. 2000. Tell Arbid, Interim Report of the Fifth Season. *Polish Archaeology in the Mediterranean* XII, 315-326.

—. 2001. Tell Arbid: The Sixth Campaign of excavations, preliminary report. *Polish Archaeology in the Mediterranean* XIII, 279-294.

—. 2003. Ninevite 5 Burials at Tell Rijm. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (eds) E. Rova & H. Weiss, pp. 493-511. Turnhout: Brepols.

Biga, M.-G. & F. Pomponio. 1987. Ish'ar-Damu, roi d'Ebla. *NABU* 4, 60-61.

Birot, M. 1985. Les chroniques "assyriennes" de Mari. *M.A.R.I.* 4, 219-224.

—. 1993. *Correspondance des Gouverneurs de Qattunân* (Archives Royales de Mari (ARM) 27). Paris: ERC.

Blanton, R.E. 1998. Beyond Centralization: Steps Toward a Theory of Egalitarian Behavior in Archaic States. In *Archaic States* (eds) G.M. Feinman & J. Marcus, pp. 135-172. Santa Fe: School of American Research.

Blanton, R.E., G.M. Feinman, S.A. Kowalewski & P.N. Peregrine. 1996. A Dual-Processual Theory for the Evolution of Mesoamerican Civilization. *Current Anthropology* 37, 1-14.

Bluard, C., X. Luffin, H. Qoueider & Y. Roberts. 1997. Recherches sur le périmètre externe (chantier H). In *Tell Beydar, Three Seasons of Excavations (1992-1994): A Preliminary Report* (eds) M. Lebeau & A. Suleiman, pp. 179-191. Turnhout: Brepols.

Boessneck, J. 1988. Tierknochenfunde von Tell Chuera/Nordost-Syrien. In *Tell Chuera in Nordost-Syrien* (ed.) U. Moortgat-Correns: Schriften der Max Freiherr von Oppenheim-Stiftung.

Böhme, R. 2000 (1989-2000). Syria. In *Inventory of World Topographic Mapping*, pp. 279-284. East Grinstead: Bowker-Saur.

Bolt, D. & A. Green. 2003. The Burial of the Dead. In *The Origins of North Mesopotamian Civilization* (eds) E. Rova & H. Weiss, pp. 519-562. Turnhout: Brepols.

Bonechi, M. 1993. *I nomi geografici dei testi de Ebla* (Répertoire Géographique des Textes Cunéiformes (RGTC) 12/1). Wiesbaden: Dr. Ludwig Reichert.

—. 1998. Remarks on the III Millennium Geographical Names of the Syrian Upper Mesopotamia. In *About Subartu, Studies devoted to Upper Mesopotamia/ À propos de Subartu, Études consacrées à la Haute Mésopotamie* (ed.) M. Lebeau, pp. 219-241. Turnhout: Brepols.

Bottema, S. 1989. Notes on the Prehistoric Environment of the Syrian Djezireh. In *To the Euphrates and Beyond: Archaeological studies in honour of Maurits N. van Loon* (eds) O. Haex, H.H. Curvers & P.M.M.G. Akkermans, pp. 1-16. Rotterdam: A.A. Balkema.

Bottema, S. & R.T.J. Cappers. 2000. Palynological and Archaeobotanical Evidence from Bronze Age Northern Mesopotamia. In *Rainfall and Agriculture in Northern Mesopotamia: Proceedings of the Third MOS Symposium (Leiden 1999)* (ed.) R.M. Jas. MOS Studies, pp. 37-70. Istanbul: Nederlands Historisch-Archaeologisch Instituut.

Bourdieu, P. 1977. *Outline of a Theory of Practice* (trans.) R. Nice. Cambridge: Cambridge University Press.

Boyer, G. 1958. *Textes juridiques* (ARM VIII). Paris: Geuthner.

Bray, T.L. (ed.) 2003. *The Archaeology and Politics of Food and Feasting in Early States and Empires*. New York: Kluwer.

Brentjes, B. 1999. Thesen zum Zusammenhang von Klimaschwankungen und Völkerbewegungen im späten 2. Jahrtausend v. Chr. In *Landwirtschaft im Alten Orient : ausgewählte Vorträge der XLI. Rencontre Assyriologique Internationale*

Berlin, 4.-8.7.1994 (eds) H. Klengel & J. Renger. BBVO, pp. 59-63. Berlin: Dietrich Reimer Verlag.

Bretschneider, J. 2003. Untersuchungen an der äusseren Wallanlage (Feld H). In *Tell Beydar, Three Seasons of Excavations (1992-1994): A Preliminary Report* (eds) M. Lebeau & A. Suleiman, pp. 193-207. Turnhout: Brepols.

Bretschneider, J. & G. Jans. 1997. Palast und Verwaltung: Synchronismen im Haburgebiet im 3. Jahrtausend v. Chr. *UF* 29, 67-93.

Brill, R.H. & H. Shirahata. 1997. Laboratory analyses of some glasses and metals from Tell Brak. In *Excavations at Tell Brak, Vol. 1: The Mitanni and Old Babylonian periods* (eds) D. Oates, J. Oates & H. McDonald, pp. 89-94. London: British School of Archaeology in Iraq.

Brinkman, J.A. 1977. Appendix: Mesopotamian Chronology of the Historical Period. In *Ancient Mesopotamia: Portrait of a Dead Civilization* (ed.) A.L. Oppenheim, pp. 335-348. Chicago: University of Chicago Press.

Bruinessen, M.V. 1992. *Agha, Shaikh and State*. London and New Jersey: Zed Books.

Bryson, R.A. 1997. Proxy Indications of Holocene Winter Rains in Southwest Asia Compared with Simulated Rainfall. In *Third Millennium B.C. Climate Change and Old World Collapse* (eds) N. Dalfes, G. Kukla & H. Weiss. NATO ASI Series I, pp. 465-473. Berlin: Springer.

Bryson, R.A. & R.U. Bryson. 1997. High Resolution Stimulations of Regional Holocene Climate: North Africa and the Near East. In *Third Millennium B.C. Climate Change and Old World Collapse* (eds) N. Dalfes, G. Kukla & H. Weiss. NATO ASI Series I, pp. 565-593b. Berlin: Springer.

Buccellati, G. 1990. "River Bank", "High Country" and "Pasture Land": The Growth of Nomadism on the Middle Euphrates and the Khabur. In *Tall al-Hamidiya 2* (eds) S. Eichler, M. Wäfler & D. Warburton. Orbis Biblicus et Orientalis, pp. 87-117. Freiburg: Universitätsverlag Freiburg.

—. 1992. Ebla and the Amorites. *Eblaitica* 3, 83-104.

—. 1999. Urkesh and the Question of Early Hurrian Urbanism. In *Urbanization and Land Ownership in the Ancient Near East* (eds) M. Hudson & B.A. Levine, pp. 229-250. Cambridge: Peabody Museum of Archaeology and Ethnology, Harvard University.

Buccellati, G. & M. Kelly-Buccellati. 1988. *Mozan 1: The Soundings of the First Two Seasons* (Bibliotheca Mesopotamica 20). Malibu, CA: Undena.

—. 1995. Mozan (Tall). *RLA* 8, 386-393.

—. 1995-1996. The Royal Storehouse of Urkesh: The Glyptic Evidence from the Southwest Wing. *AfO* 42-43, 1-32.

—. 2001. The Royal Palace at Urkesh and the Daughter of Naram-Sin. *AAAS* 44, 63-69.

Buitenhuis, H. 1979. The Faunal Remains from Tell Hadidi. *Archeozoology* 1, 154-175.

—. 1983. The Animal Remains of Tell Sweyhat. *Palaeohistoria* 25, 131-144.

Bunnens, G. 1999. Melbourne University Excavations at Tell Ahmar on the Euphrates. Short Report on the 1989-1992 Seasons. In *Archaeology of the Upper Syrian Euphrates, The Tishrin Dam Area* (eds) G. del Olmo Lete & J.-L. Montero Fenollós. Aula Orientalis-Supplementa 15, pp. 1-13. Barcelona: AUSA.

Butz, K. 1980-1983. Landwirtschaft. *RLA* 6, 470-486.

Calderone, L. & H. Weiss. 2003. The End of the Ninevite 5 Period at Tell Leilan. In *The Origins of Northern Mesopotamian Civilization: Ninevite V Economy, Society and Culture* (eds) H. Weiss & E. Rova. Subartu, pp. 193-220. Turnhout: Brepols.

Campbell, S. & A. Green (eds) 1995. *The Archaeology of Death in the Ancient Near East*. Oxford: Oxbow.

Cancik-Kirschbaum, E.C. 1996. *Die Mittelassyrischen Briefe aus Tall Šeh Hamad* (Berichte der Ausgrabung Tall Šeh Hamad/Dur-Katlimmu 4). Berlin: Dietrich Reimer Verlag.

—. 2000. Organisation und Verwaltung von Grenzegebieten in mittelassyrischer Zeit. In *Landscapes: Territories, Frontiers and Horizons in the Ancient Near East, Papers presented to the XLIV RAI Venezia, 7-11 July, 1997* (eds) L. Milano, S. De Martino, F.M. Fales & G.B. Lanfranchi, pp. 5-8. Padova: Sargon srl.

Carter, E. & A. Parker. 1995. Pots, People and the Archaeology of Death in Northern Syria and Southern Anatolia in the Latter Half of the Third Millennium B.C. In *The Archaeology of Death in the Ancient Near East* (eds) S. Campbell & A. Green, pp. 96-116. Oxford: Oxbow.

Castel, C. 1992. Explorations dans la ville basse de Mohammed Diyab. In *Tell Mohammed Diyab: Campagnes 1990 et 1991* (ed.) J.-M. Durand. Mémoires de NABU, pp. 39-54. Paris: SEPOA.

—. 1996. Un quartier de maisons urbaines du bronze moyen à Tell Mohammed Diyab (Djezireh Syrienne). In *Houses and Households in Ancient Mesopotamia* (ed.) K.R. Veenhof, pp. 273-283. Leiden: Nederlands Instituute voor het Nabije Oosten.

Challis, K., G. Priestnall, A. Gardner, J. Henderson & S. O'Hara. 2002-2004. CORONA Remotely-Sensed Imagery in Dryland Archaeology: The Islamic City of al-Raqqa, Syria. *Journal of Field Archaeology* 29, 139-153.

Charles, M. & A. Bogard. 1997. Palaeobotany. In *Vol. 1: The Mitanni and Old Babylonian Periods* (eds) D. Oates, J. Oates & H. McDonald, pp. 128-130. London: British School of Archaeology in Iraq.

—. 2001. Third-millennium BC Charred Plant Remains from Tell Brak. In *Excavations at Tell Brak, Vol. 2: Nagar in the third millennium BC* (eds) D. Oates, J. Oates & H. McDonald. McDonald Institute Monographs, pp. 301-326. London: British School of Archaeology in Iraq.

Charpin, D. 1986. Les Elamites à Šubat-Enlil. In *Fragmenta Historiae Elamicae: Mélange offerts à M. Steve* (eds) L.d. Meyer, H. Gasche & F. Vallat, pp. 129-137. Paris: ERC.

—. 1987a. Tablettes présargoniques de Mari. *M.A.R.I.* 5, 65-100.

—. 1987b. Šubat-Enlil et le pays d'Apum. *M.A.R.I.* 5, 129-40.

—. 1988. Lettres d'Usur-awassu. In *Archives épistolaires de Mari*. ARM 26/2, pp. 9-29. Paris: ERC.

—. 1990a. Conclusions et Perspectives: Tell Mohammed Diyab, Une Ville du Pays d'Apum. In *Tell Mohammed Diyab: Campagnes 1987 et 1988* (ed.) J.-M. Durand. Cahiers de NABU, pp. 117-122. Paris: SEPOA.

—. 1990b. Nouvelles tablettes présargoniques de Mari. *M.A.R.I.* 6, 245-252.

—. 1990c. Review of Abdulillah Fadhil *Studien zur Topographie und Prosopographie der Provinzstädte des Königreichs Arraphe*. *RA* 84, 94-95.

—. 1990d. Une alliance contre l'Elam et le rituel du lipit napištim. In *Contribution à l'Histoire de l'Iran. FS J. Perrot* (ed.) F. Vallat, pp. 109-118. Paris: ERC.

—. 1992a. De la vallée du Tigre au "triangle du Habur": un engrenage géopolitique. In *Recherches en Haut Mésopotamie: Tell Mohammed Diyab Campagnes 1990 et 1991* (ed.) J.-M. Durand. Mémoires de NABU, pp. 97-102. Paris: SEPOA.

—. 1992b. Mari entre L'Est et l'Ouest: politique, culture, relgion. *Akkadica* 78, 1-10.

—. 1994. Une campagne de Yahdun-Lîm en Haute-Mésopotamie. In *Florilegium Marianum II: Recueil d'études à la mémoire de Maurice Birot* (eds) D. Charpin & J.-M. Durand. Mémoires de Nabu, pp. 177-200. Paris: SEPOA.

—. 1995a. The History of Ancient Mesopotamia: An Overview. In *CANE* (ed.) J.M. Sasson, pp. 807-829. New York: Charles Scribner's Sons.

—. 1995b. La fin des archives dans le palais de Mari. *RA* 89, 29-40.

—. 1997a. Assur avant l'Assyrie. *M.A.R.I.* 8, 367-391.

—. 1997b. Sapîratum, ville de Suhûm. *M.A.R.I.* VIII.

Charpin, D. & J.-M. Durand. 1985. La prise du pouvoir par Zimri-Lim. *M.A.R.I.* 4, 293-336.

—. 1986. Fils de Sim'al: Les origines tribales des rois de Mari. *RA* 80, 141-183.

—. 1987. Le nom antique de Tell Rimah. *RA* 81, 125-146.

Charpin, D. & N. Ziegler. 2003. *Florilegium marianum V: Mari et le Proche-Orient à l'époque amorrite: Essai d'histoire politique* (Mémoires de NABU 6). Paris: SEPOA.

Chernoff, M.C. & S.M. Paley. 1998. Dynamics of Cereal Production at Tell el-Ishfar, Israel during the Middle Bronze Age. *Journal of Field Archaeology* 25, 397-416.

Cherry, J.F. 1983. Frogs Round the Pond: Perspectives on Current Archaeological Survey Projects in the Mediterranean Area. In *Archaeological Survey in the Mediterranean Area* (eds) D.R. Keller & D.W. Rupp, pp. 375-416. Oxfrord: BAR Reports.

Civil, M. 1980. Les limites de l'information textuelle. In *L'Archéologie de l'Iraq du début de l'époque néolithique à 333 avant notre ère* (ed.) M.-T. Barrelet. Collogues Internationaux du CNRS, pp. 225-233. Paris: Éditions du CNRS.

Colledge, S. 2003. Plants and People. In *Excavations at Tell Brak, Vol. 4: Exploring an Upper Mesopotamian regional centre, 1994-1996* (ed.) R. Matthews, pp. 389-416. London: British School of Archaeology in Iraq.

Collon, D. 2003. The Ninevite 5 Seal Impressions from Nineveh. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (eds) E. Rova & H. Weiss, pp. 249-269. Turnhout: Brepols.

Comfort, A., C. Abadie-Reynal & R. Ergeç. 2000. Crossing the Euphrates in antiquity: Zeugma seen from space. *Anatolian Studies* 50, 99-126.

Conteson, H.d. 1985. Le matériel archéologique des tells. In *Holocene Settlement in North Syria: Résultats de deux prospections archéologiques effectuées dans la région du nahr Sajour et sur le haut Euphrate syrien* (ed.) P. Sanlaville, pp. 99-162. Lyon: Maison de l'Orient Mediterraneen.

Cooper, E.N. 1997. The Middle Bronze Age of the Euphrates Valley, Syria: Chronology, Regional Interaction and Cultural Exchange. PhD: University of Toronto.

—. 1999. The EB-MB Transitional Period at Tell Kabir, Syria. In *Archaeology of the Upper Syrian Euphrates: The Tishrin Dam Area* (eds) G. del Olmo Lete & J.-L. Montero Fenollós. Aula Orientalis-Supplementa, pp. 321-332. Barcelona: Editorial AUSA.

Copeland, L. & A.M.T. Moore. 1985. Inventory and Description of Sites. In *Holocene Settlement in North Syria: Résultats de deux prospections archéologiques effectuées dans la région du nahr Sajour et sur le haut Euphrate syrien* (ed.) P. Sanlaville, pp. 41-98. Lyon: Maison de l'Orient Mediterraneen.

Courty, M.-A. 1994. Le cadre paléogéographique des occupations humaines dans le bassin du Haut-Khabur (Syrie du nord-est). Premiers résultats. *Paléorient* 20, 21-59.

Courty, M.A., P. Goldberg & R.I. MacPhail. 1989. *Soils and Micromorphology in Archaeology*. Cambridge: Cambridge University Press.

Courty, M.-A. & H. Weiss. 1997. The Scenario of Environmental Degradation in the Tell Leilan Region, NE Syria, During the Late Third Millennium Abrupt Climate Change. In *Third Millennium BC Climate Change and Old World Collapse* (eds) N. Dalfes, G. Kukla & H. Weiss. NATO ASI Series: Series I: Global Environmental Change., pp. 107-147. Berlin: Springer.

Courty, M.A., H. Weiss & F. Guichard. 1994. Climate Induced Change of Third Millennium BC Soil Landscapes in Northern Mesopotamia. In *15th World Congress of Soil Science, Vol 6a, Transactions - Commission V: Symposia*, pp. 367-368.

Cribb, R. 1991. *Nomads in Archaeology*. Cambridge: Cambridge University Press.

Cullen, H.M., P.B. deMenocal, S. Hemming, G. Hemming, F.H. Brown, T. Guilderson & F. Sirocko. 2000. Climate Change and the Collapse of the Akkadian empire: Evidence from the Deep Sea. *Geology* 28, 379-382.

Curvers, H.H. & G.M. Schwartz. 1990. Excavations at Tell al-Raqa'i: A small rural site of early urban Mesopotamia. *AJA* 94, 3-23.

Dalley, S., C.B.F. Walker & J.D. Hawkins. 1976. *The Old Babylonian Tablets from Tell al Rimah*. London: British School of Archaeology in Iraq.

Danti, M.D. 1997. Regional Surveys and Excavations. In *Subsistence and Settlement in a Marginal Environment: Tell es-Sweyhat, 1989-1995 Preliminary Report* (ed.) R.L. Zettler. Masca Research Papers in Science and Archaeology, pp. 85-94. Philadelphia: MASCA, University of Pennsylvania.

—. 2000. Early Bronze Age Settlement and Land Use in the Tell es-Sweyhat region, Syria. PhD: University of Pennsylvania.

—. 2002. Review of Rafal Kolinski, *Tell Rijim, Iraq: The Middle Bronze Age Layers*. *BASOR* 328, 84-86.

Danti, M.D. & R.L. Zettler. 2004. The Early Bronze Age in the Northwest Jezireh: The Tell es-Sweyhat Region. Paper presented to the 4ICAANE, Workshop II: The Archaeology of Boundaries: Was there a Carchemish region in the Early Bronze Age?, Berlin, 2004.

Day, D.A., J.M. Logsdon & B. Latell. 1998. *Eye in the Sky: The Story of the CORONA Spy Satellites*. Washington D.C.: Smithsonian Institute Press.

De Martino, S. 2004. A Tentative Chronology of the Kingdom of Mitanni from its Rise to the Reign of Tushratta. In *Mesopotamian Dark Age Revisited: Proceedings of an Internation Conference of SCIEM 2000* (eds) H. Hunger & R. Pruzsinszky, pp. 35-42. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.

Debruyne, M. 2003. Research on the Outer Rampart (Field K). In *Tell Beydar, the 1995-1999 Seasons of Excavations. A Preliminary Report* (eds) M. Lebeau & A. Suleiman. Subartu, pp. 387-394. Turnhout: Brepols.

deMenocal, P.B., J. Ortiz, T. Guilderson & M. Sarnthein. 2000. Coherent High- and Low-Latitude Climate Variability During the Holocene Warm Period. *Science* 288, 2198-2202.

deMoulins, D. 2001. Tell Leilan. Floor Samples from 44W16, charred plant remains.

Dewar, R.E. 1991. Incorporating Variation in Occupation Span into Settlement-Pattern Analysis. *American Antiquity* 56, 604-620.

—. 1994. Contending with Contemporaneity: A Reply to Kintigh. *American Antiquity* 59, 149-152.

Diakonoff, I.M. 1969 (1949). Agrarian Conditions in Middle Assyria. In *Ancient Mesopotamia: Socioeconomic History* (ed.) I.N. Diakonoff, pp. 204-234. Moscow: Nauka.

—. 1974. *Structure of Society and State in Early Dynastic Sumer* (Monographs of the Ancient Near East I). Malibu: Undena.

—. 1982. The Structure of Near Eastern Society before the Middle of the 2nd Millennium B.C. *Oikumene* 3, 7-100.

—. 1996. Extended Family Households in Mesopotamia (III-II Millennia B.C.). In *Houses and Households in Ancient Mesopotamia* (ed.) K.R. Veenhof, pp. 55-60. Istanbul: Nederlands Historisch-Archaeologisch Instituut.

Dietler, M. 1990. Driven by Drink: The Role of Drinking in the Political Economy and the Case of Early Iron Age France. *Journal of Anthropological Archaeology* 9, 352-406.

Dietler, M. & B. Hayden (eds) 2001. *Feasts: Archaeological and ethnographic perspectives on food, politics and power*. Washington: Smithsonian Institute Press.

Dilleman, L. 1979. Les Français en Haute-Djezireh. *Revue française d'histoire d'outre-mer* 66, 33-58.

Dobney, K., D. Jacques & W. Van Neer. 2003. Diet, Economy and Status: Evidence from the Animal Bones. In *Excavations at Tell Brak, Vol. 4: Exploring an Upper Mesopotamian regional centre, 1994-1996* (ed.) R. Matthews, pp. 417-434. London: British School of Archaeology in Iraq.

Dobres, M.-A. & J.E. Robb (eds) 2000. *Agency in Archaeology*. New York: Routledge.

Dodgshon, R.A. 1998. *Society in Time and Space*. Cambridge: Cambridge University Press.

Dohmann-Pfälzner, H. & P. Pfälzner. 1996. Untersuchungen zur Urbanisierung Nordmesopotamiens im 3. Jt. v.Chr.: Wohnquartierplanung und städtische Zentrumsgestaltung in Tall Chuera. *DaM* 9, 1-13.

—. 1999. Ausgrabungen der Deutschen Orient-Gesellschaft in Tall Mozan/Urkesh: Bericht über die Vorkampagne 1998. *MDOG* 131, 17-46.

—. 2000. Ausgrabungen der Deutschen Orient-Gesellschaft in der zentralen Oberstandt von Tall Mozan/Urkesh: Bericht über die in Kooperation mit dem IIMAAS durchgeführte Kampagne 1999. *MDOG* 132, 185-228.

—. 2001. Ausgrabungen der Deutschen Orient-Gesellschaft in der zentralen Oberstadt von Tall Mozan/Urkesh: Bericht über die in Kooperation mit dem IIMAS durchgeführte Kampagne 2000. *MDOG* 133, 97-139.

—. 2002. Ausgrabungen der Deutschen Orient Gesellschaft in der zentralen Oberstadt von Tall Mozan/Urkesh: Bericht über die in Kooperation mit dem IIMAS durchgeführte Kampagne 2001. *MDOG* 134, 149-192.

Dolce, R. 1998. The Palatial Ebla Culture in the Context of North Mesopotamian and North Syrian Main Powers (trans.) M. Lebeau. In *About Subartu, Studies devoted to Upper Mesopotamia/ À propos de Subartu, Études consacrées à la Haute Mésopotamie* (ed.) M. Lebeau. Subartu, pp. 67-81. Turnhout: Brepols.

Donella, V. 2002. La Ceramica Mitannica e Medio-Assira della Recognizione di Tell Leilan (Siria Nord-Orientale). Tesi di Laurea: Universita' Ca' Foscari di Venzia.

Donoghue, D., G. Philip, N. Galitasatos & A. Beck. 2002. Satellite imagery for archaeological applications: a case study from the Orontes valley, Syria. In *Aerial archaeology: developing future practice* (eds) R.H. Bewley & W. Raçzowski. NATO Science Series, series I: Life and Behavioural Sciences, pp. 211-223. Amsterdam: IOS Press.

Dossin, G. 1972. Adaššum et kirhum dans des textes de Mari. *RA* 66, 111-130.

Durand, J.-M. 1982a. Relectures d'ARM VIII, I Collations. *M.A.R.I.* 1, 91-135.

—. 1982b. Sumérien et Akkadien en pays amorite, I. un document juridique archaïque de Mari. *M.A.R.I.* 1, 79-89.

—. 1985. La Situation Historique des Šakkanakku: Nouvelle approche. *M.A.R.I.* IV.

—. 1986. Fragments rejoints pour une histoire Elamite. In *Fragmenta Historiae Elamicae: Mélange offerts à M. Steve* (eds) L.d. Meyer, H. Gasche & F. Vallat, pp. 111-128. Paris: ERC.

—. 1987. Documents pour l'histoire du Royaume de Haute-Mésopotamie... I. *M.A.R.I.* 5.

—. 1989. L'assemblée en Syrie à l'époque pré-amorite. In *Miscellanea Eblaitica 2* (ed.) P. Fronzaroli, pp. 27-44. Firenze: Dipartimento di Linguistica.

—. 1990a. 82. Mat dumatim. *NABU* 1990, 90-91.

—. 1990b. Fourmis blanches et fourmis noires. In *Contribution à l'histoire de l'Iran: Mélanges offerts à Jean Perrot* (ed.) F. Vallat, pp. 101-108. Paris: ERC.

—. 1990c. Le sel à Mari II: Les salines sur les bords du Habur. *M.A.R.I.* 6, 629-634.

—. 1990d. Problèmes d'eau et d'irrigation au Royaume de Mari: l'apport des textes anciens. In *Techniques et pratiques hydro-agricoles traditionelles en domaine irrigué* (ed.) B. Geyer, pp. 101-142. Beirut: IFAPO.

— (ed.) 1990e. *Tell Mohammed Diyab (Campagnes 1987 et 1988)* (Cahiers de NABU 1). Paris: SEPOA.

—. 1991. Précursuers Syriens aux Protocols Néo-Assyriens. In *Marchands, Diplomates, et Empereurs Études sur la Civilisations Mésopotamienne offertes à Paul Garelli* (eds) D. Charpin & F. Joannès, pp. 13-71. Paris: ERC.

— (ed.) 1992a. *Tell Mohammed Diyab (Campagnes 1990-1991)* (Mémoires de NABU 2). Paris: SEPOA.

—. 1992b. Unité et diversités à l'époque ammorite. In *La circulation des biens, des personnes et des idées dans le Proche-Orient ancien* (eds) D. Charpin & F. Joannès. CRRAI, pp. 97-128. Paris.

—. 1997. *Documents épistolaires du palais de Mari: Tome I* (LAPO Tome I). Paris: Les Éditions du CERF.

—. 1998. *Documents épistolaires du palais de Mari: Tome II* (LAPO 17). Paris: Les Éditions du CERF.

—. 2002. *Florilegium marianum VII: Le Culte d'Addu d'Alep et l'affaire d'Alahtum* (Mémoires de NABU 8). Paris: SEPOA.

—. 2004. Peuplement et sociétés à l'époque amorrite (I): Les clan bensim'alites. In *Amurru 3: Nomades et sédentaires dans le Proche-Orient ancien* (ed.) C. Nicolle, pp. 111-198. Paris: ERC.

Durand, J.-M. & M. Guichard. 1997. Les rituels de Mari. In *Florilegium Marianum III* (eds) D. Charpin & J.-M. Durand, pp. 63-70. Paris: SEPOA.

Durand, J.-M. & C. Nicolle. 1999. Tell Mohammed Diyab: L'Acropole d'un centre régional du II^{e} Millénaire. *Archéologia* 353, 18-27.

Earle, T. 2000. Archaeology, property and prehistory. *Annual Review of Anthropology* 29, 39-60.

—. 2002. Property Rights and the Evolution of Chiefdoms. In *Bronze Age Economics: The beginnings of political economies* (ed.) T. Earle, pp. 325-347. Cambridge, MA: Westview.

Edzard, D.O. 1992. Der Vertrag von Ebla mit A-bar-QA. In *Literature and Literary Language at Ebla* (ed.) P. Fronzaroli, pp. 187-217. Firenze: Dipartimento di Linguistica.

Edzard, D.O. & G. Farber. 1974. *Die Orts- und Gewässernamen der Zeit der 3. Dynastie von Ur* (RGTC II). Wiesbaden: Dr. Ludwig Reichert.

Eichler, S. & M. Wäfler. 1985. *Tall al-Hamidiya 1. Vorebericht 1984* (OBO SA 4). Fribourg: Academic Press.

Eichler, S., M. Wäfler & D. Warburton (eds) 1990. *Tell Al-Hamidiya 2* (Orbis Biblicus et Orientalis. Fribourg: Universitätsverlag Freiburg.

Eidem, J. 1985. A note on the Pulse Crops at Tell Shemshara. *BSA* II, 141-143.

—. 1990. Les Archives paléo-babyloniennes de Tell Leilan. *Les Dossiers d'Archéologie* 155, 50-53.

—. 1991a. An Old Assyrian Treaty from Tell Leilan. In *Marchands, Diplomates et Empereurs: Études sur la civilisation mésopotamienne. Offertes à Paul Garelli.* (eds) D. Charpin & F. Joannès, pp. 185-208. Paris: ERC.

—. 1991b. The Tell Leilan Archives 1987. *RA* 85, 109-135.

—. 1991c. Tell Leilan Tablets 1987. A Preliminary Report. *AAAS* 37/38, 110-127.

—. 1991c. Tell Leilan Tablets 1987. A Preliminary Report. *Annales Archeologiques Arabes Syriennes* 37/38, 110-127.

—. 1992. *The Shemshara Archives 2: The Administrative Texts* (Historisk-filosofiske Skrifter 15). Copenhagen: Royal Danish Academy of Sciences and Letters.

—. 1993. "From the Zagros to Aleppo-- and back. Chronological notes on the empire of Shamshi-Adad. *Akkadica* 81, 23-28.

—. 1994. Raiders of the Lost Treasure of Šamši-Adad. In *Florilegium Marianum II. Recueil d'études à la mémoire de Maurice Birot* (eds) D. Charpin & J.-M. Durand. Mémoires de NABU, pp. 201-208. Paris: ERC.

—. 1997. The Inscriptions. In *Excavations at Tell Brak: Vol. 1: The Mitanni and Old Babylonian Periods* (eds) D. Oates, J. Oates & H. McDonald, pp. 39-46. Cambridge: British School of Archaeology in Iraq.

—. 2000. Northern Jezira in the 18th Century BC. Aspects of Geo-Political Patterns. In *La Djéziré et l'Euphrate Syriens: De La Protohistoire ã la fin du II^e Millénaire av. J.-C. Tendances dans l'interprétation historique des données nouvelles.* (eds) O. Rouault & M. Wäfler. Subartu, pp. 255-264. Turnhout: Brepols.

—. N.D. *The Royal Archives from Tell Leilan 1: Old Babylonian Letters and Treaties from The Lower Town Palace* (Yale Tell Leilan Research 2). London and New Haven: Yale University Press.

Eidem, J., I.J. Finkel & M. Bonechi. 2001. The Third-millennium Inscriptions. In *Excavations at Tell Brak: Vol. 2: Nagar in the third millennium BC* (eds) D. Oates, J. Oates & H. McDonald, pp. 99-120. London: British School of Archaeology in Iraq.

Eidem, J. & J. Laessoe. 2001. *The Shemshara Archives 1: The Letters* (Historisk-filosofiske Skrifter 23). Copenhagen: Royal Danish Academy of Sciences and Letters.

Eidem, J. & D. Warburton. 1996. In the Land of Nagar: A survey around Tell Brak. *Iraq* 58, 51-64.

Einwag, B. 1993. Vorbericht über die archäologische Geländebegehung in der West-Ðazira. *DaM* 7, 23-43.

Eisenstadt, S.N. (ed.) 1986. *Origins and Diversity of Axial Age Civilizations*. Albany, NY: SUNY Press.

Ellis, M.D. 1976. *Agriculture and the State in Ancient Mesopotamia*. Philadelphia: Occasional Publications of the Babylonian Fund.

Emberling, G. 1997. Ethnicity in Complex Societies: Archaeological Perspectives. *Journal of Archaeological Research* 5, 295-344.

Engels, F. 1972 [1884]. *The Origin of the Family, Private Property and the State: In the Light of the Researches of Lewis H. Morgan* (trans.) A. West. New York: International Publishers.

Enzel, Y., R. Bookman, D. Sharon, H. Gvirtzman, U. Dayan, B. Ziv & M. Stein. 2003. Late Holocene Climates of the Near East Deduced from Dead Sea Level Variations and Modern Regional Winter Rainfall. *Quaternary Research* 60, 263-273.

Ergenzinger, P.J. 1991. Geomorphologische Untersuchungen im Unterlauf des Khabur. In *Die Rezente Umwelt von Tall Seh Hamad und Daten zur Umweltrekonstruktion der Assyrischen Stadt Dur-Katlimmu* (ed.) H. Kühne, pp. 35-50. Berlin: Dietrich Reimer Verlag.

Erkanal, H. 1991. Girnavaz. In *Archaeology in Anatolia* (ed.) M. Mellink. AJA, pp. 135.

Faist, B. 2001. *Der Fernhandel des assyrischen Reiches zwischen dem 14. und 11. Jahrhundert v. Chr.* (AOAT. Münster: Ugarit-Verlag.

Falconer, S.E. 1994. Village Economy and Society in the Jordan Valley: A Study of Bronze Age Rural Complexity. In *Archaeological Views from the Countryside* (eds) G.M. Schwartz & S.E. Falconer, pp. 121-142. Washington and London: Smithsonian Institute Press.

Falconer, S.E. & S.H. Savage. 1995. Heartlands and Hinterlands - Alternative Trajectories of Early Urbanization in Mesopotamia and the Southern Levant. *American Antiquity* 60, 37-58.

Fales, F.M. 1973. *Censimenti e catasti di epoca Neo-Assira*. Roma: CNR.

—. 1990. The Rural Landscape of the Neo-Assyrian Empire: A Survey. *SAAB* IV, 81-142.

Falkenstein, A. 1960. Review of ARM VII and ARM VIII. *BibOr* 27, 175-179.

Feinman, G.M. 1997. Thoughts on New Approaches to Combining the Archaeological and Historical Records. *Journal of Archaeological Method and Theory* 4, 367-377.

Finkel, I.J. 1985. Inscriptions from Tell Brak 1984. *Iraq* 47, 187-201.

—. 1988. Inscriptions from Tell Brak 1985. *Iraq* 50, 83-36.

Finkelstein, I. 1995. Living on the Fringe: The Archaeology and History of the Negev, Sinai and Neighbouring Regions in the Bronze and Iron Ages. Sheffield: Sheffield Academic Press.

Finkelstein, J.J. 1953. Cuneiform Texts from Tell Billa. *JCS* 7, 111-176.

—. 1966. The Genealogy of the Hammurapi Dynasty. *JCS* 20, 95-118.

Fleming, A. 1971. Territorial patterns in Bronze Age Wessex. *Proceedings of the Prehistoric Society* 37, 138-166.

—. 1982. Social Boundaries and Land Boundaries. In *Ranking, Resource and Exchange: Aspects of the archaeology of early European scoeity* (eds) C. Renfrew & S. Shennan, pp. 52-55. Cambridge: Cambridge University Press.

Fleming, D.A. 1998. Mari and the Possibilities of Biblical Memory. *RA* XCII, 41-78.

—. 2002. Schloen's Patrimonial Pyramid: Explaining Bronze Age Society. *BASOR* 328, 73-80.

—. 2004a. *Democracy's Ancient Ancestors: Mari and Early Collective Governance*. Cambridge: Cambridge University Press.

—. 2004b. The Sim'alite *Gayum* and the Yaminite *Li'mum* in the Mari Archives. In *Amurru 3: Nomades et sédentaires dans le Proche-Orient ancien* (ed.) C. Nicolle, pp. 199-212. Paris: ERC.

Forbes, F. 1839. A Visit to the Sinjar Hills in 1838. *Journal of the Royal Geographic Society* 9, 409-430.

Forest, J.-D. 2003. The Ninevite 5 Culture: Its Nature and its Origins. In *The Origins of Northern Mesopotamian Civilization: Ninevite V Economy, Society and Culture* (eds) H. Weiss & E. Rova. Subartu, pp. 563-592. Turnhout: Brepols.

Forshey, H.O. 1973. *The Hebrew Root NHL and its Semitic Cognates*. Cambridge, MA: Harvard University Press.

Fortin, M. 1998. New horizons in ancient Syria - The view from 'Atij. *Near Eastern Archaeology* 61, 15-24.

—. 2000. Économie et société dans la moyenne vallée du Khabour durant la période de Ninive 5. In *La Djéziré et l'Euphrate syriens: De la protohistorie à la fin du II^e^ millénaire av. J.-C.* (eds) O. Rouault & M. Wäfler, pp. 111-136. Turnhout: Brepols.

—. 2001. Mise en valeur de la moyenne vallée du Khabour au 3^e^ millénaire. In *Conquête de la Steppe et appropriation des terres sur les marges arides du Croissant fertile* (ed.) B. Geyer. Travaux de la Maison de l'Orient Méditerranéen, pp. 27-54. Lyon: Maison de L'Orient Méditerannéen.

Foster, B.R. 1987. People, Land and Produce in Sargonic Gasur. In *General Studies and Excavations at Nuzi 9/1* (eds) D.I. Owen & M.A. Morrison. Studies on the Civilization and Culture of Nuzi and the Hurrians, pp. 89-106. Winona Lake, IN: Eisenbrauns.

Frankfort, H. 1968. *Before philosophy : the intellectual adventure of ancient man : an essay on speculative thought in ancient Near East*. Baltimore: Penguin.

Frayne, D.R. 1995. *Sargonic and Gutian Periods (2234-2113 BC)* (RIME 2). Toronto: University of Toronto Press.

—. 1997. *Ur III Period (2112-2004 BC)* (Royal Inscriptions of Mesopotamia 3/2).

French, E.B. 1997. The Mycenaean Stirrup Jar. In *Excavations at Tell Brak, Vol. 1: The Mitanni and Old Babylonian periods* (eds) D. Oates, J. Oates & H. McDonald, pp. 79. London: British School of Archaeology in Iraq.

Freydank, H. 1975. Die Rolle der Deportierten im mittelassyrischen Staat. In *Die Rolle der Volksmassen in der Geschichte der vorkapitalistichen Gesellschaftsformationen*, pp. 55-63. Berlin.

—. 1980. Zur Lage der Deportierten Hurriter in Assyrien. *AoF* 7, 89-117.

—. 1988. Zu den Grundeigentumsverhältnissen in mittelassyrischen Zeit. In *Das Grundeigentum in Mesopotamien* (ed.) B. Brentjes. Jahrbuch für Wirtschaftsgeschichte. Berlin: Akademie-Verlag.

—. 1991. *Beiträge zur mittelassyrischen Chronologie und Geschichte* (Schriften zur Geschichte und Kultur des Alten Orients 21). Berlin.

—. 1992. Das Archiv Assur 18764. *AoF* 19, 276-321.

—. 1994. Drei Tafeln aus der Verwaltung des mittelassyrischen Kronlandes. *AoF* 21, 13-30.

—. 1997a. Mittelassyrischen Opferlisten aus Assur. In *Assyrien im Wandel der Zeiten* (eds) H. Waetzoldt & H. Hauptmann. HSAO, pp. 47-52. Heidelberg: Heidelberger Orientverlag.

—. 1997b. Noch einmal zum Vorgang *pišerti karu'e*. In *Ana šadi Labnani lu allik: Beiträge zu altorientalischen und mittelmeerischen Kulturen (FS von Soden)* (eds) B. Pongratz-Leisten, H. Kühne & P. Xella. AOAT, pp. 129-143. Darmstadt: Neukirchener Verlag.

—. 2001. *Mittelassyrische Rechtsurkunden und Verwaltungstexte IV: Taflen aus Kar-Tukulti-Ninurta*. Saarbrücken: Saarbrücker Druckerei und Verlag.

Fronzaroli, P. 1989. Un atto di donanzione dagli archivi di Ebla. *Studi Eblaiti* I, 3-16.

—. 1992. Ritual Texts of Ebla. In *Literature and Literary Language at Ebla* (ed.) P. Fronzaroli, pp. 163-185. Firenze: Dipartimento di Lingiustica.

—. 1993. *Testi rituali della regalità (Archivio L.2769)* (Archivi Reali di Ebla Testi (ARET) XI). Roma: La Sapienza.

—. 1998. Kam_4-mu in Ebla Letters. In *About Subartu, Studies devoted to Upper Mesopotamia/ À propos de Subartu, Études consacrées à la Haute Mésopotamie* (ed.) M. Lebeau, pp. 103-114. Turnhout: Brepols.

Frumkin, A., I. Carmi, A. Gopher, D.C. Ford, H.P. Schwarcz & T. Tsuk. 1999. A Holocene millennial-scale climatic cycle from a speleothem in Nahal Qanah Cave, Israel. *Holocene* 9, 677-682.

Frumkin, A., I. Carmi, I. Zak & M. Margaritz. 1994. Middle Holocene Environmental Change determined from Salt Caves of Mount Sedom, Israel. In *Late Quaternary Chronology and Paleoclimates of the Eastern Mediterranean* (ed.) R. Kra, pp. 315-332. Tucson: University of Arizona.

Gaffie, S. 2000. Evolution des horizons de surface au cours de l'Holocene: Etude des sols de la region de Tell Leilan (Syrie). PhD Thesis: Institut national agronomie de Paris-Grignon.

Galvin, K.F. 1988. Paleobotanical Samples from the City Wall. In *Mozan 1: The Soundings of the First Two Seasons* (eds) G. Buccellati & M. Kelly-Buccellati. Bibliotheca Mesopotamica, pp. 83-86. Malibu: Undena.

Garelli, P. 1967. Le problème de la "féodalité" assyrienne du XV^{e} au XII^{e} siècle av. J.-C. *Semitica* 17, 5-21.

Garnsey, P. & I. Morris. 1989. Risk and the Polis: The Evolution of Institutionalised Responses to Food Supply Problems in the Ancient Greek state. In *Bad Year Economics: Cultural responses to risk and uncertainty* (eds) P. Halstead & J. O' Shea, pp. 98-105. Cambridge: Cambridge University Press.

Gasche, H., J.A. Armstrong, S.W. Cole & V.G. Gurzaydan. 1998. *Dating the Fall of Babylon: A Reappraisal of Second Millennium Chronology: A Joint Ghent-Chicago-Harvard Project* (Mesopotamian History and Environment, Series 2 4). Ghent Chicago: University of Ghent and Oriental Institute, Chicago.

Gasse, F. 2000. Hydrological Changes in the African Tropics since the Last Glacial Maximum. *Quaternary Science Review* 19, 189-211.

Gelb, I.J. 1965. The Ancient Mesopotamian Ration System. *JNES* 24, 230-243.

—. 1977. Thoughts About Ibla. A Preliminary Evaluation. *Syro-Mesopotamian Studies* 1, 3-20.

—. 1981. Ebla and the Kish Civilization. In *La lingua di Ebla: Atti del convegno internazionale (Napoli, 21-23 Aprile 1980)* (ed.) L. Cagni, pp. 9-73. Napoli.

—. 1986. Ebla and Lagash: Environmental Contrast. In *The Origins of Cities in Dry-Farming Syria and Mesopotamia in the Third Millennium B.C.* (ed.) H. Weiss, pp. 157-167. Guilford, CT: Four Quarters Publishing.

—. 1992. Mari and the Kish Civilization. In *Mari in Retrospect: Fifty Years of Mari and Mari Studies* (ed.) G. Young, pp. 121-202. Winona Lake, IN: Eisenbrauns.

Geyer, B. (ed.) 2001a. *Conquête de la Steppe: et appropriation des terres sur les marges arides du Croissant fertile*. Travaux de la Maison de l'Orient Méditerranéen. Lyon: Maison de L'Orient Mediteranneen.

—. 2001b. Les steppes arides de la Syrie du Nord au Bronze ancien ou "la première conquête de l'est". In *Conquête de la Steppe et appropriation des terres sur les marges arides du Croissant fertile* (ed.) B. Geyer. Travaux de la Maison de l'Orient Méditerranéen, pp. 55-67. Lyon: Maison de L'Orient Méditerannéen.

Geyer, B., J.-Y. Monchambert, J. Besançon & E. Coqueugniot. 2003. *La basse vallée de l'Euphrate Syrien du Néolithique à l'avènement de l'Islam*. Beirut: IFAPO.

Gibson, M. & A. McMahon. 1996. Investigation of the Early Dynastic-Akkadian transition: Report of the 18th and 19th seasons of excavation in Area WF, Nippur. *Iraq* 67, 1-40.

Giddens, A. 1981. *A Contemporary Critique of Historical Materialism: Vol.1: Power, Property and the State*. Berkeley: U.C. Press.

—. 1984. *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley: U.C. Press.

Glassner, J.-J. 2004. *Mesopotamian Chronicles* (trans.) B.R. Foster. Atlanta: SBL.

Grayson, A.K. 1975. *Assyrian and Babylonian Chronicles*. Locust Valley, NY: J.J. Augustin.

—. 1980-1983. Königslisten und Chroniken. *RLA* 6, 77-134.

—. 1987. *Assyrian Rulers of the Third and Second Millennium BC (to 1115 BC)* (RIMA 1). Toronto: University of Toronto Press.

—. 1991. *Assyrian Rulers of the Early First Millennium BC (1114-859 BC)* (RIMA 2). Toronto: University of Toronto Press.

Gremmen, W. & S. Bottema. 1991. Palynological Investigations in the Syrian Gazira. In *Die rezente Umwelt von Tall Seh Hamad und Daten zur Umweltrekonstruktion der assyrischen Stadt Dur-Katlimmu* (ed.) H. Kühne, pp. 105-116. Berlin.

Guichard, M. 1994. Au pays de la Dame de Nagar. In *Florilegium Marianum II. Recueil d'études à la mémoire de Maurice Birot* (eds) D. Charpin & J.-M. Durand. Mémoires de NABU, pp. 235-72. Paris: ERC.

—. 1997. Zimri-Lim à Nagar. *M.A.R.I.* 8, 329-337.

—. 2002. Le Šubartum occidental à l'avènement de Zimrî-Lim. In *Florilegium Marianum VI* (eds) D. Charpin & J.-M. Durand. Mémoires de NABU. Paris: SEPOA.

Guilderson, T., A. McCarthy, L. Ristvet & H. Weiss. N.D. Radiocarbon Dates. In *Tell Leilan: Excavations at the City Gate* (eds) L. Ristvet & A. McCarthy. Tell Leilan Researches. New Haven: Yale University Press.

Gut, R., J. Reade & R.M. Boehmer. 2001. Ninive- Das späte 3. Jahrtausend v. Chr. In *Beiträge zur Vorderasiatischen Archäologie* (eds) J.-W. Meyer, M. Novak & A. Pruss, pp. 74-129. Frankfurt am Main.

Güterbock, H.G. 1958. The Cuneiform Tablets. In *Soundings at Tell Fakhariyah* (eds) C.W. McEwan, L.S. Braidwood, H. Frankfort, H.G. Güterbock, R.C. Haines, H.J. Kantor & C.H. Kraeling. OIP, pp. 86-90. Chicago: University of Chicago Press.

Gvirtzman, G. & M. Wieder. 2001. Climate of the last 53,000 Years in the Eastern Mediterranean, Based on Soil-Sequence Stratigraphy in the Coastal Plain of Israel. *Quaternary Science Reviews* 20, 1827-1849.

Halstead, P. 1990. Quantifying Sumerian Agriculture-- Some Seeds of Doubt and Hope. *BSA* V, 187-200.

Halstead, P. & J. O' Shea (eds) 1989. *Bad Year Economics: Cultural Responses to Risk and Uncertainty*. Cambridge: Cambridge University Press.

Hamlin, C. 1976. Cuneiform Archives as Data: Reliability of the Mari Archive for Agricultural Reconstruction. PhD: University of Pennsylvania.

Harrak, A. 1987. *Assyria and Hanigalbat: A historical reconstruction of Bilateral relations from the Middle of the Fourteenth Century to the End of the Twelfth Century B.C.* (Texte und Studien zur Orientalistik 4). Hildesheim: Georg Olms Verlag.

Hawkins, J.D. 1976. The Tablets from the Temple Stairway. In *The Old Babylonian Tablets from Tell al-Rimah* (eds) S. Dalley, C.B.F. Walker & J.D. Hawkins, pp. 195-146. London: British School of Archaeology in Iraq.

Heimpel, W. 2003. *Letters to the King of Mari: A new translation, with historical introduction, notes and commentary*. Winona Lake, IN: Eisenbrauns.

Heinz, M. 1997. Räumliche Ordnung und Stadtkonzepte Bronzezeitlicher Siedlungen am mittleren Euphrat in Syrien. In *Die Orientalische Stadt: Kontinuität, Wandel, Bruch* (ed.) G. Wilhelm, pp. 289-305. Saarbrücken: Saarbrücker Druckerei und Verlag.

Heltzer, M. 1981. *The Suteans* (Series Minor 14). Napoli: Istituto Universitario Orientale.

Henderson, J. 1997. Scientific Analysis of Glass and Glaze from Tell Brak and its Archaeological Implications. In *Excavations at Tell Brak, Vol. 1: The Mitanni and Old Babylonian periods* (eds) D. Oates, J. Oates & H. McDonald, pp. 94-100. London: British School of Archaeology in Iraq.

Hodder, I. & C. Orton. 1976. *Spatial analysis in archaeology*. Cambridge: Cambridge University Press.

Hole, F. 1991. Middle Khabur Settlement and Agriculture in the Ninevite 5 Period. *BCSMS* 21, 17-29.

—. 1997. Evidence for Mid-Holocene Environmental Change in the Western Khabur Drainage, Northeastern Syria. In *Third Millennium BC Climate Change and Old World Collapse* (eds) N. Dalfes, G. Kukla & H. Weiss, pp. 39-67. Berlin: Springer.

—. 1999. Economic Implications of Possible Storage Structures at Tell Ziyadeh, NE Syria. *Journal of Field Archaeology* 26, 267-283.

—. N.D. Preliminary Report on the Joint American-Danish Archaeobiological Sampling of Sites in the Khabur Basin. *AAAS* 38.

Hole, F. & G.A. Johnson. 1986-1987. Umm Qseir on the Khabur: Preliminary report on the 1986 excavation. *AAAS* 36-37, 172-220.

Hole, F. & N. Kouchoukos. N.D. Preliminary Report on an Archaeological Survey in the Western Khabur basin. *AAAS*.

Honca, M.D. & G. Algaze. 1998. Preliminary Report on the Human Skeletal Remains at Titrïs Höyük: 1991-1996 seasons. *Anatolica* 24, 101-141.

Hont, I. & M. Ignatieff (eds) 1983. *Wealth and Virtue: The Shaping of Political Economy in the Scottish Englightenment*. Cambridge: Cambridge University Press.

Horowitz, W. & N. Wasserman. 2004. From Hazor to Mari and Ekallatum: A recently discovered Old Babylonian letter from Hazor. In *Amurru 3: Nomades et sédentaires dans le Proche-Orient ancien* (ed.) C. Nicolle, pp. 335-344. Paris: ERC.

Horsnell, M.J.A. 1999. *The Year-Names of the First Dynasty of Babylon*. Toronto: McMaster University Press.

Huber, P.J. 1987. Astronomical Evidence for the Long and against the Middle and Short Chronologies. In *High, Middle or Low* (ed.) P. Aström, pp. 5-17. Gothenburg: Paul Aström's Förlag.

Hunger, H. 1976-1980. Kalendar. *RLA* 5, 297-303.

Hunger, H. & R. Pruzsinszky (eds) 2004. *Mesopotamian Dark Age Revisited*. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.

Hunt, C., C. Malone, J. Sevink & S. Stoddart. 1990. Environment, Soils and Early Agriculture in Apennine Central Italy. *World Archaeology* 22, 34-44.

Ibrahim, J.K. 1986. *Pre-Islamic Settlement in Jazirah*. Baghdad: Ministry of Culture and Information, State Organization of Antiquities and Heritage.

Illingworth, N.J.J. 1988. Inscriptions form Tell Brak 1986. *Iraq* 50, 87-108.

Ismail, F. 1991. Altbabylonische Wirtschaftsurkunden aus Tall Leilan (Syrien). PhD Diss.: Eberhard-Karls-Universität.

Ismail, F., W. Sallaberger, P. Talon & K. Van Lerberghe. 1996. *Administrative Documents from Tell Beydar (Seasons 1993-1994)* (Subartu 2). Turnhout: Brepols.

Issawi, C. 1982. *An Economic History of the Middle East and North Africa*. London: Methuen & Co.

Jacobsen, T. 1970. Early Political Development in Mesopotamia. In *Towards the Image of Tammuz*. Cambridge, MA: Harvard University Press.

Jakob, S. 2003. *Mittelassyrische Verwaltung und Sozialstruktur* (Cuneiform Monographs 29). Leiden: Brill.

Jankowska, N.B. 1969a. Extended Family Commune and Civil Self-Government in Arrapha in the Fifteenth-Fourteenth Century B.C. In *Ancient Mesopotamia: Socioeconomic History* (ed.) I.M. Diakonoff, pp. 234-252. Moscow: Nauka.

—. 1969b. Communal Self-Government and the King of the State of Arrapha. *JESHO* 12, 233-282.

Jans, G. & J. Bretschneider. 1998. Wagon and Chariot Representations in the Early Dynastic Glyptic. "They came to Tell Beydar with wagon and equid". In *About Subartu,*

Studies devoted to Upper Mesopotamia/ À propos de Subartu, Études consacrées à la Haute Mésopotamie (ed.) M. Lebeau, pp. 155-194. Turnhout: Brepols.

Jas, R.M. 1990. Two Middle-Assyrian Lists of Personal Names from Sabi Abyad. *Akkadica* 67, 33-39.

—. 2000. Land Tenure in Northern Mesopotamia: Old Sources and the Modern Environment. In *Rainfall and Agriculture in Northern Mesopotamia* (ed.) R.M. Jas, pp. 247-263. Istanbul.

Jaubert, R. 2000. Government Policy and Productive Systems in the Arid Regions of Syria since the 1930s. In *The Transformation of Nomadic Society in the Arab East* (ed.) B. Musallam. University of Cambridge Oriental Publications, pp. 99-109. Cambridge: Cambridge University Press.

Joannès, F. 1996. Routes et voies de communication dans les archives de Mari. In *Amurru 1: Mari, Ébla et les Hourrites, dix ans de travaux* (ed.) J.-M. Durand, pp. 323-361. Paris: ERC.

Joffe, A.H. 1998a. Alcohol and Social Complexity in Ancient Western Asia. *Current Anthropology* 39, 297-322.

—. 1998b. Disembedded Capitals in Western Asian Perspective. *Comparative Studies in Society and History*, 549-580.

Jones, S. 1997. *The Archaeology of Ethnicity*. London: Routledge.

Kamp, K. & N. Yoffee. 1980. Ethnicity in Ancient Western Asia During the Early Second Millennium B.C.: Archaeological Assessments and Ethnoarchaeological Perspectives. *BASOR* 237, 85-104.

Kelly-Buccellati, M. 1990. Three Seasons of Excavation at Tell Mozan. In *Tall al-Hamidiya 2* (eds) S. Eichler & M. Wäfler. OBO. Fribourg: Universitätsverlag Freiburg.

—. 2002. Ein hurritischer Gang in die Unterwelt. *MDOG* 134, 131-148.

Kennedy, D. 1998. Declassified Satellite Photographs and Archaeology in the Middle East: Case Studies from Turkey. *Antiquity* 72.

Kepecs, S. 1997. Introduction to New Approaches to Combining the Archaeological and Historical Records. *Journal of Archaeological Method and Theory* 4, 193-198.

Kessler, K. 1980. *Untersuchungen zur historischen Topographie Nordmesopotamiens nach keilschriftlichen Qwellen des 1. Jahrtausends v. Chr.* (TAVO B26). Wiesbaden: Reichert.

Ketata, H. 1987. Actual and Potential Yields of Cereal Crops in Moisture-Limited Environments. In *Drought Tolerance in Winter Cereals* (eds) J.P. Srivastava, E. Porceddu, E. Acevedo & S. Varma. New York: John Wiley & Sons.

Khalaf, S.N. 2000. Shaykhs, Peasants and Party Comrades: Political Change in Northern Syria. In *The Transformation of Nomadic Society in the Arab East* (ed.) B. Musallam.

University of Cambridge Oriental Publications, pp. 110-122. Cambridge: Cambridge University Press.

Khayyata, W. & K. Kohlmeyer. 1998. Die Zitadelle von Aleppo-- Vorläufiger Bericht über die Untersuchungen 1996 und 1997. *DaM* 10, 69-96.

Khazanov, A. 1994. *Nomads and the Outside World* (trans.) F. Woodman. Madison, WI: University of Wisconsin Press.

Khoury, P.S. & J. Kostiner. 1990a. Introduction: Tribes and the Complexities of State Formation in the Middle East. In *Tribes and State Formation in the Middle East* (eds) P.S. Khoury & J. Kostiner, pp. 1-22. Berkeley: University of California Press.

— (eds) 1990b. *Tribes and State Formation in the Middle East*. Berkeley: University of California Press.

Kintigh, K. 1994. Contending with Contemporaneity in Settlement Pattern Studies. *American Antiquity* 58, 143-148.

Klengel, H. 1997. Die historische Rolle der Stadt Aleppo im vorantiken Syrien. In *Die Orientalische Stadt: Kontinuität, Wandel, Bruch* (ed.) G. Wilhelm, pp. 359-374. Saarbrücken: Saarbrücker Druckerei und Verlag.

Knapp, A.B. (ed.) 1992. *Archaeology, Annales and Ethnohistory*. Cambridge: Cambridge University Press.

—. 1993. *Society and Polity at Bronze Age Pella: An Annales perspective* (JSOT/ASOR Mongraph 6). Sheffield: Sheffield Academic Press.

Kolinski, R. 1997. The Form of the Old Assyrian settlement on Tell Rijm, Northern Iraq. In *Assyrien im Wandel der Zeiten* (eds) H. Waetzoldt & H. Hauptmann, pp. 295-8. Heidelberg: Heidelberger Orientverlag.

—. 2000a. Polish Excavations at Tell Abu Hafur, Area A. Season 1990. *DaM* 12, 31-53.

—. 2000b. *Tell Rijim, Iraq: The Middle Bronze Age Layers* (Eski Mosul Dam Salvage Project Excavations of the Polich Center of Archaeology, University of Warsaw 837). Oxford: BAR Reports.

—. 2001. *Mesopotamia dimatu of the Second Millennium BC* (BAR International Series 1004). Oxford: BAR Reports.

—. 2002. Tell al-Fakhar: A *dimtu*-settlement or the City of Kurruhanni? In *General Studies and Excavations at Nuzi 10/3* (eds) D.I. Owen & G. Wilhelm. Studies on the Civilization and Culture of Nuzi and the Hurrians, pp. 3-39. Bethesda, MD: CDL Press.

Kouchoukos, N. 1998. Landscape and Social Change in Late Prehistoric Mesopotamia. PhD: Yale University.

—. 2001. Satellite Images and Near-Eastern Landscapes. *Near Eastern Archaeology* 64, 80-91.

Kramer, C. 1977. Pots and Peoples (trans.) G. Buccellati. In *Mountains and Lowlands: Essays in the Archaeology of Greater Mesopotami* (eds) T.C. Young & L.D. Levine. Bibliotheca Mesopotamica, pp. 91-112. Malibu: Undena Publications.

—. 1980. Estimating Prehistoric Populations: An Ethnoarchaeological Approach (trans.) C.I.d. CNRS. In *L'Archéologie de l'Iraq du début de l'époque néolithique à 333 avant notre ère* (ed.) M.-T. Barrelet, pp. 315-334. Paris: Éditions du CNRS.

—. 1982. *Village Ethnoarchaeology*. New York: Academic Press.

Kraus, F.R. 1966. *Staatliche Viehhaltung im altbabylonischen Lande Larsa* (Letterkunde Nieuwe Reeks-DEEL 29-No.5. Amsterdam: Medelingen der Koninklijke Nederlandse Akademie van Wetenschappen, AF.

—. 1973. *Vom mesopotamischen Menschen der altbabylonischen Zeit und seiner Welt*. Amsterdam: North-Holland.

Krebernik, M. 1996. The Linguistic Classification of Eblaite: Methods, Problems and Results. In *The Study of the Ancient Near East in the Twenty-First Century: The William Foxwell Albright Centennial Conference,* (eds) J.S. Cooper & G.M. Schwartz, pp. 233-249. Winona Lake, IN: Eisenbrauns.

—. 2001. *Die Altorientalischen Schriftfunde* (Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft 100). Saarbrücken: SDV.

Kühne, C. 1995a. Ein mittelassyrisches Verwaltungsarchiv. In *Ausgrabungen in Tell Chuera in Nordost-Syrien* (ed.) W.H. Orthmann, R; Klein, H.; Kühne, C; Novak, M.; Pruss; Vila, E.; Weicken, H.-M.; Wener, A. Vorderasiatische Forschungen der Max Freiherr von Oppenheim-Stiftung, pp. 203-225. Saarbrücken: Saarbrücker Druckerei und Verlag.

—. 1996. Aspects of the Middle Assyrian *Harbu* Archive. *SAAB* 10, 3-8.

—. 1997. Ein mittelassyrischer Kulttext aus der westlichen Gezira. *AoF*, 383-389.

—. 1999. Gersterationen im mittelassyrischen *Harbu*. In *Landwirtschaft im Alten Orient : ausgewählte Vorträge der XLI. Rencontre Assyriologique Internationale Berlin, 4.-8.7.1994* (eds) H. Klengel & J. Renger. BBVO, pp. 179-188. Berlin: Dietrich Reimer Verlag.

Kühne, H. 1994. The Urbanization of the Assyrian Provinces. In *Nuove Fondazioni nel Vicino Oriente Antico: Realtà e Ideologia* (ed.) S. Mazzoni, pp. 55-84. Pisa: Giardini Editori e Stampatori.

—. 1995b. The Assyrians on the Middle Euphrates and the Habur. In *Neo-Assyrian Geography* (ed.) M. Liverani, pp. 69-86. Roma: La Sapienza.

—. 2000. Dur-katlimmu and the Middle-Assyrian Empire. In *La Djéziré et l'Euphrate Syriens de la Protohistoire à la Fin du IIe Millénaire AV. J.-C. Tendances dans l'interprétation historique des données nouvelles* (eds) O. Rouault & M. Wäfler. Subartu, pp. 271-279. Turnhout: Brepols.

Kuhrt, A. 1995. *The Ancient Near East c. 3000-330 BC*. London: Routledge.

Kuniholm, P.I., M.W. Newton, C.B. Griggs & P.J. Sullivan. 2005. Dendrochronological Dating in Anatolia: The Second Millennium B.C. *Der Anschnitt* 18, 41-47.

Kuper, A. 1988. *The Invention of Primitive Society: Transformations of an Illusion*. London and New York: Routledge.

Kupper, J.-R. 1957. *Les nomades en Mésopotamie au temps des rois de Mari*. Paris: Belles Lettres.

—. 1985. Šamši-Adad et l'Assyrie. In *Miscellanea Babylonica: Mélanges offerts à Maurice Birot* (eds) J.-M. Durand & J.-R. Kupper, pp. 147-151. Paris: ERC.

—. 1998. *Lettres royales du temps de Zimri-Lim* (Archives Royales de Mari (ARM) 28). Paris: ERC.

Kuyper, J.de. 1988. Grundeigentum in Mari. In *Grundeigentum in Mesopotamien* (ed.) B. Brentjes. Jahrbuch für Wirtschaftsgeschichte, pp. 69-78. Berlin: Akademie-Verlag.

Kvamme, K.L. 1999. Recent Directions and Developments in Geographical Information Systems. *Journal of Archaeological Research* 7, 153-201.

Lafont, B. 1992. Messagers et Ambassadeurs dan les Archives de Mari. In *La circulation des biens, des personnes et des idées dans le Proche-Orient ancien. XXXVIIIe RAI.* (eds) D. Charpin & F. Joannès, pp. 167-183. Paris: ERC.

—. 1999. Le Prôche-Orient à l'époque des rois amorrites: un monde sans frontières? In *Landscapes: Territories, Frontiers and Horizons in the Ancient Near East, Papers presented to the XLIV RAI Venezia, 7-11 July, 1997* (eds) L. Milano, S. De Martino, F.M. Fales & G.B. Lanfranchi. CRRAU=I, pp. 49-55. Padua: Sargon srl.

—. 2000a. Irrigation Agriculture in Mari. In *Rainfall and Agriculture in Northern Mesopotamia: Proceedings of the Third MOS Symposium (Leiden 1999)* (ed.) R.M. Jas. MOS Studies, pp. 129-145. Istanbul: Nederlands Historisch-Archaeologisch Instituut.

—. 2001. Relations internationales, alliances et diplomatie au temps des royaumes amorrites. In *Amurru 2: Mari, Ébla, et les Hourrites, dix ans de travaux* (eds) J.-M. Durand & D. Charpin, pp. 213-328. Paris: ERC.

Lafont, S. 1987. La valeur de la loi dans les droits cunéiformes. *Archives de philosophie du Droit* 32, 335-346.

—. 1998. Fief et féodalité dans le Proche-Orient ancien. In *Les Féodalités* (ed.) J.-P. Bournazel and Poly, pp. 517-630. Paris: Puf.

—. 2000b. Considérations sur la pratique judiciaire en Mésopotamie. In *Rendre la justice en Mésopotamie* (ed.) F. Joannès, pp. 15-34. Saint-Denis: Presses universitaires de Vincennes.

Lambert, W.G. 1991. An Unknown King in an Unknown City. In *Ah Assyria... Studies in Assyrian History and Ancient Near Eastern Historiography presented to Hayim Tadmor* (eds) M. Cogan & I. Eph'al, pp. 314-319. Jerusalem.

Landmann, G., A. Reimer, G. Lemcke & S. Kempe. 1996. Dating Late Glacial Abrupt Climate Changes in the 14,570 year Long Continuous Varve Record of Lake Van, Turkey. *Palaeogeography Palaeoclimatology Palaeoecology* 122, 107-118.

Lapidus, I.M. 1990. Tribes and State Formation in Islamic History. In *Tribes and State Formation in the Middle East* (eds) P.S. Khoury & J. Kostiner, pp. 25-47. Berkeley: University of California Press.

LaPlaca, P.J. & M.A. Powell. 1990. The agricultural cycle and the calendar at Pre-Sargonic Girsu. *BSA* V, 75-104.

Larsen, M.T. 1996. *The Conquest of Assyria*. London: Routledge.

Latour, B. & S. Strum. 1986. Human Origins. Oh Please, Tell Us Another Origin Story. *Journal of Biological and Social Structure* 9, 169-187.

Lattimore, O. 1967. *Inner Asian frontiers of China.* Boston: Beacon Press.

Layard, A.H. 1853. *Discoveries in the Ruins of Nineveh and Babylon*. London: Murray.

Leachtenaur, J.C., K. Daniel & T.P. Vogl. 1997. Digitising Corona Imagery: Quality vs Cost. In *Between the Sun and the Earth: The First NRO Reconnaisance Eye in Space* (ed.) R.A. McDonald, pp. 189-203. Bethesda, MD: American Society for Photgrammetry and Remote Sensing.

Leacock, E.B. 1972. "Introduction". In *The Origins of the Family, Private Property and the State: In the Light of the Researches of Lewis H. Morgan* (ed.) F. Engels, pp. 7-67. New York: International Publishers.

Lebeau, M. 1993. *Tell Melebiya: Cinq campagnes de recherches sur le Moyen Khabour (1984-1988)*. Leuven: Peeters.

—. 1996. Les Maisons de Melebiya: Approche fonctionelle de l'habitat prive au III^{e} millénaire av. notre ère en Haute Mésopotamie. In *Houses and Households in Ancient Mesopotamia* (ed.) K.R. Veenhof, pp. 129-136. Istanbul: Nederlands Historisch-Archaeologisch Instituut.

—. 1997. La situation géographique, la topographie et les périodes d'occupation de Tell Beydar. In *Tell Beydar, Three Seasons of Excavations (1992-1994): A Preliminary Report* (eds) M. Lebeau & A. Suleiman. Subartu, pp. 7-20. Turnhout: Brepols.

—. 2003. Aperçu de la *Jezirah Bichrome Ware* découverte à Tell Beydar (chantier H). In *Tell Beydar, the 1995-1999 Seasons of Excavations. A Preliminary Report* (eds) M. Lebeau & A. Suleiman, pp. 309-315. Turnhout: Brepols.

Lebeau, M. & L. Milano. 2003. Radiocarbon Determinations for Tell Beydar. In *Tell Beydar, the 1995-1999 Seasons of Excavations. A Preliminary Report* (eds) M. Lebeau & A. Suleiman. Subartu, pp. 15-20. Turnhout: Brepols.

Lefebvre, H. 1991. *The Production of Space* (trans.) D. Nicholson-Smith. Oxford: Blackwells.

Lehmann-Haupt, C.F. 1910-1931. *Armenien einst und jetzt*. Berlin.

Lemcke, G. & M. Sturm. 1997. d18O and Trace Element Measurements as Proxy for the Reconstruction of Climate Changes at Lake Van (Turkey): Preliminary Results. In *Third Millennium B.C. Climate Change and Old World Collapse* (eds) N. Dalfes, G. Kukla & H. Weiss. NATO ASI Series I, pp. 653-678. Berlin: Springer Verlag.

Liverani, M. 1975. Communatés des villages dans le Syrie. *JESHO* 18, 146-164.

—. 1984. Land Tenure and Inheritance in the Ancient Near East: The Interaction between 'Palace' and 'Family' Sectors. In *Land Tenure and Social Transformation in the Middle East* (ed.) T. Khalidi, pp. 33-44. Beirut: American University of Beirut.

—. 1988. The Growth of the Assyrian Empire in the Habur/Middle Euphrates Area: A New Paradigm. *SAAB* II, 81-98.

—. 1990. *Prestige and Interest: International Relations in the Near East, ca. 1600-1100 B.C.* Padova: Sargon srl.

—. 1996. Reconstructing the Rural Landscape of the Ancient Near East. *JESHO* 39, 1-41.

—. 1997. "Half-Nomads" on the Middle Euphrates and the Concept of Dimorphic Society. *AoF* 24, 44-48.

Llobera, M. 2003. Extending GIS-based visual analysis: the concept of visualscapes. *International Journal of Geographical Information Science* 17, 25-48.

Lloyd, S. 1938. Some Ancient Sites in the Sinjar District. *Iraq* 5, 123-142.

Luke, J.T. 1965. Pastoralism and Politics in the Mari Period: A Re-examination of the character and political significance of the major West Semitic tribal groups on the Middle Euphrates, ca. 1828-1758 B.C: University of Michigan.

Lüth, F. 1989. Tell Halawa B. In *Halawa* (ed.) W. Orthmann, pp. 85-109. Bonn: Rudolf Habelt.

Lyon, J.D. 2000. Middle Assyrian Expansion and Settlement Development in the Syrian Jazira: The View from the Balikh Valley. In *Rainfall and Agriculture in Northern Mesopotamia* (ed.) R.M. Jas, pp. 89-126.

Lyonnet, B. 1990. Prospection archéologique du site de Tell Mohammed Diyab. In *Tell Mohammed Diyab (Campagnes 1987 et 1988)* (ed.) J.-M. Durand. Cahiers de NABU, pp. 71-115.

—. 1992. Reconnaissance dans le haut Habur: étude de la céramique. In *Recherches en Haut Mésopotamie: Tell Mohammed Diyab Campagnes 1990 et 1991* (ed.) J.-M. Durand. Mémoires de NABU, pp. 103-132. Paris: SEPOA.

—. 1996. La prospection archéologique de la partie occidentale du Haut-Khabur (Syrie du N.E.): méthodes, résultats et questions autour de l'occupation aux III^{e} et II^{e} millénaires av. n.è. In *Amurru : Mari, Ebla, et les Hourrites, dix ans de travaux, 1ère partie (Actes du colloque international, Paris, Mai 1993)* (ed.) J.-M. Durand, pp. 363-376. Paris: ERC.

—. 1997. Questions sur l'origine des porteurs de pots en Haute-Mésopotamie, du VI^{e} au millieu de II^{e} millénaire. In *Florilegium Marianum 3: Recueil d'études à la mémoire de Mari-Thérèse Barrellet* (eds) D. Charpin & J.-M. Durand. Mémoires de NABU, pp. 133-144. Paris: SEPOA.

—. 1998. Le peuplement de la Djéziré occidentale au début du III^{e} millénaire, ville circulaires et pastoralisme: questions et hypothèses. In *About Subartu, Studies devoted to Upper Mesopotamia/ À propos de Subartu, Études consacrées à la Haute Mésopotamie* (ed.) M. Lebeau. Subartu, pp. 179-193. Turnhout: Brepols.

—. 2000. Méthodes et résultats préliminaires d'une prospection archéologique dans la partie occidentale du Haut-Khabur, depuis le Néolithique jusqu'à la fin du II^{e} mill"enaire av. n.è. In *La Djéziré et l'Euphrate Syriens de la protohistoire à la fin du II^{e} millénaire av. J.-C.: Tendances dans l'interprétation historique des données nouvelles* (eds) O. Rouault & M. Wäfler. Subartu, pp. 241-253. Turnhout: Brepols.

—. 2001. L'occupation des marges arides de la Djéziré: Pastoralisme et nomadisme aux débuts du 3^{e} et du 2^{e} millénaire. In *Conquête de la Steppe et appropriation des terres sur les marges arides du Croissant fertile* (ed.) B. Geyer. Travaux de la Maison de l'Orient Méditerranéen, pp. 15-26. Lyon: Maison de L'Orient Méditerannéen.

—. 2004. Le nomadisme et l'archéologie: problèmes d'identification. Le cas de la partie occidentale de la Djéziré aux 3ème et début du 2ème millénaire avant notre ère. In *Amurru 3: Nomades et sédentaires dans le Proche-Orient ancien* (ed.) C. Nicolle, pp. 25-49. Paris: ERC.

Machinist, P. 1982. Provincial Governance in Middle Assyria. *Assur* 3, 1-37.

MacPhail, R.I., M.A. Courty & A. Gebhardt. 1990. Soil Micromorphological Evidence of Early Agriculture in North-west Europe. *World Archaeology* 22, 53-69.

Maeda, T. 1992. The Defense Zone during the Rule of the Ur III Dynasty. *ASJ* 14, 135-172.

Mallowan, M. 1936. The Excavations at Tall Chagar Bazar and an Archaeological Survey of the Habur Region, 1934-1935. *Iraq* 3, 1-86.

—. 1937. The Excavations at Tall Chagar Bazar and an Archaeological Survey of the Habur Region, Second Campaign. *Iraq* 4, 91-177.

—. 1944. Excavations at Brak and Chagar Bazar. *Iraq* 9.

Manning, S.W., B. Kromer, P.I. Kuniholm & M.W. Newton. 2001. Anatolian Tree Rings and a New Chronology for the East Mediterranean Bronze-Iron Ages. *Science* 294, 2532-2535.

—. 2003. Confirmation of near-absolute dating of east Mediterranean Bronze-Iron Dendrochronology. *Antiquity* 77.

Marchetti, N. 1996. The Ninevite 5 Glyptic of the Khabur Region and the Chronology of the Piedmont Style Motives. *Baghdader Mitteilungen* 27, 81-114.

—. 1998. The Mature Early Syrian Glyptic from the Khabur Region. In *About Subartu, Studies devoted to Upper Mesopotamia/ À propos de Subartu, Études consacrées à la Haute Mésopotamie* (ed.) M. Lebeau, pp. 115-153. Turnhout: Brepols.

Marello, P. 1992. Vie Nomade. In *Florilegium marianum: Recuel d'études en l'honneur de Michel Fleury* (ed.) J.-M. Durand. Mémoires de N.A.B.U., pp. 115-125. Paris: SEPOA.

Margueron, J.-C. 1987. État présent des recherches sur l'urbanisme de Mari. *M.A.R.I.* 5, 483-498.

—. 1991. Mari, l'Euphrate, et le Khabur au milieu du III^{e} millénaire. *BCSMS* 21, 79-107.

—. 1993. Une couverture possible pour l'espace central de l'enceinte de sacrée. *M.A.R.I.* 7, 281-313.

—. 1994. Fondations et refondations au Proche-Orient au Bronze Récent. In *Nuove Fondazioni nel Vicino Oriente Antico: Realtà e Ideologia* (ed.) S. Mazzoni, pp. 3-27. Pisa: Giardini Editori e Stampatori.

—. 2000. Mari et le Khabur. In *La Djéziré et l'Euphrate Syriens: De La Protohistoire ã la fin du II^{e} Millénaire av. J.-C. Tendances dans l'interprétation historique des données nouvelles.* (eds) O. Rouault & M. Wäfler. Subartu, pp. 99-110. Turnhout: Brepols.

Matney, T. & G. Algaze. 1995. Urban Development at Mid-Late Early Bronze Age Titrish Höyük in Southeastern Anatolia. *BASOR* 299/300, 33-52.

Matthews, D. 1997. *The Early Glyptic of Tell Brak: Cylinder Seals of Third Millennium Syria* (Orbis Biblicus et Orientalis. Series Archaeologica 15). Freiburg: University Press.

Matthews, D. & J. Eidem. 1993. Tell Brak and Nagar. *Iraq* 55, 201-207.

Matthews, R. 2002. Seven Shrines of Subartu. In *Of Pots and Plans: Papers on the Archaeology and History of Mesopotamia and Syria, presented to David Oates in Honour of his 75th Birthday* (eds) L. al-Gailani Werr, J. Curtis, H. Martin, A. McMahon, J. Oates & J. Reade, pp. 186-190. London: NABU Publications.

—. 2003a. *The Archaeology of Mesopotamia: Theories and approaches*. London: Routledge.

—. 2003b. A Chiefdom on the Northern Plains: Early Third Millennium Investigations: the Ninevite 5 Period. In *Excavations at Tell Brak Vol. 4: Exploring an Upper Mesopotamian regional centre, 1994-1996* (ed.) R. Matthews, pp. 97-191. Cambridge: McDonald Institute for Archaeological Research.

Matthews, V.H. 1978. *Pastoral Nomadism in the Mari Kingdom (ca. 1830-1760 B.C.)*. Cambridge, MA: ASOR.

Matthiae, P. 1991. Mardikh/Ebla. In *Archaeology in Syria* (ed.) H. Weiss. AJA, pp. 707-709.

—. 1997. Where were the Early Syrian Kings of Ebla buried? *AoF* 24, 268-276.

Maul, S.M. 1992. *Die Inschriften von Tall Bderi* (BBVOT 2). Berlin: Dietrich Reimer Verlag.

—. 1999. New information about the Rulers of Tabetu. *Al-Rafidan* 20, 49-55.

Mayo, D. & H. Weiss. 2003. The Beginning of the Ninevite 5 Sequence at Tell Leilan. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (eds) D. Mayo & H. Weiss. Subartu, pp. 25-41. Turnhout: Brepols.

Mazzoni, S. 1991. Ebla e la formazione della cultura urbana in Siria. *La Parola del Passato* 46, 163-194.

—. 2000. Pots, People and Cultural Borders in Syria. In *Landscapes: Territories, Frontiers and Horizons in the Ancient Near East, Papers presented to the XLIV RAI Venezia, 7-11 July, 1997* (eds) L. Milano, S. De Martino, F.M. Fales & G.B. Lanfranchi. History of the Anceint Near East/Monographs III/2, pp. 139-152. Padova: Sargon srl.

McCarthy, A. 2003. Signs of shared complexity: Glyptic and large-scale social transformations in the 4th and 3rd millennium Near East. PhD: University of Edinburgh.

—. 2004. Is there a Carchemish regional glyptic style? Reflections on sealing practices in the northern Euphrates region. Paper presented to the 4ICAANE, Workshop II: The Archaeology of Boundaries: was there a Carchemish region in the Early Bronze Age?, Berlin, 2004.

—. N.D. The Small Finds. In *Tell Leilan: Excavations at the City Gate* (eds) L. Ristvet & A. McCarthy. Tell Leilan Researches. New Haven: Yale University Press.

McClellan, T. 1992. 12th Century B.C. Syria: Comments on Sader's Paper. In *The Crisis Years, The 12th Century BC: From Beyond the Danube to the Tigris* (eds) W.A. Ward & M.S. Joukowsky, pp. 164-173. Dubuque, Iowa: Kendall Hunt.

—. 1998. Tell Banat North: The White Monument. In *About Subartu: Vol. 1. Landscape, Archaeology, Settlement* (ed.) M. Lebeau, pp. 243-269. Turnhout: Brepols.

—. 1999. Urbanism on the Upper Syrian Euphrates. In *Archaeology of the Upper Syrian Euphrates, The Tishrin Dam Area: Proceedings of the International Symposium Held at Barcelona, January 28th-30th 1998* (eds) G. del Olmo Lete & J.-L. Montero Fenollós. Barcelona: Editorial AUSA.

McClellan, T., R. Grayson & C. Ogleby. 2000. Bronze Age Water Harvesting in North Syria. In *La Djéziré et l'Euphrate syriens: De la protohistoire à la fin du II^{e} millénaire av. J.-C. Tendances dans l'intérpretation historique des données nouvelles* (eds) O. Rouault & M. Wäfler. Subartu, pp. 137-155. Turnhout: Brepols.

McCorriston, J. 1995. Preliminary Archaeobotanical Analysis in the Middle Habur Valley, Syria and Studies of Socioeconomic Change in the Early Third Millennium BC. *BCSMS* 29, 22-46.

—. 1997. The Fiber Revolution: Textile Extensification, Alienation and Social Stratification in Ancient Mesopotamia. *Current Anthropology* 38, 517-549.

—. 1998. Landscape and Human-Environment in the Middle Habur Drainage. *BCSMS* 33, 43-53.

McCorriston, J. & S. Weisberg. 2002. Spatial and Temporal Variation in Mesopotamian Agricultural Practices in the Khabur Basin, Syrian Jazira. *Journal of Archaeological Science* 29, 485-498.

McDonald, H. & N. Jackson. 2003. A House on the Hill. In *Excavations at Tell Brak, Vol. 4: Exploring an Upper Mesopotamian regional centre, 1994-1996* (ed.) R. Matthews, pp. 271-319. London: British School of Archaeology in Iraq.

McDonald, R.A. 1995. CORONA: Success for Space Reconnaisance. A look into the Cold War and a revolution for intelligence. *Photogrammetric Engineering and Remote Sensing* 61, 689-720.

— (ed.) 1997. *CORONA between the Sun and the Earth. The first NRO Reconnaissance Eye in Space*. Bethesda, MD: American Society for Photgrammetry and Remote Sensing.

McEwan, C.W., L.S. Braidwood, H. Frankfort, H.G. Güterbock, R.C. Haines, H.J. Kantor & C.H. Kraeling. 1958. *Soundings at Tell Fakhariyah* (OIP 79). Chicago: University of Chicago Press.

McIntosh, S.K. (ed.) 1999a. *Beyond Chiefdoms: Pathways to Complexity in Africa*. Cambridge: Cambridge University Press.

—. 1999b. Pathways to Complexity: An African Perspective. In *Beyond Chiefdoms: Pathways to Complexity in Africa* (ed.) S.K. McIntosh, pp. 1-30. Cambridge: Cambridge University Press.

McMahon, A. & P. Quenet. N.D. Area D Post-Akkadian Pottery. In *Excavations at Chagar Bazar (Syria)/Fouilles de Chagar Bazar (Syrie), Progress reports / Rapports periodiques 1* (eds) Ö. Tunca, A. McMahon & A.a.-M. Bagdo. Series of the Association pour la Promotion de l'Histoire et de l'Archeologie orientales, Publications de la Mission archeologique de l'Universite de Liege en Syrie. Leuven: Peeters.

McMahon, A., Ö. Tunca & A.-M. Bagdo. 2001. New Excavations at Chagar Bazar, 1999-2000. *Iraq* 73, 201-222.

Meek, R. 1976. *Social Science and the Ignoble Savage*. Cambridge: Cambridge University Press.

Meijer, D. 1986. *A Survey in Northeastern Syria*. Istanbul: Nederlands Historisch-Archaeologisch Insitut voor het Nabie Oosten.

—. 1988. Tell Hammam: Architecture and Stratigraphy. In *Tell Hammam et-Turkman I* (ed.) M.N.van Loon, pp. 69-127. Leiden: Nederlands Historisch-Archaeologisch Insitut voor het Nabie Oosten.

—. 1990. An archaeological surface survey: some assumptions and ideas. In *Tall al-Hamidiya 2* (eds) S. Eichler, M. Wäfler & D. Warburton. Orbis Biblicus Orientalis, pp. 31-45. Freiburg: Universitätsverlag Freiburg.

—. 1996. Tell Hammam al-Turkman: Preliminary Report on the Seventh Campaign, May-July 1995. *Anatolica* XXII, 181-193.

Mellink, M. 1991. Archaeology in Anatolia. *AJA* 95, 123-153.

Merpert, N.Y. & R.M. Munchaev. 1999. The Religious Complex at Tell Hazna I in North-East Syria. *AAAS* 43, 119-123.

Meyer, J.-W. 1983. Eine spätbronzezeitliche Keilschrifturkunde aus Syrien. *DaM* I, 249-261.

—. 1996. Offene und geschlossene Siedlungen: Ein Beitrag zur Siedlungsgeschichte und historischen Topographie in Nordsyrien während des 3. und 2. Jts. v. Chr. *AoF* 23, 132-170.

—. 1997. Djebelet el-Beda: Eine Stätte der Ahnenverehrung? *AoF* 24, 294-309.

—. 2002. Town planning in 3rd millennium Tell Chuera. Paper presented to the Power and Architecture: Monumental Public Architecture in the Bronze Age Near East and Aegean, Leuven, Belgium, 2002.

Michalowski, P. 1986. Mental Maps and Ideology: Reflections on Subartu. In *Origins of Cities in Dry-Farming Syria and Mesopotamia in the Third Millennium BC* (ed.) H. Weiss, pp. 129-156. Guilford, CT: Four Quarters Publishing.

—. 1988. Thoughts about Ibrium. In *Wirtschaft und Gesellschaft von Ebla: Akten von internationalen Tagung, Heidelberg 4-7 November, 1986* (eds) H. Hauptmann & H. Waetzoldt, pp. 256-277. Heidelberg.

—. 1999. Sumer dreams of Subir: Politics and the Geographical Imagination. In *At the Crossroads of Civilizations in the Syro-Mesopotamian Realm* (eds) K. Van Lerberghe & G. Voet. Leuven: Peeters.

Michel, C. & P. Rocher. 1997-2000. La chronologie du IIe millénaire revue à l'ombre d'une éclipse de soleil. *JEOL* 35-36, 111-126.

Milano, L. 1987a. Barley for Rations and Barley for Sowing (ARET II 51 and Related Matters). *Acta Sumerologica* 9, 177-201.

—. 1987b. Food Rations at Ebla: A Preliminary Account of the Ration Lists Coming from the Ebla Palace Archive L.2712. *M.A.R.I.* 5, 519-550.

—. 1990. *Testi amministrativi: assegnazioni di prodotti alimentari (Archivio L. 2712 - Parte I)* (Archivi Reali De Ebla, Testi (ARET) IX). Roma: Missione Archeologica Italiana in Syria.

—. 1991. Mozan 2: The Epigraphic Finds of the Sixth Season. *Syro-Mesopotamian Studies* 5.

—. 1994. *Drinking in Ancient Societies: History and Culture of Drinks in the Ancient Near East* (History of the Ancient Near East Studies VI). Padova: Sargon srl.

—. 1995. Ebla: A Third-Millennium City-State in Ancient Syria. In *CANE* (ed.) J.M. Sasson, pp. 1219-1230. New York: Charles Scribner's Sons.

—. 1996. Ébla: Gestion des terres et gestion des ressources alimentaires. In *Amurru 1: Mari, Ébla et les Hourrites, dix ans de travaux* (ed.) J.-M. Durand, pp. 135-170. Paris: ERC.

Milano, L. & E. Rova. 2000. Ceramic Provinces and Political Borders in Upper Mesopotamia in the Late Early Dynastic Period. In *Studi sul Vicino Oriente Antico: dedicati alla memoria di Luigi Cagni* (ed.) S. Graziani, pp. 709-749. Napoli: Istituto Universitario Orientale.

Milano, L., W. Sallaberger, P. Talon & K. Van Lerberghe. 2004. *Third Millennium Cuneiform Texts from Tell Beydar (Seasons 1996-2002)* (Subartu 12). Turnhout: Brepols.

Miller, N.F. 1984. The Use of Dung as Fuel: An Ethnographic Example and an Archaeological Application. *Paléorient* 10, 71-79.

—. 1996. Seed Eaters of the Ancient Near East: Human or herbivore? *Current Anthropology* 37, 521-528.

—. 1997a. Farming and Herding Along the Euphrates: Environmental Constraint and Cultural Choice (Fourth to Second Millennia B.C.). In *Subsistence and Settlement in a Marginal Environment: Tell es-Sweyhat, 1989-1995 Preliminary Report* (ed.) R.L. Zettler, pp. 123-132. Philadelphia: MASCA, University of Pennsylvania.

—. 1997b. Sweyhat and Hajji Ibrahim: Some Archaeobotanical Samples from the 1991 and 1993 Seasons. In *Subsistence and Settlement in a Marginal Environment: Tell es-Sweyhat, 1989-1995 Preliminary Report* (ed.) R.L. Zettler, pp. 95-122. Philadelphia: MASCA, University of Pennsylvania.

—. 2000. Plant Remains. In *Excavation and Survey in the Jabbul Plain, Western Syria: The Umm el-Marra Project 1996-1997* (eds) G.M. Schwartz & H.H. Curvers. AJA, pp. 438-447.

Moltke, H.v. 1882. *Briefe über Zustände und Begebenheiten in der Türkei aus den Jahren 1835 bis 1839*. Berlin.

Monchambert, J.-Y. 1983. Le Moyen Khabour: Prospection préliminaire à la construction d'un barrage. *AAAS* 33, 233-237.

—. 1984a. Prospection archéologique sur l'emplacement du futur lac du Moyen Khabour. Rapport préliminaire. *Akkadica* 39, 1-7.

—. 1984b. Le futur lac du Moyen Khabour: rapport sur la prospection archéologique menée en 1983. *Syria* 61, 181-218.

Montagne, R. 1932. Quelques aspects du peuplement de la Haute-Djezire. *Bulletin d'Études Orientales de l'Institut Français de Damas* II, 53-66.

Moorey, P.R.S. 2001. Clay Models and Overland Mobility in Syria, ca. 2350-1800 BC. In *Beiträge zur Vorderasiatischen Archäologie: Winfried Orthmann gewidmet* (eds) J.-W. Meyer, M. Novak & A. Pruss, pp. 344-351. Frankfurt am Main: Johann Wolfgang Goethe-Universität.

Moortgat-Correns, U. 1972. *Die Bildwerke vom Djebelet el Beda in ihrer räumlichen und zeitlichen Umwelt*. Berlin: Walter de Gruyter.

Moran, W. 1992. *The Amarna Letters*. Baltimore: Johns Hopkings Press.

Morandi-Bonacossi, D. 1996a. "Landscapes of Power": The political organisation of space in the Lower Habur Valley in the Neo-Assyrian Period. *SAAB* 10, 15-49.

—. 1996b. *Tra il Fiume e la Steppa: Insediamento e uso del territorio nella bassa valle del fiume Habur in epoca neo-assira* (History of the Ancient Near East/ Monographs I 1). Padova: Sargon srl.

Mori, L. 2003. *Reconstructing the Emar Landscape* (Quaderni di Geografia 6). Roma: Universita di Roma "La Sapienza".

Mugnier, C.J. 2001. Grids and Datums: The Syrian Arab Republic. *Photogrammetric Engineering and Remote Sensing*, 1000-1003.

Munchaev, R.M. & N.Y. Merpert. 1990. Tell Hazna. *Dossiers d'Archéologie* 155, 30-31.

—. 1994. Da Hassuna a Accad. Scavi della missione russa nella regione di Hassake, Siria de NE, 1988-1992. *Mesopotamia* 29, 5-48.

—. 2002. Tell' Hazna I: Raskopki 2001 Goda (Tell Hazna I: Excavations of 2001). *Rossiyskaya Arkheologiya* 2002, 20-39.

Murphy, S.B. 2004. Frontier as an Interpretative Key of Relationship between Nomads and Sedentaries. In *Amurru 3: Nomades et sédentaires dans le Proche-Orient ancien* (ed.) C. Nicolle, pp. 75-80. Paris: ERC.

Muscarella, O. 1988. Comments on the Urkish Lion Pegs. In *Mozan 1:The Soundings of the First Two Seasons* (eds) G. Buccellati & M. Kelly-Buccellati. Bibliotheca Mesopotamica, pp. 93-99. Malibu: Undena.

Nashef, K. 1989. Qattara and Karana. *WO* 19, 35-39.

—. 1991. *Die Orts- und Gewässernamen der altassyrischen Zeit* (RGTC 4). Wiesbaden: Dr. Ludwig Reichert.

Neumann, J. & S. Parpola. 1987. Climatic Change and the Eleventh-Tenth Century Eclipse of Assyria and Babylonia. *JNES* 46, 161-182.

Novak, M. 1995. Die Stadtmauergrabung. In *Ausgrabungen in Tell Chuera in Nord-Ost Syrien I* (ed.) W.e.a. Orthmann. Saarbrücken: Saarbrücker Drückeri und Verlag.

Numoto, H. 1997. Re-examination of the Ninevete 5 Pottery from Tell Thalathat No. 5. *Al-Rafidan* 18, 119-136.

—. 2003. Ninevite 5 Pottery from Tells Fisna and Thuwaij and its Relative Chronology in Mosul Region. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (eds) E. Rova & H. Weiss. Subartu, pp. 83-152. Turnhout: Brepols.

Oates, D. 1966. The Excavations at Tell al Rimah, 1965. *Iraq* 28, 122-139.

—. 1967. The Excavations at Tell al Rimah, 1966. *Iraq* 29, 70-96.

—. 1968. The Excavations at Tell al Rimah, 1967. *Iraq* 30, 115-138.

—. 1982. Tell al Rimah. In *Fifty Years of Mesopotamian Discovery* (ed.) J. Curtis, pp. 86-98. London: British School of Archaeology in Iraq.

—. 1985. Walled Cities in Mesopotamia. *M.A.R.I.* 4, 585-594.

Oates, D. & J. Oates. 1991. A note on the Date of the Fragmentary Tablet TB 11021. *Iraq* 53, 158.

Oates, D., J. Oates & H. McDonald. 1997. *Excavations at Tell Brak, Vol. 1: The Mitanni and Old Babylonian periods* (McDonald Institute Monographs. London: British School of Archaeology in Iraq.

—. 2001. *Excavations at Tell Brak, Vol. 2: Nagar in the third millennium BC* (McDonald Institute Monographs. London: British School of Archaeology in Iraq.

Oates, J. 1994. Comment. In *The Structure and Dynamics of Dry Farming States in Upper Mesopotamia* (ed.) T.J. Wilkinson. Current Anthropology, pp. 510-11.

Oguchi, H. 1997. A Reassessment of the Distribution of Khabur Ware: An approach from an aspect of its main phase. *Al-Rafidan* 18, 195-224.

Ohnuma, K. & H. Numoto. 2001. Excavations at Tell Taban, Hassake, Syria: Report of the 1999 Season of Work. *Al-Rafidan* 22, 1-63.

Ohnuma, K., H. Numoto & Y. Okada. 1999. Excavations at Tell Taban, Hassake, Syria: Report of the 1997 season of work. *Al-Rafidan* 20, 1-47.

Ohnuma, K., H. Numoto & M. Shimbo. 2000. Excavations at Tell Taban, Hassake, Syria: Report of the 1998 Season of Work. *Al-Rafidan* 21, 1-50.

Okse, T. 2004. A "High" Terrace at Gre Virike North of Carchemish: Power of Local Rulers as Founders ? Paper presented to the 4ICAANE, Workshop II: The Archaeology of Boundaries: was there a Carchemish region in the Early Bronze Age?, Berlin, 2004.

Oosterom, E.J.v., S. Ceccarelli & J.M. Peacock. 1993. Yield Response of Barley to Rainfall and Temperature in Mediterranean Environments. *Journal of Agricultural Science* 121, 307-313.

Oppenheim, A.L. 1977. *Ancient Mesopotamia: Portrait of a Dead Civilisation*. Chicago: University of Chicago Press.

Oppenheim, M.F.v. 1933. *Tell Halaf: A New Culture in Oldest Mesopotamia* (trans.) G. Wheeler. London: G.P. Putman's Son.

Orthmann, W. 1986. The Origin of Tell Chuera. In *The Origins of Cities in Dry-Farming Syria and Mesopotamia in the Third Millennium B.C.* (ed.) H. Weiss, pp. 61-70. Guilford, CT: Four Quarters Publishing Co.

Otto, A. 1992. Siegelabrollungen aus Tall Bi'a. *MDOG* 124, 45-78.

Pagden, A. 1982. *The Fall of Natural Man: The American Indian and the Origins of Comparative Ethnology*. Cambridge: Cambridge University Press.

—. 1993. European Encounters with the New World: From Renaissance to Romanticism. New Haven: Yale University Press.

Parayre, D. 1990. Tell Leilan 1985: The Glyptic. In *1985 Excavations at Tell Leilan, Syria* (ed.) H. Weiss. AJA, pp. 556-567.

—. 2003. The Ninevite 5 Sequence of Glyptic at Tell Leilan. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (eds) H. Weiss & E. Rova. Subartu, pp. 271-310. Turnhout: Brepols.

Parrot, A. 1953. *Mari*. Neuchatel et Paris: Éditions Ides et Calendes.

Parrot, A. & J. Nougayrol. 1948. Un document de fondation hurrite. *RA* 42, 1-20.

Parry, R.B. & C.R. Perkins. 2000. Syria. In *World Mapping Today*, pp. 556-7. Sevenoaks: Butterworths.

Pauketat, T.R. (ed.) 2001. *The Archaeology of Traditions: Agency and History Before and After Columbus*. Gainesville: University Press of Florida.

Pecorella, P.E. 1990. The Italian Excavations at Tell Barri (Kahat). In *Tall al-Hamidiya 2* (eds) S. Eichler & M. Wäfler, pp. 47-66. Freiburg: Universitätsverlag Freiburg.

—. 1998a. L'area G di Tell Barri/Kahat: 1983-1993. In *Tell Barri/Kahat 2: Relazione sulle campagne 1980-1993 a Tell Barri/Kahat, nel bacino del Habur (Siria)* (ed.) P.E. Pecorella, pp. 66-134. Roma: CNR.

— (ed.) 1998b. *Tell Barri/Kahat 2: Relazione sulle campagne 1980-1993 a Tell Barri/Kahat, nel bacino del Habur (Siria)*. Roma: CNR.

Pedersén, O. 1985. *Archives and Libraries in the City of Assur, Part I*. Uppsala: Almqvist & Wiksell.

—. 1998. *Archives and Libraries in the Ancient Near East: 1500-300 BC*. Bethesda, MD: CDL Press.

Peebles, C. 1997. *The CORONA Project: America's First Spy Satellite*. Annaopolis: Naval Institute press.

Peltenberg, E. 1999. The Living and the Ancestors: Early Bronze Age Mortuary Practices at Jerablus Tahtani,. In *Archaeology of the Upper Syrian Euphrates, The Tishrin Dam Area* (eds) G. del Olmo Lete & J.-L. Montero Fenollós. Aula Orientalis-Supplementa, pp. 427-442. Barcelona: AUSA.

—. 2000. From Nucleation to Dispersal: Late Third Millennium BC Settlement Pattern Transformations in the Near East and Aegean. In *La Djéziré et l'Euphrate syriens: De la protohistoire à la fin du II^{e} millénaire av. J.-C. Tendances dans l'intérpretation historique des données nouvelles* (eds) O. Rouault & M. Wäfler. Subartu, pp. 183-207. Turnhout: Brepols.

—. 2004. Intra-site burial variation at Jerablus Tahtani: a regional perspective. Paper presented to the 4ICAANE, Workshop II: The Archaeology of Boundaries: was there a Carchemish region in the Early Bronze Age?, Berlin, 2004.

Pfälzner, P. 1986-97. The Excavations at Tell Bderi 1986. *AAAS* 36-37, 292-303.

—. 1986-1987. A Short Account of the Excavation in Tell Bderi, 1985. *AAAS* 36-37, 276-303.

—. 1988. Tell Bderi 1985. Bericht über die erste Kampagne. *DaM* 3, 223-386.

—. 1995. *Mittanische und Mittelassyrische Keramik: Eine chronologische, funktionale und produktionsökonimische Analyse* (BATSH 2). Berlin.

—. 1997a. Keramikproduktion und Provinzverwaltung im mittleassyrischen Reich. In *Assyrien im Wandel der Zeit* (eds) H. Waetzoldt & H. Hauptmann, pp. 337-345. Heidelberg: Heidelberger Orientverlag.

—. 1997b. Wandel und Kontinuität im Urbanisierungsprozess des 3 Jtsds. v. Chr. in Nordmesopotamiens. In *Die Orientalische Stadt: Kontinuität, Wandel, Bruch* (ed.) G. Wilhelm, pp. 239-265. Saarbrücken: Saarbrückische Drückeri und Verlag.

—. 2001a. Auf den Spuren der Ahnen: Überlegungen zur Nachweisbarkeit der Ahnenverehrung in Vorderasien vom Neolithikum bis in de Bronzezeit. In *Beiträge zur Vorderasiatischen Archäologie: Winfried Orthmann gewidmet* (eds) J.-W. Meyer, M. Novak & A. Pruss, pp. 390-409. Frankfurt am Main.

—. 2001b. *Haus und Haushalt: Wohnformen des dritten Jahrtausends vor Christus in Nordmesopotamien* (Damaszener Forschungen. Mainz: Verlag Phillip von Zabern.

—. 2002. Modes of Storage and the Development of Economic Systems in the Early Jezireh-Period. In *Of Pots and Plans: Papers on the Archaeology and History of Mesopotamia and Syria, presented to David Oates in Honour of his 75th Birthday* (eds) L. al-Gailani Werr, J. Curtis, H. Martin, A. McMahon, J. Oates & J. Reade, pp. 259-286. London: NABU Publications.

Philip, G., D. Donoghue, A. Beck & N. Galitasatos. 2002. CORONA satellite photography: An archaeological application from the Middle East. *Antiquity* 76, 109-118.

Pinnock, F. 1994. Considerations on the Banquet Theme in the Figurative Art of Mesopotamia and Syria. In *Drinking in Ancient Societies: History and Culture of Drinks in the Ancient Near East* (ed.) L. Milano, pp. 15-26. Padova: Sargon srl.

—. 2001. The Urban Landscape of Old Syrian Ebla. *JCS* 53, 13-33.

Pisani, D.J. 1998. Natural Resources and Economic Liberty in American History. In *The State and Freedom of Contract* (ed.) H.N. Scheiber, pp. 236-268. Stanford: Stanford University Press.

Pittman, H. 1994. *The Glazed Steatite Glyptic Style: The Structure and Function of an Image System in the Administration of Protoliterate Mesopotamia* (BBVO 16). Berlin: Dietrich Reimer Verlag.

Podany, A. 1991-1993. A Middle Babylonian Date for the Hana Kingdom. *Journal of Cuneiform Studies* 43-45, 53-62.

—. 2002. *The Land of Hana: Kings, Chronology and Scribal Tradition*. Bethesda, MD: CDL Press.

Pollock, S. 2003. Feasts, Funerals and Fast Foods in Early Mesopotamian States. In *The Archaeology of Politics of Food and Feasting in Early States and Empires* (ed.) T.L. Bray, pp. 17-38. New York: Kluwer.

Porter, A. 1999. The Ceramic Horizon of the Early Bronze in the Upper Euphrates. In *Archaeology of the Upper Syrian Euphrates, The Tishrin Dam Area: Proceedings of the International Symposiu Held at Barcelona, January 28th-30th 1998* (eds) G. del Olmo Lete & J.-L. Montero Fenollós. Aula Orientalis Supplementa, pp. 311-320. Barcelona: Editorial AUSA.

—. 2000. Mortality, Monuments and Mobility. PhD: University of Chicago.

—. 2002. The Dynamics of Death: Ancestors, Pastoralism and the Origins of a Third-Millennium City in Syria. *BASOR* 325, 1-36.

—. 2004. The Urban Nomad: Countering the Old Clichés. In *Amurru 3: Nomades et sédentaires dans le Proche-Orient ancien* (ed.) C. Nicolle, pp. 69-74. Paris: ERC.

Porter, A. & T. McClellan. 1998. The Third Millennium Settlement Complex at Tell Banat: Results of the 1994 Excavations. *DaM* 10, 11-63.

Postgate, C., D. Oates & J. Oates. 1997. *The Excavations at Tell al-Rimah: The Pottery*. London: British School of Archaeology in Iraq.

Postgate, J.N. 1971. Land Tenure in the Middle Assyrian Period: A Reconstruction. *BSOAS* 34, 496-520.

—. 1978. On Some Assyrian Ladies. *Iraq* 41, 89-103.

—. 1979. Some Remarks on Conditions in the Assyrian Countryside. *JESHO* 17, 225-243.

—. 1980. Review of Freydank, Helmut *Mittelassyrische Rechtsurkunden und Verwaltungstexte*. *BibOr* 37, 67-70.

—. 1981. Nomads and Sedentaries in the Middle Asysrian Sources. In *Nomads and Sedentary Peoples* (ed.) J.S. Castillo, pp. 47-56. Mexico City: El Colegio de México.

—. 1982. *Ilku* and Land Tenure in the Middle Assyrian Kingdom-- A Second Attempt. In *Societies and Languages of the Ancient Near East (Fs. Diakanoff)* (ed.) M.A. Dandamayev, *et al.*, pp. 304-313.

—. 1983-1984. Review of P. Machinist, Provincial Governance in Middle Assyria and some new texts from Yale and Addendum: notes on M.J. Aynard and J.M. Durand "Documents d'Époque Médio-Assyrienne". *Mesopotamia* 18-19, 229-234.

—. 1985. Review of Khaled Nashef, "Die Orts-und Gewässernamen der mittelbabyonischen und mittelassyrischen Zeit". *AfO* 32, 95-101.

—. 1986. Middle Assyrian Tablets: The Instruments of Bureaucracy. *AoF* 35, 181-87.

—. 1988. *The Archive of Urad-Šerua and his Family. A Middle Assyrian Household in Government Service* (CMA 1). Roma: Publicazioni del Progetto Analisi eletrronica del cuneoformo.

—. 1990. Review of Helmut Freydank, Mittelassyrische Rechtsurkunden und Verwaltungstexte II. *Orientalia* 59, 83-85.

—. 1992. The Land of Assur and the Yoke of Assur. *World Archaeology* 23, 247-263.

—. 1994a. *Early Mesopotamia: Society and economy at the dawn of history*. London and New York: Routledge.

—. 1994b. How many Sumerians per Hectare?-- Probing the Anatomy of an Early City. *Cambridge Archaeological Journal* 4, 47-65.

—. 1994c. In Search of the First Empires. *BASOR* 293, 1-14.

—. 2002. Business and Government at Middle Assyrian Rimah. In *Of Pots and Plans: Papers on the Archaeology and History of Mesopotamia and Syra presented to David Oates in Honour of his 75th Birthday* (eds) L. al-Gailani Werr, J. Curtis, H. Martin, A. McMahon, J. Oates & J. Reade, pp. 297-308. London: Nabu Publications.

Postgate, N., T. Wang & T. Wilkinson. 1995. The Evidence for Early Writing: Utilitarian or Ceremonial? *Antiquity* 69, 459-480.

Pred, A. 1985. The Social Becomes the Spatial, the Spatial Becomes the Social: Enclosures, Social Change and the Becoming of Places in Skåne. In *Social Relations and Spatial Structures* (eds) D. Gregory & J. Urry, pp. 337-365. Houndmills: Macmillan.

Pritchard, M. 2000. The Exploitation of Domesticated Animals in Northern Mesopotamia in the Early Second Millennium BC. MPhil: University of Cambridge.

Pruss, A. & A.a.-M. Bagdo. 2002. Tell Fecheriye. Bericht über die erste Kampagne der deutsch-syrischen Ausgrabunden 2001. *MDOG* 134, 311-330.

Pruss, A. & W. Sallaberger. 2004. Tell Beydar/Nabada und sein Umland: Landnützung durch ein städtisches Verwaltnungszentrum. Paper presented to the 4ICAANE, Berlin, 2004.

Pulhan, G. 1996. The Elites were Buried at Šehkna: A Small Akkadian Cemetery at Tell Leilan. Paper presented to the ASOR Annual Meeting, 1996.

—. 2000. On the Eve of the Dark Age: Qarni-Lim's Palace at Tell Leilan. PhD: Yale University.

Putzolu, C., A. McCarthy & L. Ristvet. 2004. Volumes of History: Volume calculation from 3D sections at the Tell Leilan City Gate Excavation. In *Enter the Past: Proceedings of the 30th CAA conference held in Vienna, Austria, April 2003* (eds) K.F. Ausserer, W. Börner, M. Goriany & L. Karlhuber-Vöckl. Oxford: BAR Reports.

Rackham, O. 2000. Prospects for Landscape History and Historical Ecology. *Landscapes* 1, 3-15.

Radner, K. 2004. *Das mittelassyrische Tontafelarchiv von Giricano/Dunnu-Sha-Uzibi* (Subartu 14). Turnhout: Brepols.

Rafeq, A.-K. 1984. Land Tenure Problems and their Social Impact in Syria around the Middle of the Nineteenth Cenutry. In *Land Tenure and Social Transformation in the Middle East* (ed.) T. Khalidi, pp. 371-396. Beirut: American University of Beirut.

Rassam, H. 1897. *Asshur and the Land of Nimrod*. New York: Eaton and Mains.

Reade, J. 1971. Tell Taya (1968-9): Summary Report. *Iraq* 33, 87-100.

—. 1973. Tell Taya (1972-72): Summary Report. *Iraq* 35, 155-187.

—. 2001. Assyrian King-Lists, the Royal Tombs of Ur and Indus Origins. *JNES* 60, 1-29.

Renger, J. 1987. Überlegungen zur raümlichen Ausdehnung des Staates von Ebla an Hand der agrarischen und viehwirtschaftlichen Gegebenheiten. In *Ebla 1975-1985: dieci anni di studi lingistici e filosofici* (ed.) L. Cagni, pp. 293-311. Napoli.

—. 1994. On Economic Structures in Ancient Mesopotamia. *Orientalia* 63, 157-208.

—. 1995. Ancient Near Eastern Land Laws: Insitutional, communal and individual ownership or possession of arable land in Ancient Mesopotamia from the end of the fourth to the end of the first millennium B.C. *Chicago-Kent Law Review* 269, 269-319.

Rich, C.J. 1836. *Narrative of a Residence in Koordistan*. London: James Duncan.

Riehl, S. 2000. Erste Ergebnisse der archäobotanischen Untersuchungen am Tall Mozan/Urkesh. *MDOG* 132, 229-238.

Ristvet, L. 1999. What is Akkadian? An Examination of Ceramic Variability in a Third Millennium Imperial Province. B.A. Thesis: Yale University.

—. 2000. The Economy of Chagar Bazar in the Old Babylonian Period: The Archives and their Personnel: University of Cambridge.

—. 2002a. In the Land of Apum: Settlement around Tell Leilan (2400-1700 B.C.). Paper presented to the 3ICAANE, Paris, 2002a.

—. 2002b. The Third Millennium City Wall at Tell Leilan: Identity, Authority and Urbanism. Paper presented to the Power and Architecture: Monumental Public Architecture in the Bronze Age Near East and Aegean, Leuven, Belgium, 2002b.

—. 2003. Ritual Space, Political Space: Envisioning Geography in Northern Mesopotamia in the 2nd Millennium BC. Paper presented to the BANEA, Manchester, 2003.

Ristvet, L. & H. Weiss. 2000. Imperial Responses to Environmental Dynamics at Late Third Millennium Tell Leilan. *Orient-Express* 4, 94-99.

—. N.D. The Old Babylonian Period in the Habur. In *History and Archaeology of Syria* (eds) M. Al-Maqdissi, P. Matthiae & W. Orthmann. Saarbrücken: Saarbrücker Druckerei und Verlag.

Roaf, M. 2000. Nineve-5-Kultur (Ninevite 5). *RLA* 9, 434-439.

—. 2001. Continuity and Change from the Middle to the Late Assyrian Period. In *Migration und Kulturtransfer: Der Wandel vorder- und zentralischer Kulturen im Umbruch von 2. zum 1. vorchristlichen Jahrtausend* (eds) R. Eichmann & H. Parzinger, pp. 357-369. Bonn: Rudolf Habelt.

—. 2003. The Architecture of the Ninevite 5 Period. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (eds) E. Rova & H. Weiss. Subartu, pp. 311-333. Turnhout: Brepols.

Roberts, B.K. 1996. *Landscapes of Settlement: prehistory to the present*. London: Routledge.

Röllig, W. 1978. Dur-Katlimmu. *Orientalia* 47, 215-219.

—. 1983a. Ein Itinerar aus Dur-Katlimmu. *DaM* 1, 279-284.

—. 1983b. Preliminary Remarks on the Middle Assyrian Archive from Tall Seh-Hamad/Dur-Katlimmu. *AAAS* 34, 189-194.

—. 2004. Eponymen in den mittelassyrischen Dokumenten aus Tall Sheh Hamad/Dur-Katlimmu. *ZA* 94, 18-51.

Rosen, A. 1986. *Cities of Clay*: *The geoarchaeology of tells*. Chicago: University of Chicago Press.

Roth, M.T. (ed.) 1995. *Law Collections from Mesopotamia and Asia Minor* (SBL Writings from the Ancient World. Atlanta: Scholar's Press.

Rothman, M.S. 1994. Evolutionary Typologies and Cultural Complexity. In *Chiefdoms and Early States in the Near East: The Organizational Dynamics of Complexity* (eds) G.J.

Stein & M.S. Rothman. Monographs in World Archaeology, pp. 1-7. Madison, WI: Prehistory Press.

—. 2002. *Tepe Gawra: The evolution of a small, prehistoric center in Northern Iraq*. Philadelphia: University of Pennsylvania Musem of Archaeology and Anthropology.

Rova, E. 2003. Ninevite 5 Relative Chronology, Periodization and Distribution: An Introduction. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (eds) E. Rova & H. Weiss. Subartu, pp. 1-10. Turnhout: Brepols.

Rova, E. & H. Weiss (eds) 2003. *The Origins of Northern Mesopotamian Civilization: Ninevite V Economy, Society and Culture* (Subartu 9). Turnhout: Brepols.

Rowton, M.B. 1965. The Topological Factor in the Hapiru Problem. In *Studies in Honor of Benno Landsberger on his Seventy-Fifth Birthday* (eds) H.G. Güterbock & T. Jacobsen. Assyriological Studies, pp. 375-387. Chicago: University of Chicago Press.

—. 1967. The Physical Environment and the Problem of the Nomads. In *La Civilisation de Mari* (ed.) J.-R. Kupper. XV^{e} Rencontre Assyriologique Internationale, pp. 109-121. Liège: Université de Liège.

—. 1969. The Abu Amurrim. *Iraq* 31, 68-73.

—. 1973. Autonomy and Nomadism in Western Asia. *1973* 42, 247-258.

—. 1974. Enclosed Nomadism. *JESHO* 17, 1-30.

—. 1980. Pastoralism and the Periphery in Evolutionary Perspective. In *L'Archéologie de l'Iraq du début de l'époque néolithique à 333 avant notre ère* (ed.) M.-T. Barrelet. Collogues Internationaux du CNRS, pp. 291-301. Paris: Éditions du CNRS.

—. 1981. Economic and Political Factors in Ancient Nomadism. In *Nomads and Sedentary Peoples* (ed.) J.S. Castillo, pp. 25-36. Mexico City: El Colegio de México.

Rudebeck, E. 2000. *Tilling Nature, Harvesting Culture: Exploring Images of the Human Being in the Transition to Agriculture* (Acta Archaeologica Lundensia. Stockholm: Almqvist & Wiksell International.

Sader, H. 1992. The 12th Century B.C. in Syria: The Problem of the Rise of the Arameans. In *The Crisis Years, The 12th Century B.C.: From beyond the Danube to the Tigris* (eds) W.A. Ward & M.S. Joukowsky, pp. 157-163. Dubuque, Iowa: Kendall Hunt.

Saggs, H.W.F. 1968. The Tell al Rimah tablets, 1965. *Iraq* 30, 154-173.

Sallaberger, W. 1996. Grain Accounts: Personnel Lists and Expenditure Documents. In *Administrative Documents from Tell Beydar (Seasons 1993-1994)* (eds) F. Ismail, W. Sallaberger, P. Talon & K. Van Lerberghe, pp. 89-106. Turnhout: Brepols.

—. 2004. A Note on the Sheep and Goat Flocks: Introduction to texts 151-167. In *Third MIllennium Cuneiform Texts from Tell Beydar (Seasons 1996-2002)* (eds) L. Milano, W. Sallaberger, P. Talon & K. Van Lerberghe, pp. 13-21. Turnhout: Brepols.

Sallaberger, W. & J. Ur. 2004. Tell Beydar/Nabada in its Regional Setting. In *Third Millennium Cuneiform Texts from Tell Beydar (Seasons 1996-2002)* (ed.) K. Van Lerberghe. Subartu, pp. 51-71. Turnhout: Brepols.

Salvini, M. 1998. The Earliest Evidences of the Hurrians Before the Formation of the Reign of Mitanni (trans.) G. Buccellati. In *Urkesh and the Hurrians: Studies in Honor of Lloyd Cotsen* (eds) G. Buccellati & M. Kelly-Buccellati. Bibliotheca Mesopotamica, pp. 99-115. Malibu: Undena Publishers.

Saporetti, C. 1970. Una deportazione al tempo di Salmanassar I. *Atti della Academia Nazionale dei Lincei, Rendiconit della Classe di Scienzi morali, storiche e filologiche* 25, 437-453.

Sasson, J.M. 1976. The ENGAR/*ikkarum* at Mari. In *Cuneiform Studies in Honor of S.N. Kramer* (ed.) B. Eichler. AOAT, pp. 401-410: Verlag Butzon und Berkcker Kevelaer.

—. 2001. On Reading the Diplomatic Letters in the Mari archives. In *Amurru 2: Mari, Ébla, et les Hourrites, dix ans de travaux* (eds) J.-M. Durand & D. Charpin, pp. 329-338. Paris: Éditions Recherche sur les Civilisations.

Sauvage, M. 1997. Les niveaux du début du bronze récent à Tell Mohammed Diyab, Syrie. In *Florilegium marianum III: Recueil d'études à la mémoire de Marie-Thérèse Barrelet* (eds) D. Charpin & J.-M. Durand. Mémoires de NABU, pp. 153-164. Paris: SEPOA.

Schlatter, R. 1951. *Private Property: The History of an Idea*. London: Allen and Unwin.

Schloen, J.D. 2001. *The House of the Father as Fact and Symbol: Patrimonialism in Ugarit and the Ancient Near East* (Studies in the Archaeology and History of the Levant 2). Winona Lake, IN: Eisenbrauns.

Schmidt, B. 1995. *Ancestor Cults and Necromancy in Ancient Israelite Religion and Tradition*. Winona Lake, IN: Eisenbrauns.

Schwartz, G.M. 1985. The Ninevite V Period and Current Research. *Paléorient* 11, 53-70.

—. 1986. Mortuary Evidence and Social Stratification in the Ninevite V Period. In *The Origins of Cities in Dry-Farming Syria and Mesopotamia in the Third Millenium BC* (ed.) H. Weiss, pp. 45-60. Guilford: Four Quarters Publishing.

—. 1987. The Ninevite V Period and the Development of Complex Society in Northern Mesopotamia. *Paléorient* 13, 93-100.

—. 1988. *A Ceramic Chronology from Tell Leilan, Operation 1* (Yale Tell Leilan Research 1). New Haven: Yale University Press.

—. 1993. Rural Archaeology in Early Urban Mesopotamia. *Research & Exploration* 9, 120-122.

—. 1993/1994. Tall ar-Raqa'i. *AfO* 40-41, 246-257.

—. 1994a. Before Ebla: Models of Pre-State Political Organization in Syria and Northern Mesopotamia. In *Chiefdoms and Early States in the Near East: The Organizational*

Dynamiocs of Complexity (eds) M.S. Rothman & G.J. Stein. Monographs in World Archaeology, pp. 153-174. Madison, WI: Prehistory Press.

—. 1994b. Comment. In *The Structure and Dynamics of Dry Farming States in Upper Mesopotamia* (ed.) T.J. Wilkinson. Current Anthropology, pp. 511.

—. 1994c. Rural Economic Specialization and Early Urbanization in the Khabur Valley, Syria. In *Archaeological Views from the Countryside: Village Communities in Early Complex Societies* (eds) G.M. Schwartz & S.E. Falconer, pp. 19-36. Washington and London: Smithsonian Institution Press.

Schwartz, G.M. & H.H. Curvers. 1992. Tell Al-Raqa'i 1989 and 1990 - Further Investigations at a Small Rural Site of Early Urban Northern Mesopotamia. *AJA* 96, 397-419.

Schwartz, G.M., H.H. Curvers, S. Dunham & B. Stuart. 2003. A Third-Millennium BC Elite Tomb and Other New Evidence from Tell Umm el-Marra, Syria. *AJA* 107, 325-361.

Schwartz, G.M., H.H. Curvers, F.A. Gerritsen, J.A. MacCormack, N.F. Miller & J.A. Weber. 2000a. Excavation and survey in the Jabbul Plain, western Syria: The Umm el-Marra Project, 1996-1997. *AJA* 104, 419-462.

Schwartz, G.M., H.H. Curvers & B. Stuart. 2000b. A 3rd-millennium BC elite tomb from Tell Umm el-Marra, Syria. *Antiquity* 74, 771-772.

Selander, J.M. 1997. Image Coverage models for Declassified CORONA, Argon and Lanyard Satellite Photograpy-- a Technical Explanation. In *CORONA between the Sun and the Earth. The first NRO Reconnaisance Eye in Space* (ed.) R.A. McDonald, pp. 177-188. Bethesda, MD: American Society for Photogrammetry and Remote Sensing.

Senior, L. 1998. Time and Technological Change: Ceramic Production, Labor and Economic Transformation in a 3rd Millennium Complex Society (Tell Leilan, Syria). PhD: University of Arizona.

Sherratt, A. 1997. Cups that Cheered: The Introduction of Alcohol to Prehistoric Europe. In *Economy and Society in Prehistoric Europe* (ed.) A. Sherratt, pp. 376-402. Edinburgh: Edinburgh University Press.

Simmons, S.D. 1959. Early Old Babylonian Tablets from Harmal and Elsewhere. *JCS* 13, 71-119.

Sirocko, F. 1996. The evolution of the Monsoon Climate over the Arabian Sea during the last 24,000 years. *Palaeoecology of Africa* 24, 53-69.

Slotsky, A. 1997. *The Bourse of Babylon: Market quotations in the astronomical diaries of Babylonia*. Bethesda, MD: CDL Press.

Sluglett, P. & M. Farouk-Sluglett. 1984. The Application of the 1858 Land Code in Greater Syria: Some Preliminary Observations. In *Land Tenure and Social Transformation in the Middle East* (ed.) T. Khalidi, pp. 409-421. Beirut: American University of Beirut.

Smit, F. 1988. The Period VIII Pottery. In *Tell Hammam et-Turkman I* (ed.) M.N.van Loon. Istanbul: Nederlands Historisch-Archaeologisch Insitut voor het Nabie Oosten.

Smith, A.T. 2003a. *The Political Landscape: Constellations of Authority in Early Complex Polities*. Berkeley: University of California Press.

Smith, M.L. 2003b. Introduction. In *The Social Construction of Ancient Cities* (ed.) M.L. Smith, pp. 1-36. Washington D.C.: Smithsonian Institute Press.

Smith, S. 1949. *The Statue of Idrimi*. London.

Stager, L. 1985. The Archaeology of the Family in Ancient Israel. *BASOR* 260, 1-35.

Starr, R.F.S. 1937-1939. *Nuzi*1-2). Cambridge, MA: Harvard University Press.

Stedman Jones, G. 2002. Introduction. In *The Communist Manifesto* (eds) K. Marx & F. Engels, pp. 3-187. London: Penguin.

Stein, D.L. 1984. Khabur Ware and Nuzi Ware: Their origins, relationship and significance. *Assur* 4, 3-65.

Stein, G. 2004. Structural parameters and Sociocultural Factors in the Economic Organization of North Mesopotamian Urbanism in the Third Millennium BC. In *Archaeological Perspectives on Political Economies.* (eds) G.M. Feinman & L.M. Nicholas, pp. 61-78. Salt Lake City: University of Utah Press.

Stein, G. & P. Wattenmaker. 2003. Settlement Trends and the Emergence of Social Complexity on the Habur Plains (Syria) from the Fourth to the Third Millenium BC. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society.* (eds) H. Weiss & E. Rova. Subartu, pp. 361-386. Turnhout: Brepols.

Stein, G.J. 1990. Excavations at Operation 4, the City Wall Mound. In *1985 Excavations at Tell Leilan Syria* (ed.) H. Weiss. AJA, pp. 547-555.

—. 1994. Segmentary states and organizational variation in early complex societies: A rural perspective. In *Archaeological Views from the Countryside* (eds) G.M. Schwartz & S.E. Falconer, pp. 10-18. Washington, DC: Smithsonian Institution Press.

—. 1998. *Understanding World Systems*. Evanston, IL: Northwestern University Press.

Stein, G.J. & P. Wattenmaker. 1990. The 1987 Tell Leilan regional survey: Preliminary report. In *Economy and Settlement in the Near East* (ed.) N. Miller. MASCA Research Papers in Science and Archaeology, pp. 5-18. Philadelphia: University of Pennsylvania.

Steinkeller, P. 1987. Administrative and Economic Organization of the Ur III State: The Core and the Periphery. In *The Organization of Power: Aspects of Bureaucracy in the Ancient Near East* (eds) M. Gibson & R.D. Biggs. Studies in Ancient Oriental Civilization, pp. 19-41. Chicago: Oriental Institute of the University of Chicago.

—. 1993. Early Political Development in Mesopotamia and the Origins of the Sargonic Empird. In *Akkad. The First World Empire. Structure, Ideology, Traditions* (ed.) M. Liverani, pp. 107-129. Padova: Sargon SRL.

Stevens, L.R., H.E. Wright & E. Ito. 2001. Proposed Changes in Seasonality of Climate During the Lateglacial and Holocene at Lake Zeribar, Iran. *Holocene* 11, 747-755.

Stone, E. 1977. Economic Crisis and Social Upheaval in Old Babylonian Nippur. In *Mountains and Lowlands: Essays on the Archaeology of Greater Mesopotamia* (eds) T.C. Young & L.D. Levine, pp. 267-289. Malibu: Undena.

—. 1987. *Nippur Neighborhoods* (SAOC 44). Chicago: University of Chicago.

—. 1999. The Constraints on State and Urban Form in Ancient Mesopotamia. In *Urbanization and Land Ownership in the Ancient Near East* (eds) M. Hudson & B.A. Levine, pp. 203-227. Cambridge: Peabody Museum of Archaeology and Ethnology, Harvard University.

Stone, E. & P. Zimanksy. 2004. *The Anatomy of a Mesopotamian City: Survey and Soundings at Maškan-Šapir*. Winona Lake, IN: Eisenbrauns.

Strommenger, E. & K. Kohlmeyer. 2000. *Die Schichten des 3. Jahrtausends v. Chr. im Zentralhügel E* (Ausgrabungen in Tall Bi`a/Tuttul ; Bd. 3, WVDOG 101). Saarbrücken: Saarbrücker Druckerei und Verlag.

Stronach, D. 1994. Village to Metropolis: Nineveh and the Beginnings of Urbanism in Northern Mesopotamia. In *Nuove Fondazioni nel Vicino Oriente Antico: Realtà e Ideologia* (ed.) S. Mazzoni, pp. 85-11. Pisa: Giardini Editori e Stampatori.

Stronach, D. & S. Lumsden. 1992. U.C. Berkeley's Excavations at Nineveh. *Biblical Archaeologist* 55, 227-233.

Suleiman, A. & M. Lebeau. 2003. *Tell Beydar, the 1995-1999 Seasons of Excavations. A Preliminary Report* (Subartu X). Turnhout: Brepols.

Sumner, W. 1979. Estimating Population by Analogy: An Example. In *Ethnoarchaeology: Implications of Ethnography for Archaeology* (ed.) C. Kramer, pp. 164-174. New York: Columbia University Press.

Sykes, M. 1908. The Kurdish Tribes of the Ottoman Empire. *Journal of the Anthropological Institute* 38, 451-486.

Syria. 1972. *Outline of the Economic and Social Changes in the Syrian Arab Republic during 1950-1970*. Central Bureau of Statistics.

Talon, P. 1983. A propos du personnel agricole à Mari. *Iraq* 45, 46-55.

—. 1997. *Old Babylonian Texts from Chagar Bazar* (Akkadica Supplementa 10). Brussels: FAGD·ASGD.

Tapper, R. 1983. Introduction. In *The Conflict of Tribe and State in Iran and Afghanistan* (ed.) R. Tapper, pp. 1-82. London.

—. 1990. Anthropologists, Historians and Tribespeople. In *Tribes and State Formation in the Middle East* (eds) P.S. Khoury & J. Kostiner, pp. 48-73. Berkeley: University of California Press.

Thomas, K. 1990. Aspects of Soils and Early Agriculture. *World Archaeology* 22, viii-xiii.

Thureau-Dangin, F. 1912. Tablette de Samarra. *RA* 9, 1-4.

Tierney, P. 2000. Darkness in El Dorado: How Scientists and Journalists Devastated the Amazon. New York: Norton.

Toorn, K.V.D. 1996. *Family Religion in Babylonia, Syria and Israel: Continuity and Change in the Forms of Religious Life*. Leiden: E.J. Brill.

Treacher, T.T. 2000. Linkages between Livestock and Agricultural Systems in Syria. In *The Transformation of Nomadic Society in the Arab East* (ed.) B. Musallam. University of Cambridge Oriental Publications, pp. 187-196. Cambridge: Cambridge University Press.

Trigger, B.G. 1989. *A History of Archaeological Thought*. Cambridge: Cambridge University Press.

—. 2003. *Understanding Early Civilizations: A comparative study*. Cambridge: Cambridge University Press.

Tunca, Ö. & D. Lacambre. 2002. Note préliminaire sur les nouvelles découvertes épigraphiques de Chagar Bazar. In *Florilegium marianum VI* (eds) D. Charpin & J.-M. Durand. Mémoires de NABU, pp. 545-6. Paris: SEPOA.

Ulshöffer, A.M. 1995. *Die altassyrischen Privaturkunden* (Freiburger altorientalische Studien, Beihefte altassyrische Texte und Untersuchungen 4). Stuttgart: Franz Steiner Verlag.

UN. 1966. Progress of Cartographic Activities in the Syrian Arab Republic. In *4th UN Regional Cartographic Conference for Asia and the Far East, Manila 1964, Vol. 2*. New York: United Nations.

—. 1968. Report of the Syrian Arab Republic on the progress of the cartographic works from the end of 1964 to the end of 1966. In *5th UN Regional Cartographic Conference for Asia and the Far East, Canberra, 1966, Vol. 2*. New York: United Nations.

—. 1984. Rapport sur les activités cartographiques en République Arab Syriènne. In *8th UN Regional Cartographic Conference for Asia and the Pacific, Wellington, 1980, Vol. 2*. New York: United Nations.

Underkuffler, L.S. 2003. *The Idea of Property: Its Meaning and Power*. Oxford: Oxford University Press.

Ur, J. 2002a. Settlement and Landscape in Northern Mesopotamia: The Tell Hamoukar Survey 2000-2001. *Akkadica* 123, 57-88.

—. 2002b. Surface Collection and Offsite Studies at Tell Hamoukar, 1999. *Iraq* 64.

—. 2003. CORONA Satellite Photography and Ancient Road Networks: A Northern Mesopotamian Case Study. *Antiquity* 77, 102-115.

—. 2004. Urbanism and Society in the Third Millennium Upper Khabur Basin. PhD: University of Chicago.

Vaks, A., M. Bar-Matthews, A. Ayalon, B. Schilman, M. Gilmour, C.J. Hawkesworth, A. Frumkin, A. Kaufman & A. Matthews. 2003. Paleoclimate Reconstruction Based on the Timing of Speleothem Growth and Oxygen and Carbon Isotope Composition in a Cave Located in the Rain Shadow in Israel. *Quaternary Research* 59, 182-193.

Vale, L.J. 1992. *Architecture, Power and National Identity*. New Haven and London: Yale University Press.

Vallat, F. 1996. L'Élam à l'époque paléo-babylonienne et ses relations avec la Mésopotamie. In *Amurru 1: Mari, Ébla et les Hourrites, dix ans de travaux* (ed.) J.-M. Durand, pp. 297-310. Paris: ERC.

Van de Mieroop, M. 1995. The Tell Leilan Tablets 1991: A Preliminary Report. *Orientalia* 27, 305-344.

—. 1999. *Cuneiform Texts and the Writing of History*. London and New York: Routledge.

Van Driel, G. 1997-2000. The Role of Nomadism in a Model of Ancient Mesopotamian Society and Economy. *JEOL* 35/36, 85-101.

—. 1998. Land in Ancient Mesopotamia: "That what remains undocumented does not exist". In *Landless and Hungry: Access to Land in Early and Traditional Societies* (eds) B. Haring & R. de Maaijer, pp. 19-49. Leiden: Research School (NWS School of Asian, African and Amerindian Studies.

—. 2000. The Mesopotamian North: Land Use, An Attempt. In *Rainfall and Agriculture in Northern Mesopotamia: Proceedings of the Third MOS Symposium (Leiden 1999)* (ed.) R.M. Jas. MOS Studies, pp. 265-299. Istanbul: Nederlands Historisch-Archaeologisch Instituut.

—. 2001. On Villages. In *Veenhof Anniversary Volume* (eds) W.H. van Soldt, J.G. Dercksen, N.J.C. Kouwenberg & T.J.H. Krispijn, pp. 103-118. Istanbul: Nederlands Historisch-Archaeologisch Insitut voor het Nabie Oosten.

Van Koppen, F. 2001. The Organisation of Institutional Agriculture in Mari. *JESHO* 44, 451-504.

Van Lerberghe, K. 1996. The Livestock. In *Administrative Documents from Tell Beydar (Seasons 1993-1994)* (eds) F. Ismail, W. Sallaberger, P. Talon & K. Van Lerberghe, pp. 107-117. Turnhout: Brepols.

Van Liere, W.J. & J. Lauffray. 1954. Nouvelle prospection archéologique dans la Haute Jezireh Syrienne. *AAAS* 4-5, 129-148.

Van Loon, M. (ed.) 1988. *Hammam Et-Turkman I: Report on the University of Amsterdam's 1981-1984 Excavations in Syria*. Leiden: Nederlands Instituut voor het Nabije Oosten.

Van Neer, W. & B. De Cupere. 2000. Faunal Remains from Tell Beydar (excavation seasons 1992-1996 and 1997 partim). In *Tell Beydar: Environmental and Technical Studies* (eds) K. Van Lerberghe & G. Voet, pp. 69-115. Turnhout: Brepols.

Van Zeist, W. 1995. Some Notes on Second Millennium B.C. Plant Cultivation in the Syrian Jazira. In *Cinquante-Deux Reflexions sur le Proche-Orient Ancien: Offertes en hommage à Leon de Meyer* (eds) H. Gasche, M. Tanret, C. Janssen & A. Degraeve. Mesopotamian History and Environment, Occasional Publications, pp. 541-553. Leuven: Peeters.

—. 1999/2000 (2001). Third to First Millennium BC Plant Cultivation on the Khabur, North-Eastern Syria. *Palaeohistoria* 41/42, 111-125.

—. 2003. Comments on Plant Cultivation at two Sites on the Khabur, North-eastern Syria. In *Reports on Archaeobotanical Studies in the Old World* (ed.) W. Van Zeist, pp. 33-60. Groningen: Balkema.

Van Zeist, W. & Bakker-Heeres. 2001. Plant Remains. In *Selenkahiye: Final Report on the University of Chicago and University of Amsterdam Excavations in the Tabqa Reservoir, Northern Syria, 1967-1975* (ed.) M.N.van Loon, pp. 585-602. Istanbul: Nederlands Historisch-Archaeologisch Insitut voor het Nabie Oosten.

Van Zeist, W. & J.A.H. Bakker-Heeres. 1985 [1988]. Archaeobotanical Studies in the Levant. *Palaeohistoria* 27, 247-316.

Van Zeist, W., W. Waterbolk-van Rooijen & S. Bottema. 1988. Appendix 2: Some Notes on the Plant Husbandry of Tell Hammam et-Turkman. In *Hammam et-Turkman I* (ed.) M.N.van Loon, pp. 705-715. Istanbul: Nederlands Historisch-Archaeologisch Insitut voor het Nabie Oosten.

Veenhof, K.R. 2000. Old Assyrian Chronology. *Akkadica* 119-120, 137-150.

Velud, C. 1996. De l'Euphrate au Tigre: Le Mandat Français en Mésopotamie. In *Une mission de reconnaissance de l'Euphrate en 1922*, pp. 57-3. Damas: I.F.E.A.D.

—. 2000. French Mandate Policy in the Syrian steppe. In *The Transformation of Nomadic Society in the Arab East* (ed.) B. Musallam. University of Cambridge Oriental Publications, pp. 63-81. Cambridge: Cambridge University Press.

Viganò, L. 1995. Rituals at Ebla. *JNES* 54, 215-222.

Vila, E. 1996. Commentaire synoptique sur l'exploitation de la faune en Mésopotamie du Nord à la période Uruk et au Bronze ancien. *Anthropozoologica* 23, 67-75.

Villard, P. 1994. Nomination d'un Scheich. In *Florilegium Marianum II. Recueil d'études à la mémoire de Maurice Birot* (eds) D. Charpin & J.-M. Durand. Mémoires de NABU, pp. 291-297. Paris: SEPOA.

—. 2001. Les administrateurs de l'époque de Yasmah-Addu. In *Amurru 2: Mari, Ébla et les Hourrites, dix ans de travaux* (eds) J.-M. Durand & D. Charpin, pp. 9-140.

Vincente, C. 1991. The 1987 Tell Leilan Tablets Dated by the Limmu of Habil-kinu. Dissertation: Yale University.

—. 1995. The Tall Leilan Recension of the Sumerian King List. *ZA* 85, 234-270.

Volney, C.-F. 1787. *Travels through Syria and Egypt in the years 1783, 1784 and 1785*. London.

Wäfler, M. 1985. Möglichkeiten der Identifizierung des Tall al-Hamidiya. In *Tall al-Hamidiya 1* (ed.) M. Wäfler. Orbis Biblius et Orientalis Series Archaeologica, pp. 53-73. Freiburg: Universitätsverlag Freiburg Schweiz.

—. 1990. Tell al-Hamidiya. *Dossiers d'Archéologie* 155, 78-81.

—. 1995. Kahat, Tâdum, und Ilansura. *NABU* 31, 25-27.

—. 2003a. *Tall al-Hamidiya 4* (OBO 23). Fribourg: Academic Press.

—. 2003b. *Tell al-Hamidiya 3: Zur historischen Geographie von Idamaras zur Zeit der Archive von Mari und Shubat-enil/Shehna* (Orbis Biblius et Orientalis Series Archaeologica 21). Freiburg: Universitätsverlag Freiburg Schweiz.

Weber, J.A. 1997. Faunal Remains from Tell es-Sweyhat and Tell Hajji Ibrahim. In *Subsistence and Settlement in a Marginal Environment: Tell es-Sweyhat, 1989-1995 Preliminary Report* (ed.) R.L. Zettler, pp. 133-167. Philadelphia: MASCA, University of Pennsylvania.

—. 2000. Bronze Age Animal Exploitation. In *Excavation and Survey in the Jabbul Plain, Western Syria: The Umm el-Marra Project 1996-1997* (ed.) G.M. Schwartz. AJA, pp. 433-438.

—. 2001. A Preliminary Assessment of Akkadian and Post-Akkadian Animal Exploitation at Tell Brak. In *Excavations at Tell Brak, Vol. 2: Nagar in the third millennium BC* (eds) D. Oates, J. Oates & H. McDonald. McDonald Institute Monographs, pp. 345-352. London: British School of Archaeology in Iraq.

Weber, M. 1976. *Agrarian Sociology of Ancient Civilisations* (trans.) R.I. Frank. London: NLB.

Weiss, H. 1977. Periodization, population and early state formation in Khuzistan. In *Mountains and Lowlands: Essays in the Archaeology of Greater Mesopotamia* (ed.) T.C. Young. Bibliotheca Mesopotamica, pp. 347-369. Los Angeles: Undena.

—. 1983. Tell Leilan in the Third and Second Millennia BC. *AAAS* 33, 47-73.

—. 1985a. Tell Leilan and Shubat-Enlil. *M.A.R.I.* 4, 269-292.

—. 1985b. Tell Leilan on the Habur Plains of Syria. *Biblical Archaeologist* 48, 5-35.

—. 1986. The Origins of Tell Leilan and the Conquest of Space in 3rd millennium Mesopotamia. In *The Origins of Cities in Dry-Farming Syria and Mesopotamia in the Third Millenium B.C.* (ed.) H. Weiss, pp. 71-108. Guilford, CT: Four Quarters Press.

—. 1990a. "Civilizing" the Habur Plains: Mid-Third Millenium State Formation at Tell Leilan. In *Resurrecting the Past* (eds) P. Matthiae, M. Van Loon & H. Weiss. Leiden: Nederlands Historisch-Archaeologisch Insitut voor het Nabie Oosten.

—. 1990b. "Postscript". In *1985 Excavations at Tell Leilan, Syria* (ed.) H. Weiss. AJA, pp. 580-1.

—. 1990c. Tell Leilan 1989: New Data for Mid-Third Millennium Urbanization and State Formation. *MDOG* 122.

—. 1991. Tell Leilan (Syria). *Orient-Express*, 3-4.

—. 1997a. Archaeology in Syria. *AJA* 101, 97-148.

—. 1997b. Leilan. In *Archaeology in Syria* (ed.) H. Weiss. AJA, pp. 126-129.

—. 1997c. Leilan. *The Oxford Encyclopedia of Archaeology in the Near East* 3, 341-347.

—. 2000. Beyond the Younger Dryas: Collapse as Adaptation to Abrupt Climate Change in Ancient West Asia and the Eastern Mediterranean. In *Environmental Disaster and the Archaeology of Human Response* (eds) G. Bawden & R.M. Reycraft. Maxwell Museum of Anthropology, Anthropological Papers, pp. 75-95. Albuquerque, N.M.: University of New Mexico Press.

—. 2003. Ninevite 5: Periods and Processes. In *The Origins of Northern Mesopotamian Civilization: Ninevite V Economy, Society and Culture* (ed.) E. Rova. Subartu. Turnhout: Brepols.

Weiss, H. & M.A. Courty. 1994. Comment. In *The Structure and Dynamics of Dry Farming States in Upper Mesopotamia* (ed.) T.J. Wilkinson. Current Anthropology, pp. 512-14.

Weiss, H. & M.-A. Courty. 1993. The Genesis and Collapse of the Akkadian Empire: The Accidental Refraction of Historical Law. In *Akkad: The First World Empire* (ed.) M. Liverani, pp. 131-155. Padova: Sargon SRL.

Weiss, H., M.-A. Courty, W. Wetterstrom, F. Guichard, L. Senior, R. Meadow & A. Curnow. 1993. The genesis and collapse of third millennium north Mesopotamian civilization. *Science* 261, 995-1004.

Weiss, H., F. deLillis, D. deMoulins, J. Eidem, T. Guilderson, U. Kasten, T. Larsen, L. Mori, L. Ristvet, E. Rova & W. Wetterstrom. N.D. Revising the Contours of History at Tell Leilan. *AAAS* Cinquentenaire.

Weiss, H. & L. Ristvet. N.D. Micro-and Macro-Contexts of the Tell Leilan Tablets (trans.) H. Weiss. In *The Royal Archives from Tell Leilan 1: Old Babylonian Letters and Treaties from The Lower Town Palace* (ed.) J. Eidem. Yale Tell Leilan Research. London and New Haven: Yale University Press.

Wenke, R.J. 1975-1976. Imperial Investments and Agricultural Developments in Parthian and Sasanian Khuzestan. *Mesopotamia* 10-11, 31-221.

Wetterstrom, W. 2003. Ninevite 5 Period Agriculture at Tell Leilan: Preliminary Results. In *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (eds) E. Rova & H. Weiss. Subartu, pp. 387-400. Turnhout: Brepols.

—. N.D. Tales from the Storeroom: The Plant Remains from the Acropolis Storage Facilities, 1993. *AJA*.

Whiting, R.M.J. 1988. A Late Middle Assyrian Tablet from North Syria. *SAAB* II, 99-101.

—. 1990a. "The Tell Leilan Tablets: A Preliminary Report" in "1985 Excavations at Tell Leilan, Syria". *AJA* 94, 568-579.

—. 1990b. Tell Leilan/Šubat-Enlil Chronological Problems and Perspectives. In *Tell al-Hamidiya 2* (eds) S. Eichler & M. Wäfler. Orbis Biblicus et Orientalis, pp. 167-218. Fribourg: Universitätsverlag Freiburg.

—. 1995. Amorite Tribes and Nations of Second-Millennium Western Asia. In *CANE* (ed.) J.M. Sasson, pp. 1231-1242. New York: Charles Scribner & Sons.

Whitley, J. 2002. Too Many Ancestors. *Antiquity* 76, 119-126.

Wick, L., G. Lemcke & M. Sturm. 2003. Evidence of Lateglacial and Holocene Climatic Change and Human Impact in Eastern Anatolia: High-Resolution Pollen, Charcoal, Isotopic and Geochemical Records from the Laminated Sediments of Lake Van, Turkey. *Holocene* 13, 665-675.

Wiggermann, F.A.M. 2000. Agriculture in the Northern Balikh Valley: The Case of Middle Assyrian Tell Sabi Abyad. In *Rainfall and Agriculture in Northern Mesopotamia* (ed.) R.M. Jas. MOS Studies 3, pp. 171-230. Istanbul: Nederlands Historisch-Archaeologisch Instituut.

Wilhelm, G. 1988. Gedanken zur Frühgeschichte der Hurriter und zum hurritisch-urartäischen Sprachvergleich. In *Hurriter und Hurritisch* (ed.) V. Haas. Xenia: Konstanzer Althistorische Vorträge und Forschungen, pp. 43-67. Konstanz: Universitätsverlag Konstanz GMBH.

—. 1991. A Hurrian Letter from Tell Brak. *Iraq* LIII, 159-168.

—. 1996. L'état actuel et les perspectives des études hourrites. In *Amurru 1: Mari, Ébla et les Hourrites, dix ans de travaux* (ed.) J.-M. Durand, pp. 175-187.

—. 1998. Die Inschrift des Tishatal von Urkesh. In *Urkesh and the Hurrians: Studies in Honor of Lloyd Cotsen* (eds) G. Buccellati & M. Kelly-Buccellati. Bibliotheca Mesopotamica, pp. 117-143. Malibu: Undena.

—. 2004. Generation Count in Hittite Chronology. In *Mesopotamian Dark Age Revisited* (eds) H. Hunger & R. Pruzsinszky, pp. 71-79. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.

Wilhelm, G. & C. Zaccagnini. 1993. *Tell Karrana 3, Tell Jikan, Tell Khirbet Salih* (Baghdader Forschungen 15). Mainz: Zabern.

Wilkinson, T.J. 1982. The Definition of Ancient Manured Zones by Extensive Sherd Sampling Techniques. *Journal of Field Archaeology* 9, 323-333.

—. 1989. Extensive Sherd Scatters and Land-Use Intensity: Some Recent Results. *Journal of Field Archaeology* 16, 31-46.

—. 1990a. Soil Development and Early Land Use in the Jazira Region, Upper Mesopotamia. *World Archaeology* 22, 87-103.

—. 1990b. *Town and Country in Southeastern Anatolia: Vol. 1: Settlement and Land Use at Kurban Höyük and Other Sites in the Lower Karababa Basin* (University of Chicago, Oriental Institute Publications 109). Chicago: Oriental Institute of the University of Chicago.

—. 1993. Linear Hollows in the Jazira, Upper Mesopotamia. *Antiquity* 67, 548-562.

—. 1994. The Structure and Dynamics of Dry Farming States in Upper Mesopotamia. *Current Anthropology* 35, 483-505.

—. 1997. Environmental Fluctuations, Agricultural Production and Collapse: A View from Bronze Age Upper Mesopotamia. In *Third Millennium B.C. Climate Change and Old World Collapse* (eds) N. Dalfes, G. Kukla & H. Weiss. NATO ASI Series I, pp. 653-678. Berlin: Springer Verlag.

—. 1998. Settlement and Irrigation in the Balikh Valley, Syria from the 3rd to the 1st millennium BC. A preliminary view. In *About Subartu, Studies devoted to Upper Mesopotamia/ À propos de Subartu, Études consacrées à la Haute Mésopotamie* (ed.) M. Lebeau, pp. 151-170. Turnhout: Brepols.

—. 2000a. Archaeological Survey of the Tell Beydar region, Syria, 1997: A Preliminary Report. In *Tell Beydar: Environmental and Technical Studies* (eds) K. Van Lerberghe & G. Voet. Subartu, pp. 1-37. Turnhout: Brepols.

—. 2000b. Regional Approaches to Mesopotamian Archaeology: The Contribution of Archaeological Surveys. *Journal of Archaeological Research* 8, 219-267.

—. 2000c. Settlement and Land Use in the Zone of Uncertainty in Upper Mesopotamia. In *Rainfall and Agriculture in Northern Mesopotamia: Proceedings of the Third MOS Symposium (Leiden 1999)* (ed.) R.M. Jas. MOS Studies, pp. 3-35. Istanbul: Nederlands Historisch-Archaeologisch Instituut.

—. 2002. The Settlement Transition of the Second Millennium BC in the Western Khabur. In *Of Pots and Plans* (eds) L. al-Gailani Werr, J. Curtis, H. Martin, A. McMahon, J. Oates & J. Reade, pp. 361-372. London: Nabu Publications.

—. 2003. *Archaeological Landscapes of the Near East*. Tucson: University of Arizona Press.

—. 2004. *On the Margin of the Euphrates: Settlement and Land Use at Tell es-Sweyhat and in the Upper Lake Assad Area, Syria* (OIP 124).

Wilkinson, T.J. & E. Barbanes. 2000. Settlement Patterns in the Syrian Jazira during the Iron Age. In *Essays on Syria in the Iron Age* (ed.) G. Bunnens. Ancient Near Eastern Studies, pp. 397-422. Louvain: Peeters Press.

Wilkinson, T.J. & D.J. Tucker. 1995. *Settlement Development in the North Jazira, Iraq*. London: British School of Archaeology in Iraq.

Wilkinson, T.J., J. Ur & J. Casana. 2004. From Nucleation to Dispersal: Trends in Settlement Pattern in the Northern Fertile Crescent. In *Side-by-Side Surveys in the Mediterranean World* (eds) J.F. Cherry & S. Alcock, pp. 189-205. Oxford: Oxbow.

Wilmsen, E. 1989. *Land Filled With Flies: A political economy of the Kalahari*. Chicago: University of Chicago Press.

Wiseman, D.J. 1953. Texts and Fragments. *JCS* 7, 108-109.

—. 1968. The Tell al Rimah Tablets, 1966. *Iraq* 30, 175-205.

Woolley, L. 1955. *Alalakh: An Account of the Excavations at Tell Atchana in the Hatay, 1937-1949*. Oxford: Society of Antiquaries.

Woolley, L., M. Mallowan & T.C. Mitchell. 1976. *Ur Excavations: The Old Babylonian Period*. London: British Museum Press.

Wu, Y. 1994. *A Political History of Ešnunna, Mari and Assyria During the Early Old Babylonian Period: From the End of Ur III to the Death of Šamši-Adad* (Supplement to Journal of Ancient Civilizations 1). Changchun, China: Institute of History of Ancient Civilizations, Northeast Normal University.

Yardimci, N. 1993. Excavations, Surveys and Restoration Works at Harran. In *Between the rivers and over the mountains: Alba Palmieri dedicata* (eds) M. Frangipane, H. Hauptmann, M. Liverani, P.N. Matthiae & M. Mellink, pp. 437-449. Roma: La Sapienza.

Yoffee, N. 1977. *The Economic Role of the Crown in the Old Babylonian Period*. Malibu: Undena Press.

—. 1993. Too many Chiefs? (or Safe Texts for the '90s). In *Archaeological Theory: Who sets the Agenda?* (eds) N. Yoffee & S. Andrew, pp. 60-78. Cambridge: Cambridge University Press.

—. 1995. Political Economy of Early Mesopotamian States. *Annual Review of Anthropology* 24, 281-311.

—. 2005. *Myths of the Archaic State: Evolution of the Earliest Cities, States and Civilizations*. Cambridge: Cambridge University Press.

Zaccagnini, C. 1975. The Yield of the Fields at Nuzi. *Oriens Antiquus* 14, 181-225.

—. 1979. *The Rural Landscape of the Land of Arraphe*. Roma.

—. 1981. Su alcuni aspetti giuridico-instituzionali dei testi de Ebla. *Bullettino dell'Istituto di diritto romano "Vittorio Scialoja"* 134, 251-270.

—. 1984. Land Tenure and Transfer of Land at Nuzi (XV-XIV century B.C.). In *Land Tenure and Social Transformations in the Middle East* (ed.) T. Khalidi, pp. 79-94. Beirut: American Association for the Advancement of Sciences.

—. 1990. Again on the yields of the fields at Nuzi. *BSA* V, 201-217.

Zadok, R. 1995. The Ethno-Linguistic Character of the Jezireh and Adjacent Regions in the 9th-7th Centuries (Assyria Proper vs. Periphery). In *Neo-Assyrian Geography* (ed.) M. Liverani, pp. 217-282. Roma: La Sapienza.

Zagarell, A. 1986. Trade, Women, Class and Society in Ancient Western Asia. *Current Anthropology* 27, 415-430.

Zeder, M.A. 1991. *Feeding Cities: Specialized Animal Economy in the Ancient Near East*. Washington and London: Smithsonian Institution Press.

—. 1994. After the Revolution: Post-Neolithic Subsistence in Northern Mesopotamia. *American Anthropologist* 96, 97-126.

—. 1995. The Archaeobiology of the Khabur Basin. *BCSMS* 29, 21-32.

—. 1998a. Environment, Economy and Subsistence on the Threshold of Urban Emergence in Northern Mesopotamia. *BCSMS* 33, 55-67.

—. 1998b. Pigs and Emergent Complexity in the Near East. In *Ancestors for the Pigs in Prehistory* (ed.) S.M. Nelson. MASCA Research Papers in Science and Archaeology, pp. 109-122. Philadelphia: University of Pennsylvania Musem of Archaeology and Anthropology.

—. 1998c. Regional Patterns of Animal Exploitation in the Khabur Basin, 7000-1500 BC. In *Man and the Animal World* (ed.) P. Anreiter, pp. 569-580. Budapest: Archaeolingua.

Zeder, M.A. & S.R. Arter. 1993. Animal Utilization in the Khabur Basin from the 8th to the 2nd millennium BC. *AAAS*.

Zeder, M.A., J. McCorriston & J. McCormick. 2000. Environment and Ecology in the Khabur Basin, Syria. Paper presented to the 65th Annual Meeting of the Society for American Archaeology, 2000.

Zettler, R.L. 1997a. Introduction. In *Subsistence and Settlement in a Marginal Environment: Tell es-Sweyhat, 1989-1995 Preliminary Report* (ed.) R.L. Zettler, pp. 1-10. Philadelphia: MASCA, University of Pennsylvania.

—. 1997b. Surface Collections and Excavations in the Lower Town and Lower Town South. In *Subsistence and Settlement in a Marginal Environment: Tell es-Sweyhat, 1989-1995 Preliminary Report* (ed.) R.L. Zettler, pp. 35-85. Philadelphia: MASCA, University of Pennsylvania.

—. 2003. Reconstructing the World of Ancient Mesopotamia: Divided Beginnings and Holistic History. *JESHO* 46, 3-45.

Ziegler, N. 2004. The Conquest of the Holy City of Nineveh and the Kingdom of Nurrugûm by Samsî-Addu. *Iraq* 66, 19-26.

Zimanksy, P. 1995. The origin of Nuzi Ware: A contribution from Tell Hamida. In *Nuzi and the the Hurrians* (ed.) D.I. Owen, pp. 75-83. Winona Lake, IN: Eisenbrauns.