Abstract

Previous work on the early use of metal draws heavily upon the work of V. Gordon Childe, particularly his 1944 'Archaeological ages as technological stages' article which outlined the development and social impact of metal in prehistory. Subsequent work, especially in the European paradigm, in the field of archaeometallurgy and material culture studies of metal have been oriented towards the typological definition and description of metal objects and how these typologies changed over time. Rather than focusing on the development of metallurgical technology or specific metal artefacts, this thesis seeks to outline the *social* use of metal in the latter prehistory of the Upper Euphrates Valley. This is accomplished by comparing and contrasting the published information regarding the numbers, types and contexts of metal objects and metalworking paraphernalia found at these sites and discussing these finds within the socio-political and economic frameworks of the Late Chalcolithic 2 – 5 and the Early Bronze Age I and II (ca. 4000-2600 BC). This analysis is then compared against the social use of metal at sites in Mesopotamia, Upper Mesopotamia and the southern Caucasus from the relevant time periods in order to provide a framework by which to assess the factors that contributed to the use of metal in the 'Euphratean' cultural milieu.

Chronological and geographical analyses reveal patterns that can be used to establish how the social use of metal changed over time- both within the entire Upper Euphrates Valley as well as at specific sites in response to external influence. Results of such analyses show that not only does the intensity of metal production increase over time, but that there is also an increased diversity of the types of objects being manufactured. However, the main distinction between the Late Chalcolithic and the Early Bronze Age is in the contexts in which metal was being used. There is a clear increase in the use of metal in mortuary contexts during the early centuries of the third millennium, especially in the region of the Euphrates Valley that is close to the modern Turkish-Syrian border, a situation that reflects the ability of a greater proportion of the population to manipulate surplus resources. This thesis, therefore, stresses the close relationship between the changing economic and socio-political systems with the changing social use of metal over time from the late fourth millennium through the first half of the early third millennium.

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Beyond the items necessary for basic subsistence, the accrual of all of the trappings that make up the material culture of 'complex society' are motivated by and rooted in social, political and economic relations that are subject to change arbitrarily and often without necessarily indicating a move towards greater complexity or social evolution. The motivation for the consumption of objects, both in the present and the more distant past, has given rise to numerous theories and arguments that examine multiple aspects of the economy, including the focus on specific objects as social, political and economic commodities. In *The Social Life of Things,* the anthropologist Arjun Appadurai (1986) and others sought to better define the role of the objects being traded rather than on the trade itself, with the main tenet being that:

> Focusing on the things that are exchanged, rather than simply on the forms or functions of exchange, makes it possible to argue that what creates the link between exchange and value is *politics*, construed broadly (Appadurai 1986: 3).

Following this line of thought, then, by focusing on the items exchanged it may be possible to elucidate the social elements involved in the consumption of objects and resources and how this relates to the political and economic structures of a society.

1.1 Intellectual and Theoretical Background

Underlying the discussion of craft production[1] is the concept that the goods produced served as sources of economic and ideological power and pre-eminence in society, a means of maintaining autonomy and tools with which to create, manipulate and maintain cultural association, affiliation and current societal norms. As such:

> Attention, therefore, centers on how researchers have drawn connections among the fabrication, distribution, and use of specific goods, on the one hand, and, on the other, processes of political centralization (the extent to which power is concentrated in a few hands), social differentiation (variation in the identities assumed by members of a polity based on combinations of social [e.g., kinship], economic [e.g., occupation], and/or ideological factors [e.g., affiliation with specific cults]), and inequality (whether, and to what extent holders of these identities have unequal access to resources, including power) (Schortman and Urban 2004: 187).

The increased use of mineralogical tests and more recent, intensive ground surveys for ore sources have begun to challenge many of the established theories regarding metallurgy in Anatolia and the Near East, especially in the Euphrates Valley where a large amount of data has emerged due to the number of salvage excavations resulting from the multiple dams that were built on the Euphrates River. This flood of information is essential to further understanding the role of metal in prehistoric periods of the Upper Euphrates Valley as modern research involving both contextual and scientific analyses promote new avenues of acquiring information on ancient technology, trade patterns and social, political and economic structures. Following

[1] The terms 'production' and 'specialisation' are often used interchangeably, though there is some debate regarding the usage of these terms. M. E. Smith stresses that archaeologists and scholars should *not* use the terms interchangeably as, "Specialization is more usefully limited to a high-level concept describing the division of labor in society, not the organization of craft production" (M. E. Smith 2004: 83). Stein, on the other hand, defines economic specialisation as, "… the investment of labor and capital towards the production of a particular good or service, such that a person produces more of that commodity and less of others than he/she consumes" (Stein 1996: 25); and specialised production as, "… the production of surpluses for exchange" (Stein 1996: 25). In the same vein, Schortman and Urban define craft specialisation as, "…fashioning items at volumes above and beyond the needs of the producing individual or group for exchange with those engaged in complementary economic pursuits: (Schortman and Urban 2004: 187). Unlike M.E. Smith (2004), Stein (1996) and Schortman and Urban (2004), when Childe, referred to 'craft specialisation', he primarily meant metallurgy-which he claimed was the driving force behind social evolution in the Early Bronze Age (Anthony 1996; Zettler 1996). In terms of the Euphrates Valley metalworking and the application of terms to describe the industry, the evidence indicates that each site had different degrees of metallurgy and therefore different scales of either production or specialisation that often changed over time. However, because of the incompleteness of the information, the term production is used in this thesis as a general description rather than implying a specific degree of quantity or quality of the metal industry in the Upper Euphrates Valley in the Late Chalcolithic and Early Bronze Age.

Schortman and Urban (*ibid*), to further study the use of metal objects in society and their role in political, social and economic interactions, the context in which these objects were used and disposed of must be examined in addition to any typological studies that have been done previously.

However, before delving into the site and artefact evidence for the use of metal from the Late Chalcolithic 2 through the Early Bronze II, a brief overview of both the current theoretical and intellectual background of metallurgy and Euphrates Valley society will be presented below. This background serves to establish the current state of affairs and elucidate why a study that synthesises both the physical evidence and archaeological theory is necessary for a better understanding of why and how metal was used as an economic and social tool. As part of the introduction to this thesis, this section is necessarily brief whilst attempting comprehensiveness; however, further analysis as to the socio-political and economic impact and use of metal will be provided following the site evidence so that more specific evidence and correlations may be discussed in-depth.

1.1.1 Intellectual Background and Review of Literature

With a greater range of scientific analyses available to study metal objects and ores, archaeologists have been looking at the origins and development of metallurgy in the Near East and Anatolia with greater frequency. Early arguments regarding the origins of metallurgy focused on Biblically relevant areas and later moved to the Mesopotamian cities as they were thought to be the origins of civilisation and therefore related to Childe's (1936) argument that metal was vital to social complexity (Charles 1980; Coghlan 1975; Henderson 2000; Levy and Shalev 1989; Pare 2000; Pigott 1999; Rapp 1988; Tylecote 1992; Wertime 1973; Wheeler and Maddin 1980). More recent work on the origins and spread of metallurgy and metal objects has centred on the independent innovation versus diffusion argument[2]; Stronach (1957) and Renfrew (1986) favour independent innovation to explain the rapid spread of metallurgical technology while Muhly (1980, 1988) is a proponent of cultural evolution and diffusionism, though only so far as technology was dispersed through trade and not by colonisation, migration or conquest, which Childe (1950,

[2] See Kristiansen and Larsson (2005)

1957) had included in his description of diffusion stimuli. Furthermore, Muhly is highly critical of independent innovation as he:

> …regards the latter thesis [independent innovation], which emphasizes the local origins of technology developed by indigenous cultures, as an extreme reaction by anti-diffusionists against the notion that every new style and technology was introduced from the outside by a specific group of people (Muhly 1980: 30).

The theory of a stimulus diffusion of metallurgy from the Near East outwards to the rest of the world has been largely put aside, though Muhly believes that all developments in the Old World are related to some degree, particularly in the development of tin-bronze alloys[3].

In the midst of this long-standing debate, Yakar (1984, 1985a, 1985b) criticised the state of archaeometallurgy in the Near East in the 1980's and described the field as being bogged down by near-dogmatic ideas and a general reluctance to move beyond already known information, a criticism that Gale *et al.* (1985) shared. They believe that when looking at ancient metallurgy, assumptions of diffusion and independent innovation should be put aside in favour of simply looking at what the metal artefacts and archaeological evidence of the settlements and regional chronological frameworks demonstrate. Yakar (1984, 1985a, 2002) urges archaeologists to focus more on the context of metal use as a whole rather than trying to pinpoint the first instance of metallurgy or specific ore sources, and his own work followed Zaccagnini (1983) in promoting the idea that the emergence of advanced metallurgy, urbanisation and the floruit of complex societies were due to merchant colonies and itinerant metalsmiths moving into various regions, developing regional schools of metalwork and promoting the spread of metallurgical technology of copper, silver, arsenical copper and tin-bronze. Despite calling for a move away from diffusion arguments, Yakar (1984, 1985a) went even further than Zaccagnini (1983) and linked the Late Chalcolithic material culture of Anatolia to the 5th millennium material culture in the Danube, the Balkans and Thrace through population movements, with the end result being a hybridisation of cultures and technologies

[3] Muhly is highly critical of archaeologists searching for tin sources in Anatolia and those who claim to have located them, particularly de Jesus (1978, 1980), Yakar (1984, 1985a, 1985b 1991) and Yener (1994, 2000). Muhly, in turn, is criticised by those whom he calls 'anti-diffusionists' as being too prejudiced in his views and ignoring the radiocarbon dates which by and large disprove ideas of diffusionism on a large scale (Gale *et al.* 1985; Yener and Vandiver 1993; Yener *et al*. 1993).

that eventually led to the creation of identifiable regional schools of metalwork that supplied prestige goods to the local elite population.

This idea of population and material culture diffusion being responsible for widespread changes and the establishment of discrete material culture regions has been applied to the Upper Euphrates Valley in the Late Chalcolithic and Early Bronze Age first with the Uruk expansion and secondarily with the increased presence of the amorphous population group that are generically referred to as the Transcaucasians. Though the southern Mesopotamians are not seen as being major contributors to the advancement of metallurgical technology anymore, the dispersal of the Transcaucasians and their material culture has been increasingly used to explain the diffusion of metallurgical technology, the increased consumption of metal in the Euphrates Valley settlements and beyond, and the change in mortuary customs in the late fourth and early third millennia (Bılgı 2001, 2004; Frangipane 1997c, 1998a, 1998b; Frangipane and Palumbi 2007; Frangipane *et al*. 2001; Heskel 1983; Kavataradze 1999; Kohl 1987; Laneri 1999, 2007; Palumbi 2007-2008, 2008a, 2008b, 2011). Similarly, interpretations of specific artefacts as evidence of the presence of distinct population groups are utilised here to highlight similarities and differences. When any population shifts are mentioned in this thesis, this information was taken from reports by the original authors/excavators and are included as part of the site evidence as interpretations of the data by the author; it is only when the evidence is overwhelmingly convincing that a change in population is accepted as an argument for stylistic and typological changes to the metal repertoire and the social use of metal.

Beyond debates over the origins and spread of metallurgy in the Near East and Europe, another popular discussion is the overall impact that metal had on early society. Much of the modern study of ancient metallurgy can be traced back to V. Gordon Childe's work, especially his 1944 lecture, "Archaeological Ages as Technological Stages", as well as his 1950 article, "The Urban Revolution", published in *Town Planning Review*. In this article Childe listed ten characterisations of the urban revolution which included the specialisation of labour, advanced artistic development and long-distance trade among the characterisations (Childe 1950; M.E. Smith 2009; Trigger 1994). One result of Childe's work is that he put forward a

fundamental question that is still being asked and debated today: why metal? His answer is fairly encompassing and focuses on progress- both in terms of human ingenuity and in natural technological progression:

> As a material for tools, metal offers two kinds of advantages over stone, bone or wood. In the first place it is in some respects intrinsically superior: tougher, susceptible of a finer edge, more durable. Secondly, as malleable and fusible, it can yield new kinds or genera of tools, and handier translations of older forms – new species….Doubtless part of the increase in social productivity made possible by improvements in the instruments is due to the fact that, with such instruments, amateurs can do jobs that only highly trained experts could execute with inferior equipment…In so far as bronze was fantastically costly, the superiority of metal craft tools might just as well have intensified the 'tyranny' of the few craftsmen who possessed them or, in class societies, of the priestly corporations, landowners or merchants who alone had the capital to acquire metal at all (Childe 1944: 9).

Childe furthered his argument by going back to the 'Stone Age' in order to form a chronological foundation of technology that would explain the development of metallurgy in conjunction with the development of society. To do this, he divided the Bronze Age into four distinct 'modes' based on the degree of metal use:

> Mode 0: Where copper had "limited significance and doubtful relevance to the main sequence" (Childe 1944: 10)
> Mode 1: There were weapons and ornaments in the Early Bronze Age, but few or no tools for industrial use
> Mode 2: Copper and bronze were regularly used, but primarily for elite objects rather than for agricultural or rough labour
> Mode 3: The use of metal became common enough for agricultural and rough work as well- demonstrated by the increase in metal sickles, hoes and the associated decrease in lithics (Childe 1944)

While this is an overly simplistic explanation, echoes of Childe's chronological model can be seen in Avilova (2008), but more specifically in Chernykh's (1992) theory of seven 'Great Migrations' that were responsible for the widespread development of metallurgy in the Old World.

Chernykh, similar to Childe (1944), defines four chronological successions in the development and spread of metallurgy, but he used specific time periods rather than abstract modes:

> 1) the second half of the 5th millennium through to the beginning of the 4th millennium
> 2) the mid 4th millennium through to the mid- or late 3rd millennium
> 3) the late 3rd millennium through to the 16th century BC

4) the 16th century BC through to the 10th/9th centuries BC

Chernykh also suggests that the rise in metallurgy was a key factor in the development of social stratification based upon differential wealth and the control of labour, in this case the labour of miners and metalsmiths/craftsmen, and linked these four periods with phases of metallurgical development[4]. As Chernykh's later work illustrates, Childe's theories heavily influenced the archaeological interpretations of later generations, and it has not been until relatively recently that studies of metal use have moved beyond top-down interpretations to those that examine the role of metal in society in a more holistic manner where active agents contributed to the growth of the metal industry in bottom-up models.

The association of labour control with social stratification based on differential wealth can also be found in Childe's work, particularly in his later scholarship where the influence of Marxism can be seen, including theories regarding revolutions, dominant and subjugated classes and the spread of technology and culture (Trigger 1994, 2003b). In 'The Urban Revolution', Childe (1950) posited that the production of agricultural surplus allowed the emergence of urban centres with either palace or temple complexes that in turn were able to employ full-time craftsmen whom Childe (*ibid*.) described as an exploited subject class that was dependent upon the religious and secular authorities for support and patronage.

Renfrew also sought to explain just why metal was so vital to the complexity of early civilisations; in *Emergence of Civilisation,* Renfrew (1972) noted that:

> Changes or innovations occurring in one field of human activity (in one subsystem of a culture) sometimes act as to favour changes in other fields (in other subsystems). The multiplier effect is said to operate when these induced changes in one or more subsystems themselves act so as to enhance the original changes in the first subsystem (Renfrew 1972: 37).

Here the term 'multiplier effect' is used to describe positive feedback within systems that led to the creation of more positive feedback, thereby inferring that civilisations cannot advance or change without these multiplier effects. As an example, Renfrew attributes two specific multiplier effects to the emergence of the Bronze Age Aegean

[4] "Indisputable improvements in metallurgical and metalworking production are linked with these successions. Processes of this kind can be considered from three points of view: (1) the form (morphology) of the tools; (2) the technology of their production; (3) the formation of new cultural groups with knowledge of metallurgical processes" (Chernykh 1992: 4).

civilisation; the first multiplier effect was the creation of an economic system which redistributed subsistence goods and the second was the emergence of more complex forms of militarism, a feature that is attached to the development of weapons. This effectively links need (real or imagined) with technology.

Renfrew (*ibid*., 1986) also discusses the early use of metal in terms of value and employs descriptors such as 'use-value' which Marx (1970: 44) defined as the utility of a thing, 'exchange-value' which is the worth assigned to objects that are exchanged for another, while the 'prime-value' is the inherent and intrinsic value given to the objects by society (Renfrew 1986). In this manner, Marx's (1970) theories of 'true consciousness', or the manipulation of the external world, are used to elucidate a systems theory that explains the co-occurrence of the development of metallurgy and the emergence of civilisations through technology. This entails a system of production and exchange, circulation of prime value goods and the emergence of social rank and status as one way to achieve status and wealth through the control of raw resources, labour and finished products. This is especially the case in wealth finance systems where there were multiple avenues to higher socio-political and economic status.

The connection between the spread of metallurgy and its link to socio-political and economic systems was also discussed by Heskel and Lamberg-Karlovsky (1980) and Heskel (1983) who noted that during the early stages of metallurgy metal artefacts are only present in permanent settlements with the incidence of metal objects increasing in conjunction with the size of the settlement:

> The selection for more smaller settlements can be understood as dependent on the increased reliance on irrigation agriculture in the unpredictable environments of Anatolia, Mesopotamia, and Iran. This trend would lessen the demand for obsidian and decrease the surplus available for metal objects at each site. The implications of this settlement pattern for the production of metal objects are a decrease in the demand for status-marking objects, because of a reduced number of higher-status individuals, and the lack of any advantage in the adoption of more intensive means of production (Heskel 1983: 365).

Heskel attributed this phenomenon to the presence of designated full or part-time craft specialists at larger settlements whereas at smaller agricultural villages there would have been no craft specialists thereby limiting the types of objects able to be produced by the local population. According to Heskel's argument, these small

settlements would not have had the complex social organisation that the larger sites exhibited and therefore would not have had the need for prestige goods or other overt symbols of social differentiation. Similarly, Potts (1994) links the escalation of the metal trade with the growth of urban centres in the Near East and notes that the earliest use of metal was primarily to make personal ornaments and other small, simple objects (what Moorey (1988a) called a 'trinket technology') before its use as a prestige good or money. However, contrary to both Heskel (1983) and Potts (1994), in the Upper Euphrates Valley metal objects and metalworking equipment are often found at small settlements, proving that metal should not be strictly associated with large, strongly hierarchical urban centres.

This association of metal items with urban centres is frequently found in explanations of the development of the metal industry where the objects are polarised into categories of practical and prestige goods, with prestige goods more often than not discussed within the socio-political, economic and religious spheres of a society in top-down models and given more attention than simple or utilitarian items. While metal craft goods are a major facet of wealth based finance systems that rely upon these goods to supplement subsistence surplus which could be acquired by an individual or a kin group, further discussion of current socio-political and economic theories applied to early societies is necessary in order to understand the full impact of metal craft items on these systems and the effect that any change would have on them.

1.1.2 Socio-political and Economic Theories

Archaeological approaches to the political economy are still relatively under-represented with the majority of research focused on the later historical periods and the extensively researched economy of the New World civilisations. Among the more relevant sources that stress the archaeological side of studies of ancient political economies are Greene's (1990) *The Archaeology of the Roman Economy; Resources, Power and Interregional Interaction* edited by Schortman and Urban (1992)*;* Earle's (1997) *How Chiefs Came to Power: the political economy in prehistory; Archaeological Perspectives on Political Economics* edited by Feinman

and Nicholas (2004); and the more recent *Archaeological Approaches to Market Exchange in Ancient Societies* edited by Garraty and Stark (2010).

One of the symptoms of the limited application of economic terms and theories to archaeology is that the terms that are used are often misrepresentative of what is actually meant; one prime example within the larger discussion of the economy is the controversial use of the term 'finance' in descriptions of early, pre-monetary economic systems (*i.e.* staple and wealth finance). The multiple definitions listed for the word 'finance' in the Oxford English Dictionary includes the following:

> 2a) Settlement with a creditor; payment of a debt; compensation or composition paid or exacted.; 3) Supply (of goods); stock of money; treasure, substance.; 6) The pecuniary resources, a. *primarily*, of a sovereign or state; b. *transf.* of a company or an individual.; 7) The management of money, *esp.* public money; the science which concerns itself with the levying and application of revenue in a state, corporation, etc. (*Oxford English Dictionary*, 2nd Edition 1989. Oxford: Oxford University Press.)

As can be seen in the definitions listed above, the word 'finance' cannot be applied to pre-monetary systems in its strictest sense despite the fact that it is entrenched in the literature. In the case of pre-monetary societies, the word 'finance' is more loosely used to describe economic systems based on trade and exchange, especially of staple and craft items, and is employed by many scholars who research ancient political economies (Brumfiel 2000; Brumfiel and Earle 1987; Costin 1991; D'Altroy and Earle 1985; Earle 1987, 1997, 2000; Schortman and Urban 2004; Stark and Garraty 2010; Stein 1998a, 2004). Therefore, the use of the word 'finance' in this thesis is in following with the generally accepted use and definition for pre-monetary economies and does not imply that metal or other goods were used in a modern monetary sense.

Similarly, there are multiple interpretations and descriptions of 'political economy' and the models used to describe economic interactions. On a basic level:

> 'Economy' here means those aspects of human behavior that concern the production, management, distribution, and consumption of material wealth as well as the structural relations that determine commodity transactions (Yoffee 2000: 1387);

while the political economy involves production, redistribution and consumption of wealth and the movement of wealth in society from the general population, elites and central institutions through taxes, tribute, tithing, gift exchanges and other forms-

essentially the social effects of intermixing political agendas and economic processes (Fleming 2004; Yoffee 1995). Two frequently used definitions of political economy include the 'substantive' definition which is:

> …of the economy as the provisioning of society (entailing production, exchange, and consumption) (M.E. Smith 2004: 74).

The substantive form of political economy encompasses the whole of society whereas the formal definition is based upon Polanyi's[5] (1971, 1975) work and focuses on the utilisation of rare resources (Silver 1983, 1985; M.E. Smith 2004). Here, it is the role and context of the metal objects that are being examined from their production to their use and disposal. This includes the study of the raw resources and labour required to create these objects, their production and distribution and ending with their consumption and disposal- essentially the study of the political economy of metal in the Upper Euphrates Valley during the fourth and early third millennia.

In a more general approach than the substantive and formal definitions of political economy, Stein (2001) emphasises that the political economy is focused on four main themes which include the ideas that: 1) states may not be highly centralised but instead may be variable in their limits of power; 2) the economic organisation of a state is important; 3) rural and centre – hinterland interactions are key research areas; and 4) interregional interaction occurs at multiple scales. In turn, Earle (2000) and Kohl (1978, 1981) stress the role of property and ownership in the political economy and the increasingly important role that private property played in the development of complex societies in terms of public displays and conflict. The role of private property becomes especially relevant in the move to wealth-based economies, which relied on the demand for private property and the acquisition of surplus to drive the economy.

A model based almost completely on agricultural and staple crop production, and to a lesser degree on the secondary products of pastoralism, is frequently used to describe the economy of early societies in the Near East (Hole 1999; Schwartz and

[5] While Polanyi did contribute greatly to the early study of ancient political economies, his work is now regarded by many as being full of 'dogmatic misconceptions' (Trigger 2003b: 59) for its distortion of historical evidence regarding the degree of pre-capitalist commercialism and the role of naturally fluctuating market values (M.E. Smith 2004).

Curvers 1990, 1992; Schwartz and Klucas 1998; Stein 1988; Zeder 1998, 2003). This staple, or subsistence, finance can be described as a form of redistribution where the socio-political leaders are able to store staple products in a central place until these items are then redistributed to those who are directly working for, or employed by, the political power (D'Altroy and Earle 1985). In staple finance systems, it is the centralised collection and redistribution of surplus agricultural products that were used to maintain influence over a population. Features that are often associated with staple finance systems include: public administration and redistribution items such as seals, sealings, standardised mass produced bowls, public buildings such as storehouses, public roads and barriers or walls to delineate ownership[6]- features that Johnson and Earle (2000: 257) describe as the 'constructed landscape of power'.

Apart from staple finance, the other system often used to describe early complex economic systems is that of wealth finance where the concept of wealth:

> …refers to items of value anyone may possess if they have the means, in contrast to sumptuary goods, symbols of status which may be owned or used only by those of appropriate status. Wealth is also more of a comparative concept. As major wealth differences probably would not develop, and certainly could not be maintained without stratification, they constitute evidence of this element of status (Wason 1994: 125).

Though Wason differentiates the terms, in this work 'wealth' and 'sumptuary' goods will be taken here to have the same meaning as it is impossible to know who had the appropriate status to utilise prestige items and who was emulating these items. Kohl (1981) contests that the creation of 'wealth' came before leaders while Hayden (1995) similarly suggests that aggrandisers came from the ground up and utilised the wealth already present from agro-pastoral surplus to further their own agendas.

In both subsistence and wealth based systems the control of labour is just as important as the products of this labour (Arnold 2000; Arnold and Munns 1994; Baines and Yoffee 1998, 2000; Earle 1977, 1978; Englund 1991), though in wealth based and truly centralised systems there were greater opportunities for labour differentiation due to the fact that not everybody was engaged in subsistence agriculture or pastoralism (Arnold 2000; Costin 1991; Durkheim 1949; Veblen 2005; Wattenmaker 1998a, 1998b). Wealth based systems are thought to have been easier

[6] See Dietler and Herbich (1998); A. Smith (2003); M. Smith (2003a, 2003b)

to initiate in areas that had access to resources beyond locally produced agricultural and subsistence items, though access needed to be regulated in order to maintain the economic value of these resources. Sites located near resources allowed groups and/or individuals the opportunity to capitalise upon existing trade networks as well as local demand to fuel consumption of specific items that could be utilised in displays of wealth and status:

> Wealth is displayed, and such displays require further stratification because it is obtained through the labor of others, from networks in which the negotiants are not kin, or from organizing the procurement of materials, some of them from remote regions, on a scale not feasible for kin groups alone. Wealth therefore requires new codes of communication that establish the ability to trade with foreigners and connect these distant people in a community of interests (Baines and Yoffee 1998: 253).

Socio-political and economic power resulting from wealth finance systems is determined by the degree of control over raw resources, labour and its products (Costin and Earle 1989; D'Altroy and Earle 1985; Earle 1987, 1997, 2000). The control and monopolisation of raw resources and services by the emergent elite made it possible for social differentiation to become more visible in the everyday workings of a society. The use of portable ornaments such as metal pins and ear or hair rings, in what was initially described as a 'trinket technology' by Moorey (1988a), is one potential method that was used to display not only wealth and status, but also identity and a subscribed ideology (Frangipane 1985; Frangipane *et al*. 2001; Schortman and Urban 2004).

Models of early socio-political structures in Upper Mesopotamia have tended to focus on kin groups (Cooper 2006a, 2007; Porter 2002a, 2002b, 2010, 2012) and the emergence of social stratification (Davis 1998; Earle 1978, 1997; Feinman 1998; Flannery 1998; Fried 1967; Halstead and O'Shea 1982; Hole 1987; Liverani 1999; MacCormack 1981; O'Shea 1981; Redman 1978, 1998; Salzman 2000; Schwartz 1986, 1994, 2003, 2007; Sherratt 2004), though in recent years socio-political theory based on the archaeological work being undertaken in Mesoamerica has heavily influenced the interpretation of events in the Near East (Blanton and Fargher 2008; Blanton *et al*. 1996; Brumfiel 1983, 1989, 2000; D'Altroy and Earle 1985; Kowalewski *et al*. 1983; Kurtz 1987; Kurtz and Showman 1981; Schortman and Urban 1992, 2004). Discussions of the band - tribe - chiefdom – state progression

(Carneiro 1981; Cohen 1978, 1981; Haas 1982; Rothman 1994a; Service 1962) and early theories revolving around Mesopotamian dominance (Adams 1966; Algaze 1989b, 2001b; Charvat 1978, 1981; Dolce 1999; Falconer and Savage 1995; Johnson 1988-1989; Postgate 1992, 1994; Roaf 1990; Schwartz 2001) have largely fallen out of favour in light of the new information resulting from the dam archaeology in Syria and Turkey, though the hiatus of archaeological work in Iraq has largely halted the flow of new information that would alter currently held views of Mesopotamian socio-political systems (see Nissen 2001; Pollock 2001).

One of the conclusions that became apparent from the archaeological work being carried out in the different geographical zones within Upper Mesopotamia is that socio-political development was not uniform over the entire region and that there are multiple theories that could explain the socio-political systems at the sites within the Upper Euphrates Valley, not to mention the rest of Upper Mesopotamia. The ongoing effort to determine how the Late Chalcolithic 2-5 and Early Bronze I-II societies in the region were structured has given rise to several models of development, one of which is that the Upper Mesopotamian settlements[7] at this time were 'simple, small-scale communities' (Akkermans and Schwartz 2003: 226) or simple chiefdoms with the transition to complex chiefdoms (Carneiro 1967, 1981; Flannery 1972; Johnson and Earle 2000; Trigger 2003; Wright 1994) following a trajectory similar to the one Schwartz details for the Mycenaeans where:

> These chiefs subsequently intensified their power through warfare, accumulation of dependents, and agricultural exploitation of unclaimed lands. At length, the chiefdoms were replaced by – or developed into – the urban and state *polis* systems of archaic Greece (Schwartz 1994: 165).

[7] In regards to how the sites mentioned in this thesis are described, the very generic term 'settlement' will be used most frequently; there is quite a difference in how archaeologists classify 'towns', 'cities' and 'states' and the grades between them as what is a small city to one scholar may be a massive regional centre to another. As an example, Cevik (2007) summarises the terms and notes that, 'town-like settlement' is used by Yakar (1998) while the concept of a 'city-state' is thoroughly described by Hansen (2000) and applied to sites throughout Upper Mesopotamia (Milano 1995; Stone 1997; Thuesen 2000). The term 'proto city-state' is also used (Bintliff 2002) while Arslantepe is sometimes described as a 'state' Frangipane (1997a). Because of the degrees of difference between these terms it is better to quantify what is meant by 'villages', 'towns' and 'regional centres' in this thesis rather than simply using vaguely descriptive terms. While it is a relatively large range, regional centres are taken here as being between 3 and 10 hectares, towns are 1 to 3 hectares and villages are sites that are less than 1 hectare.

On the other hand, Cooper (2006a, 2006b, 2007) and Porter (2002b, 2012) infer that the socio-political structure of the Euphrates Valley was directly connected to the kinship systems that were an integral part of the mobile population. In Cooper's (*ibid*.) and Porter's (*ibid*.) models this structure was then transmitted to the sedentary population, though as Lupton notes:

> … any social system based on localised kin relationships and the manipulation of a communal ideology limits the degree to which socio-political power could become the exclusive preserve of an elite group (Lupton 1996: 34).

Despite the apparent limitations of such kin-based systems, discussions of their impact on Near East society dominate the literature of pre-urban socio-political structures, especially in discussions of settlements with an associated pastoral or semi-nomadic population (Baxevani 1995; Burnham 1979; Castel and Peltenburg 2007; Cribb 2004; Khazanov 1994; Marx 1977; Porter 2002a).

Cooper (2006a, 2007), like Steinkeller (1993), Small (1995) and McClellan (1999) describes the situation in the Euphrates Valley as a heterarchical[8], kinship-based society:

> The distinctive heterarchical character of the northern Euphrates region and the unusual way in which third millennium settlements were configured may be attributed in part to the persistent tribally-structured composition of the region's inhabitants, defined by loosely organized confederacies of both agrarian and pastoral nomadic kin-groups. Their membership often transcended the boundaries of individual centres or specific places of residence. Furthermore, their political relationships included the dissemination of power and decision-making across the community rather than being solely concentrated in the hands of a few elite individuals. It is possible that the region's pronounced subsistence strategy of long-range herding sheep and goats encouraged this tradition of collective power, since it is 'the tendency of pastoralists to manage access to grazing land at the collective level, for whole communities' (Fleming 2004: 218) (Cooper 2006a: 61).

Hierarchies and heterarchies do not have to be diametrically opposed aspects of socio-political complexity but may potentially coexist in the same society as

[8] Here, heterarchy is defined as, "…the relation of elements to one another when they are unranked or when they possess the potential for being ranked in a number of different ways" (Crumley 1995: 3); while hierarchy, "… can be measured in terms of how many levels there are in the system, whether or not there is a chain of command, how much discretion officials are allowed, and who appoints, dismisses, or transfers subordinate officials" (Morony 1991: 9).

elements of dynamic socio-political and economic interactions that are fluid and adaptable to new conditions and situations over time (Crumley 1995; Zagarell 1995).

Like Cooper above, Porter (2002a, 2002b, 2010, 2012) also places the focus of socio-political relations in the third millennium Euphrates Valley settlements on the kin group, though she focuses on the role of the ancestors and ancestral groups in the local power structures. Using evidence from Arslantepe, Porter suggests that ancestral groups were at work creating their own socio-political groups by the late fourth millennium:

> The increased definition of the ancestral group in the late fourth millennium wrought the very fragmentation it was aimed to combat. Rather than the social group splitting between mobile pastoralists and sedentary farmers, however, individual ancestral groups split from the larger communities of which they were part, many moving away from the centers with which they had been affiliated before, and forming their own, smaller-scale communities (Porter 2012: 261).

While it is accepted that kin relations played an important role in Early Bronze Age society, the problem lies in using kin or ancestral relations to explain all aspects of socio-political development and settlement patterning within the Euphrates Valley without examining other potential causes and influences. An idyllic, egalitarian heterarchical model cannot be universally applied to the Near East as evidence for social differentiation appears quite early on in southeastern Anatolia and Upper Mesopotamian pre- and proto-history[9]. Truly heterarchical socio-political structures were likely few and far between in the late fourth millennium and certainly so by the early third millennium if the mortuary evidence and the proliferation of craft goods- especially those items made of metal- is any indication (Bolt and Green 2003; Cevik 2007; Frangipane 1997c, 1998b, 2010a; Gale 1991; Helms 1993; Peltenburg 2006, 2007a; Philip 1989, 2007; Squadrone 2000a, 2000b 2007; Stein 1996, 1998a).

The material evidence suggests that the Euphrates Valley populations increasingly exhibited social, political and economic differentiation as multiple individuals or family groups in a settlement were able to control resources and labour despite any apparent disruption at the end of the Late Chalcolithic. Socio-political systems in both the fourth and third millennia could not have functioned without a

[9] See Akkermans 2008; Davis 1998; Düring 2011; McCorriston 1997; Merpert and Munchaev 1993; Paynter 1989; Rothman 2002a; Ur 2010; Wengrow 2001

degree of economic control, and it can be suggested that these early systems utilised a corporate socio-economic system to prevent the rise of petty tyrants or highly stratified elite members of a population (Blanton 1998; Burnham 1979; Carneiro 1967; Schwartz 1994, 2001; Small 1995).

This can be related to Wolf's (1999) notion of a 'closed corporate community' in which there is communal control, redistribution of agricultural land, a self-centred or own society-centred world view and balancing factors that maintain an equal economic and social level within the society such as the 'cult of poverty' described by Schwartz and Falconer (1994). As Cooper describes it:

> Within this system, there is a constant tension between the two political actions, one striving to concentrate power in the hands of one individual or a single authoritative group or class within the society, while the other attempts to offset the attainment of absolute power by maintaining an emphasis on collective political authority (Cooper 2006a: 62).

While the earlier Late Chalcolithic settlements seem to have operated along these lines, the situation in the Upper Euphrates Valley was likely not as diametrically opposed as Cooper (*ibid*.) suggests. Rather than polarising socio-political strategies in terms of what the expected behaviour was based on current ethnographies, it is more useful to consider the context of the period and assess what strategy would have been most viable given current conditions and set of environmental and social parameters as socio-political systems are apt to change in conjunction with these changing conditions.

In dynamic systems, social and economic differentiation was not a result of one particular type of social or economic strategy, and the communities of the Upper Euphrates Valley exhibit diverse models of socio-political power over time (Stein 1994a, 1994b). While power seems like an easy enough word to define, it:

> …should not be understood in terms of an all-important essence in society residing at a specific place, something which may be possessed, 'taken up' and exercised. Instead, power is a feature of society which is irreducible to individuals or groups or specific areas of the social field such as the economic or the political. In other words, power has no necessary and unitary form of existence…Power resides throughout the entire gamut of social practices and in the structural ordering of society. Power is that aspect of human practices which *brings about effects*, or permits the achievement or attempted achievement of outcomes (Shanks and Tilley 1987: 72-3).

DeMarrais *et al*. (1996) go into more depth than Shanks and Tilley (1987) and specify that the role of social power:

> … is the capacity to control and manage the labor and activities of a group to gain access to the benefits of social action (DeMarrais, Castillo and Earle 1996: 15).

Taking both definitions above into account, power is therefore linked with a population's economic, social and political interests and the struggles of primacy between groups and their interests rather than power serving as a construct only available to the top ranked tier of a society. In corporate and exclusionary power models, both strategies:

> …produced political-economic systems of varying scale and degree of complexity. Exclusionary power strategies were principally associated with comparatively small autonomous polities linked by trade, war, and the strategic marriages of rulers in large interactive networks. Corporate systems of differing scales also developed, but large-scale polities seem always to have been based on some kind of corporate strategy (Blanton *et al.* 1996: 3).

The presence of public buildings with administrative equipment, massive mud brick platforms, fortifications and the conspicuous disposal of wealth in mortuary contexts all suggest that the inhabitants of the Upper Euphrates Valley in the Late Chalcolithic 2-5 and Early Bronze I-II were able to successfully reconcile the accumulation of wealth and power with the need for collective action.

The danger inherent in all stratified societies is that those in the lower ranks (who inevitably outnumber those in the upper ranks) have the ability to overthrow the system and establish a new socio-political order. As Urban and Schortman describe:

> The balance of power among factions in hierarchically organized societies may be stable over many years; the duration of political relations depends on paramount successes in implementing strategies that effectively control the widest range of foreign and local, authoritative and allocative resources. Such structures are never immutable. While the dominant maneuver to preserve power, the dominated remain alert to any opportunity to assert greater control over their own actions by severing dependent relations (Urban and Schortman 1999: 127).

The focus on a society's elite is highlighted in neo-evolutionary socio-political theory (Friedman and Rowlands 1977; but see Trigger 2003b for overview) which focuses too heavily upon the supremacy of the elite and their total control over the

rest of the population, essentially epitomising the top-down view of society. Despite the appearance of a strong socio-political and economic structure, as Urban and Schortman (1999) point out above, the potential for such domineering systems to self-implode rises as a society's political power increases its stranglehold on resources and labour control- especially if core-periphery dynamics and colonisation are added into the equation (Eisenstadt 1979, 1988; Elkholm and Friedman 1979; Englund 1991; Given 2004; Modelski and Thompson 1999; Rowlands 1987; Santley and Alexander 1992; Tilley 1981; Wallerstein 1974; Webb 1975).

Theorised socio-political systems with foundations based on extreme hierarchical organisation are reminiscent of the European ethnocentric 'Oriental' view of social complexity that is best known from Marx and Engel's Asiatic Mode of Production (Dunn 2011). In this model rulers had absolute power as well as a near divinity that allowed them to rule over the lower classes, meaning that complexity came about as a result of the more 'civilised' behaviour and actions of the elite. Similar theories to the Asiatic Mode of Production, such as Wittfogel's (1957) Oriental Despotism, assume that the dominated classes could not act in their own interests and rebel against their rulers/oppressors; any social change that occurred was the result of the elite creating new methods of legitimating their claims to authority. Wright (1978, 2000, 2007) includes these two and other similar theories in the category of management theories which place the origins of the state within frameworks that essentially pushed active agency by the larger population to the background in favour of focusing on the powerful elite with absolute control.

It is assumed that those who can control any or all of these aspects have an increased degree of power over other members of a population, especially those members who had the ability to control all or part of a trade route and/or the resources being traded:

> Indeed, in the northern areas the prerogatives of the emerging elite appeared to be linked more to the control of a widespread movement of raw materials and craft products rather than to the actual appropriation of staple goods, unlike what seems to have occurred in the southern Mesopotamian Plain, where the increasing power and dominant social figures appears to be based on the administration of staple products, essentially cereals and livestock products, as far back as the earliest formative phases (Frangipane 1997b: 43).

In Late Chalcolithic and Early Bronze Age I-II Upper Mesopotamia, it seems that the economic systems were dependent more on craft production and raw resources, as Frangipane (*ibid*.) mentioned above, rather than on subsistence crops that formed the economic basis of southern Mesopotamia (Adams 1974, 1978, 1981; Beale 1973; Oates 1993). The differentiation in wealth and access to surplus had a critical effect on local socio-political structures; greater economic clout gave certain individuals or groups more power, though it also made them more susceptible to external threats because of it.

One of the materials thought to have been a 'prime mover' whose use heralded the presence of a new degree of wealth in society is metal (Renfrew 1972, 1982; but see also Schoop 2011), and metal objects can be interpreted as tangible expressions of power and wealth, especially in the form of weapons and non-utilitarian prestige objects. This is particularly the case at the end of the fourth millennium in the Euphrates Valley as the complexity of the socio-political structures increased and inter- and intra-regional relationships were affected in varying degrees in almost every settlement by greater population movement.

New trade routes and population movements allowed for the spread of new technologies, styles and resources as well as having an effect on the socio-political and economic systems as increased resources, craftsmanship and innovative technologies allowed the constant reinvention of what constituted a 'prestige' object. The changing nature of what materials prestige objects were made of or what prestige objects were being consumed meant that trade routes played a vital role in establishing, maintaining and sustaining socio-political and economic power. This differs from the role of prestige objects in the World System theory where:

> Wallerstein (1974: 41) doubts that the circulation of elite goods could have stimulated the development of a precapitalist world system, because the incidence of such exchange was generally quite low. He suggests that in the long run staples account for more of men's economic thrusts than luxuries (Santley and Alexander 1992: 24).

Overall, the World System theory is based on three main assumptions: 1) the core dominates the periphery through military, technological, ideological or administrative superiority; 2) the core controls the long-distance trade networks with the periphery; and 3) the core is responsible for any changes in the organisation of

long-distance trade and the political economy of the periphery (Algaze 1993a, 1993b, 2001a; Chase-Dunn and Hall 1993, 1997; Stein 1999b, 1999c, 2002a; Wallerstein 1974). The core in this model has a very dominant socio-political structure that has the ability to marshal the resources, labour and military power necessary to maintain the flow of goods into the core area from the resource-rich periphery.

Rather than following the strict core-periphery interactions of the original world-systems theory as applied to the Uruk expansion in the mid-late fourth millennium (Algaze 1989b, 1993a, 1993b; Edens 1992), Stein (1999b, 2002a, 2004) suggests that archaeologists seeking to explain the socio-political and economic interactions between the southern Mesopotamian cities and the northern settlements should look to other models in place of the traditional World System as applied to the ancient Near East. The three theories that Stein (1999b, 1999c) puts forward as alternative models are the: 'distance-parity' model where the power of the core decreases as the distance between it and the periphery increases; the 'trade-diaspora' model where agency is used to explain the socio-political and economic relationships between the core and periphery; and the 'world-economies' model in which the core is comprised of competing polities with economic rather than political power. Of Stein's alternate models, the world-economy model is more stable than the traditional World System theory because of intra-polity economic competition which places economic events into perspective within the larger scope of interrelations between regions instead of only looking to the core for super-regional information regarding the ancient political economy and socio-political relationships (Stein 1999b; but see Matthews 2003a for a discussion of the applicability and limitations of Stein's models).

Increased economic interaction between the sites in the Upper Euphrates Valley and with neighbouring regions of Mesopotamia contributed not only to the rise of stratification within settlements, but also to the increasing regional site hierarchy; the Upper Euphrates Valley settlement hierarchy went from being predominantly two tiers in the Late Chalcolithic to three tiers by the middle of the third millennium (Bunnens 2007; McClellan 1999; Özbal 2011). This change in settlement pattern over time can be related to this increased economic interaction, the spread of urbanism and the development of increasingly more complex socio-

political structures in the Euphrates Valley. The elite (and those seeking to emulate them) in these emerging hierarchical societies would have consumed a supply of prestige items and materials that were used to create and maintain an exclusionary system and:

> Both long-distance trade (required to secure scarce raw materials) and internal exchange (necessitated by economic specialization) can be seen as creating the social heterogeneity and the breakdown of kin controls which would be needed for continued advancement. Commercial wealth is a logical source of power which would be both socially novel and subject to increase by small increments, with the result that new loci of authority might emerge free of existing, traditional controls (Webb 1975: 179).

Unlike Cooper (2006a) and Porter (2002b, 2010, 2012) who place the emphasis of socio-political change on the continuation of kin-controlled socio-political structures, Webb (1975) describes the breakdown of kin relations as a necessity for social heterogeneity and a novel source of both economic and socio-political power (see also Fleming 2004). Resource acquisition and control, especially of rare resources, was increasingly important to the socio-political elite as a means by which to gain and maintain power and trade agreements with foreign traders were a prime means by which to exert control over the availability of resources (Curtain 1984; Lamberg-Karlovsky 1996).

One of the means by which to manipulate the horizontal and vertical stratification within a society and maintain a wealth generating exclusionary system was to capitalise upon the demand for certain objects or materials:

> From our perspective, such manipulations of exchange goods allow the emergent elite to monopolize network exchange and its political payoffs by reducing the number of households in a local system that can acquire pre-eminence in a network based political economy. Some elements of this same process permit network players to compete successfully outside their local domains as well. The outcome of this kind of exclusionary political behaviour is the growth of a prestige-goods system (Blanton *et al*. 1996: 5).

Theories regarding the formation of early complex societies through an exclusionary power strategy are often predicated upon the use of specific, often hard to obtain objects to legitimate claims to power as well as to induce societal change (see Peregrine 1999). In the Upper Euphrates Valley, it seems that metal objects were one means by which status, wealth, and identity were expressed to a wider audience, though it was by no means the only route to power and social status and does not

seem to have spurred a strongly exclusionary system prior to the urbanisation of Upper Mesopotamia in the mid-late third millennium. There were numerous other varieties of 'prestige' goods that date to the Late Chalcolithic and Early Bronze Age, and the ability to control the labour of others was also a source of power that should not be ignored. The development of complex societies involved numerous strategy shifts, and as Peltenburg notes;

> …the division of power between the corporate and exclusionary was volatile and subject to change (Peltenburg forthcoming: 2).

As a settlement and its population adapted to and affected its surrounding environment and any other populations in the region, socio-political and economic systems were affected as well. Rather than trying to find a single strategy that can be applied as a blanket theory for Mesopotamia, or even for all of Upper Mesopotamia, archaeologists should be willing to accept that most populations will act in their own self-interest at the end of the day and shift strategies accordingly.

1.2 Themes, Research Aims and Methodology

The increased urbanisation and the relative degree of complexity of the socio-political structures of Upper Mesopotamia in the Late Chalcolithic and Early Bronze Age has been a popular research topic recently as the archaeology of Syria and Turkey has received much more attention. The discussion surrounding the degree of socio-political complexity and economic interactions have tended to highlight facets of this complexity such as the presence of administrative technology (especially seals and sealings[10]) as well as prestige or elite goods, fortifications and public buildings with ritual and/or administrative purposes. Furthermore, the grave goods associated with the numerous Upper Euphrates Valley burials are also used as evidence of complexity and social stratification as the rich array of metal objects and non-utilitarian ceramics in many of these burials indicates that the Euphrateans were well acquainted with stratification and differential access to wealth and surplus prior to the urbanisation of the region in the mid-third millennium.

[10] See Pittman (2000); Porada (1965, 1993); Michalowski 1991; Wengrow (2008) Zettler (1987)

The consumption and use of metal is part of the increasing reliance upon craft items as an economic base of a wealth finance system, leading Renfrew to describe this resource as a 'prime mover' (Renfrew 1969, 1972, 1982; though see Schoop 2011) while Brumfiel and Earle include metal with the 'politically charged commodities' (Brumfiel and Earle 1987: 5) that have social as well as economic value. By utilising current social theory[11] in conjunction with the material evidence, the role of metal in the regional economic and socio-political relationships can be better elucidated. Additionally, Costin's (1991), Costin and Earle's (1989) and Schortman and Urban's (1992, 2004) work on the production and use of craft items will be looked to, with focus on the variables that Costin (1991) identified as impacting craft production in society. These variables include factors such as intensity, concentration, scale and context, all of which are helpful in establishing the role of specific craft industries in a given society. While this approach entails the study of objects (here the finished metal objects and the materials relating to their manufacture), ultimately this work is focused on how metal objects were used by the inhabitants of the Upper Euphrates Valley rather than this being another typological study of the development and spread of artefact types; essentially an emic rather than a functional study of metal use in the transitional period from the Late Chalcolithic to the Early Bronze Age. Therefore, similar to Appadurai's (1986) approach noted above, a research programme that focuses on the social, economic and political value of metal objects and raw metal resources to the inhabitants of the Upper Euphrates Valley is used in order to determine how these objects were utilised and viewed and what factors contributed to the changing social role of metal over time.

Recent work, especially in the European paradigm, in the field of archaeometallurgy and material culture studies of metal have been oriented towards the typological definition and description of metal objects and how these typologies changed over time. Laboratory based analyses of the mineralogical and isotopic composition of metal artefacts and production detritus are also being utilised alongside of these typological studies in order to determine ore sources and manufacturing techniques which can aid in establishing networks of transmission and communication of technology (see Cukar and Kunç 1989a, 1989b; Muhly 1985;

[11] See Schiffer (2000) and Shanks and Tilley (1987) for overview

Özbal 1996, 1997; Özbal *et al*. 2000; Palmieri and Hauptmann 2000; Palmieri *et al*. 1995, 1996a, 1996b; Vatandoust *et al*. 2011; Weeks 2003; Yener 2000, 2007; Yener *et al.* 1991; Zwicker 1980). Such specific studies can result in the artefacts being divorced from their archaeological context as attention is too focused on the object itself and its properties and thereby essentially reducing the objects to a series of weights and measures in a database. If objects are studied on their form and function alone, the danger is that the artefacts are then placed into typological classes with the relevant contextual information (including the rarity of their composite materials, required technological skill, place of origin, assumed social value and the how and the why behind their production, consumption and deposition) getting lost in a morass of measurements. One further pitfall in the study of objects from prehistoric periods is that the emphasis is often placed on top-down models that examine the role of prestige goods within the upper echelons of society and their impact on the elite alone. This means that the value of an object is essentially based on its use to a minority population and does not accurately reflect its role within broader social groups (Schoop 2011).

It may be that the longevity of the study of metallurgy in Near Eastern archaeology has done the field a disservice as many theories and ideas regarding ancient metalworking and the metal economy of Upper Mesopotamia are still tied with the study of southern Mesopotamia; Woolley (1914, 1934, 1942) and Childe (1936, 1945, 1957) both described early societies and their associated material culture as being heavily influenced by the perceived superiority of the city-states of southern Mesopotamia over the rest of the ancient world. The long-held belief that southern Mesopotamia had superior technology, socio-political institutions and trade routes has changed over the past forty years with the extensive work done in the Euphrates Valley and other areas that were once termed the ‘margins’ or ‘peripheries’ to the southern Mesopotamian core. This change in perception has also included the development of the metal industry as part of the larger craft industry and the recognition of the use of metal objects by multiple agents within these so-called peripheral zones and not just by the elite or foreign populations. However, essays, journal articles and books on ancient trade and the political economy still tend to place the use of metal within elite contexts as part of a centralised or exclusionary

socio-economic system. In order to prevent such a limited analysis, the advice of Schortman and Urban should be kept in mind when analysing objects as:

> Every object, no matter how prosaic, is a locus of meaning (Schortman and Urban 2004: 200).

While this is a valid basis on which to premise a study, a brief review of the literature shows that the interpretations as to the origins and use of objects frequently change in response to shifts in theoretical and anthropological frameworks, particularly as ethnography and social theory influence archaeological theory.

This introduces one of the research aims of this thesis which is to assess the changing social value attributed to metal artefacts in the Upper Euphrates Valley from a bottom-up approach in order to have a more balanced interpretation of the role of metal in this region. As part of this approach, the causes of any change in the use of metal will also be examined, thereby relating evidence of metal use with socio-political and economic theories to better discuss how changes in metal use relate to changes in economic and socio-political strategies. This approach means that regional changes are not viewed as simply being a reaction to external influence, specifically the Uruk Expansion of the mid-late fourth millennium and the increased interaction with populations from eastern Anatolia and the southern Caucasus at the beginning of the Early Bronze Age, but that the Euphrateans were willing and proactive participants in the production and consumption of metal craft goods.

Metal objects and their manufacturing materials were chosen as the subject of this thesis because of the dramatic increase in metal usage in the transition from the Late Chalcolithic to the Early Bronze Age, even at sites that are interpreted as being at the bottom of a settlement hierarchy. This visible trend in metal use has been noted in recent broad-brush studies of both Syria and Anatolia (see Akkermans and Schwartz 2003; Sagona and Zimansky 2009), and has been generically attributed to social, political and economic factors in the region without the authors going into detail as to how specific factors influenced the way in which metal was perceived by those who lived there. In light of these general regional studies and the more specific typological studies, it is necessary to examine the evidence in a comprehensive manner over both the *longue durée* and a large area in order to bridge the gap

between the more general studies of the Near East and the artefact specific typological studies.

This is accomplished by comparing and contrasting the published information regarding the numbers, types and contexts of metal objects and metalworking paraphernalia found at these sites and discussing these finds within the socio-political and economic frameworks of the Late Chalcolithic 2-5 and Early Bronze Age I-II rather than focusing on the development of metallurgical technology or specific metal artefacts. Chronological and geographical analyses reveal patterns that can be used to establish how the social use of metal changed over time in both the macro-scale of the entire Upper Euphrates Valley as well as in the micro-scale of specific sites. Results of such analyses show that not only does the intensity of metal production increase over time, but that there is also an increased diversity of the types of objects being manufactured. However, the main distinction between the Late Chalcolithic and the Early Bronze Age is in what contexts metal was being used; there is a clear increase in the use of metal in mortuary contexts during the early centuries of the third millennium, especially in the region of the Euphrates Valley that is close to the modern Turkish-Syrian border.

The artefacts recovered from the archaeological excavations in southeastern Anatolia and northern Syria as part of the salvage and rescue excavations have provided a hitherto unavailable large *corpus* of material to analyse, with the result that many of the previously held theories regarding the origins, resources, technology and the spread of metallurgy have had to be reassessed as well as the underlying social necessity for metal items when objects made of alternative materials often would have served just as well. Because of the sheer quantity and difficulty in accessing the metal artefacts excavated from the numerous sites in the Upper Euphrates Valley, it would be a Sisyphean task to physically study each individual object. Therefore, the primary information of the objects mentioned in this thesis come from published sources such as site reports and catalogues as well as personal communication with the excavation directors. For this thesis, it is the trends and contexts that are most relevant rather than cataloguing and drawing each individual objects as:

> In other words, we need to consider to what extent material culture production is simply a product of individuals and to be related to their

> intentions, individual psychology and personal make-up, or to what extent it can be considered a social production (Shanks and Tilley 1987: 97).

Therefore, the known metal evidence from the Upper Euphrates Valley sites will be synthesised with theories regarding the socio-political and economic structures in order to elaborate on the role of metal in this distinct spatio-temporal area. In this way the link between distinct elements such as agency, labour, surplus, social, political and economic developments and conflict can be seen as contributing factors in the development of the metal industry in the Upper Euphrates Valley.

Though it is tempting to scholastically divide and conquer the different regions being discussed into modern geographical areas and attempt to categorise the populations who lived within the Upper Euphrates Valley either into discrete groups based around specific settlements or place them into cultural-geographical units such as Uruk or Transcaucasian, the long-term contact and intense cultural interaction makes it difficult and counter-productive to do so. The rich resources of the Euphrates Valley and its surrounding area as well as the multiple links to several key trade routes made the Upper Euphrates Valley an extremely attractive and lucrative place to settle. This meant that there were multiple population groups who settled the region over time and played a role in the development of the local social, political and economic structures.

The prolonged social, political and economic interaction both within and outside of the Upper Euphrates Valley promoted the need for tangible displays of belonging, wealth and status- displays that essentially served to illustrate an individual's or a group's identity within both horizontal and vertical strata of a society. The longevity of habitation in the region, the proximity of the valley to local ore sources and the Keban and Ergani-Maden mines and the multiple North – South and East –West trade routes through the region, all contributed to make the Upper Euphrates Valley an ideal area of study. Additionally, the level of scholarship in the archaeology of this region has been quite high in recent years, meaning that there is both an abundance of sites as well as a large enough sample size to work with that any conclusions drawn from an analysis of the information are not overly skewed.

General reviews of Mesopotamian civilisation and episodes such as the Uruk expansion often lump the Euphrates Valley, Khabur area, Upper Tigris and the

associated steppe of Northern Syria and Iraq all under one umbrella of Upper Mesopotamia, or as Kelly-Buccellati (1979) called this area, the 'Outer Fertile Crescent'[12]; however, based on the currently available information the degree of how much internal socio-political and economic cohesion there actually was in this region can be questioned as excavations have shown that there were multiple cultural zones within the greater area that had distinct ceramics, glyptic, scale of settlements and socio-political and economic systems. A look at the available site information and the current state of research (both typological and theoretical) revealed that the data from excavations in the Upper Euphrates Valley was ripe for further research into the changing role and social use of metal over time.

While every effort has been made at showing a comprehensive and accurate description and enumeration of the entire metal repertoire for the Upper Euphrates Valley for the period being studied, there will be unavoidable and unintentional errors. The main reason for any discrepancies is the lack of comprehensive publication of artefacts and the contexts in which they were found at several of the sites included in the research area. While not insurmountable, this ambiguity has made a contextual study that much more difficult and allows the distinct possibility that the total number of artefacts for the various sites and time periods included here is underrepresented and therefore not as accurate as could be desired. However, a careful screening of the published information as well as the cross-checking of information lessens the margin of error in reporting. It should also be mentioned here that several of the sites in the research area had metal artefacts reported for them by Hogarth (1911) and Woolley (1914, 1952, 1969). These artefacts were not included in the study because of their lack of provenance and oftentimes dubious origins. In the same manner, any other unprovenanced or questionably provenanced artefacts are similarly described though not included with the other items.

Due to space limitations, only those sites that had metal artefacts or metalworking evidence reported by their excavators are included in the following

[12] "The importance of this culture for our purposes here lies in both its geographical spread and its patterns of internal cohesion. Given its spread from northwestern Iran across eastern Anatolia and down into inner Syria and Palestine, it is obvious why this culture can be characterized as relating in an inverse pattern to the geographical coherence called the Fertile Crescent" (Kelly-Buccellati 1990: 120).

chapters, though a more comprehensive list of the settlements in the Upper Euphrates Valley during the fourth and third millennia is included in the Gazetteer. Similarly, the metal artefacts that are mentioned in the text are further elaborated upon in Appendices I, II and III along with any reported metalworking related paraphernalia. The charts, figures and diagrams included here are based on this information and these appendices should be used to supplement the in-text information. In terms of reporting the evidence, the specific number and description used by the excavator or report writer is used, and in cases where the author failed to give an exact number but described there being multiple examples of the items, the number is listed in the tables as being greater than or equal to (≥) the minimum number of confirmed items. While inaccurate, it was felt that under-reporting was better than over-reporting the total number of artefacts. In the cases where discrepancies between site reports were noted, these differences are clearly identified in the appendices and the most recent assessment of the data was used.

It should also be noted that at times the term 'copper' is used when describing the specific metals that the artefacts were made of, but it should be understood that the metal composition of these objects frequently included additives (deliberate or otherwise) of arsenic, antimony, nickel and tin. This generic term is used because different archaeometallurgists use different percentages to qualify items as being arsenical bronzes or true tin bronzes. In most cases it is unknown what the majority of authors mean when they use 'bronze' to describe an object, especially in site reports where the artefacts have not undergone analyses or in cases of site reports written before isotopic analyses were done.

Having detailed the methods and background theoretical information and scholarship, the remainder of this thesis will be focused on the discussion of the social use of metal based on the archaeological finds and their contexts as part of the larger discussion that includes the socio-political and economic theories that were briefly touched upon above in order to define the role of metal in Upper Euphrates Valley. Several potential problems need to be avoided; one of these is in using modern interpretations of metal objects that are heavily influenced by the physical uses associated with these items (*i.e*. weapons with warfare) and the contexts in which the objects are found, especially if found in mortuary contexts. Other pitfalls

lie in associating specific items and/or motifs with the presence of specific cultures, *i.e.* double and quadruple spiral pins equal an Early Transcaucasian settlement, a similar problem to the pots equal people line of thought that has since fallen by the wayside as being non-representative and over-simplistic[13]. Keeping this in mind, any discussion of the material evidence will endeavour to avoid these problems by focusing on the root social, economic and political factors that contributed to the changes in how metal was used by the Euphrateans over time without relying upon regional population changes as a blanket explanation.

The aforementioned research goals of this thesis will be accomplished in the following chapters by introducing the Upper Euphrates Valley through a description of the chronologies used, the geography and resources and a very general discussion of the various material cultures present in the region before moving on to describe the specific evidence for metal use in the fourth and early third millennia. These chapters are supplemented by the Appendices and the Gazetteer which provide the background information that will be further analysed in terms of how these spatio-temporal changes affected the social use of metal in the Upper Euphrates Valley. Following a presentation of the Late Chalcolithic 2-5 and Early Bronze I-II data, a chapter analysing the similarities and differences between contexts over time in the Upper Euphrates Valley and selected sites in the Near East highlights the factors that influenced how metal was perceived and used by a given population. The penultimate chapter then synthesises these analyses with socio-political and economic theories in order to describe the changing social use of metal as part of the larger regional dynamics before ending with an overview of the conclusions reached during the course of this thesis as well as a prospectus of future work to be done on this topic.

[13] Concerning the problems that this continued use of Childe's (1956) 'Archaeological Culture' brings to the table, Philip writes that, "Firstly, the resulting focus upon difference emphasizes the peculiarities of individual cultures, rendering it hard to identify and discuss elements that are shared between cultures. Secondly, normative cultures tend to be viewed as relatively stable entities, and so when a period of time is presented as a succession of cultures, it can be hard to discuss change and transition, except in terms of the replacement of one unit by another" (Philip 2011: 195).

Chapter 2: Introducing the Upper Euphrates Valley

2.1 Geography and Resources
2.2 Chronologies and Cultures
2.3 Chapter Overview

The archaeology of the Euphrates River valley has been especially prolific in the past 40 years with the building of the Keban, Karakaya, Ataturk and Birecik dams as part of the Southeastern Anatolian Project (GAP) in Turkey and the Tishrin and Tabqa dams by the Syrian government in northern Syria. The urgent need for rescue and salvage excavations during the planning and initial building stages of these projects often meant that only a small percentage of the main mounds were excavated to varying degrees of completeness due to the extensiveness of the sites and depth of occupation deposits which frequently reached more than 18 metres. While the work done as a result of the dam projects provided new and valuable information, it is now the task of archaeologists currently working in the Euphrates Valley to provide better syntheses of the past data with the results of more recent, research oriented excavations and interpretations of the evidence to allow a more complete description of the role that the Upper Euphrates Valley settlements played in regional complexity as well as in the broader scope of the history of the Ancient Near East.

A summary of the chronology, physical geography, resources and the various populations who inhabited the Upper Euphrates Valley will be presented below as an introduction to the region so that the more specific analyses of the social use of metal will have a framework from which to work. In order to present the information as clearly as possible, the Upper Euphrates Valley has been divided into three sectors: the Carchemish, the Samsat-Lidar and the Malatya sectors, whose site evidence will be further broken down into chronological periods. To begin with, the geographical area that was studied for this thesis will be described in greater detail below along with the individual sectors that the Upper Euphrates Valley has been divided into and the resources that were available. The chronological terms and framework that are used in this thesis will also be explained in further detail as part of the introduction to

the Upper Euphrates Valley and the diverse population groups who played a formative role in the establishment of the 'Euphratean' cultural milieu of the Early Bronze Age.

2.1 Geography and Resources

From its place of origin northeast of Lake Van in the eastern Taurus Mountains of modern Turkey, the 2,289 kilometre long Euphrates River follows the Taurus range before turning south and meeting the Murat River at the deeply incised Keban gorge. South of this gorge, the river flows through a diverse landscape that includes gently rolling hills, plains, basins and river terraces (Dewdney 1971) through southeastern Turkey into Syria and then into southern Iraq where it merges with the Tigris River near the modern city of Bosra. From there the conjoined rivers disgorge from a saline marshy delta into the Persian Gulf (Hallo and Simpson 1998; Pollock 1999; van de Mieroop 2004).

There is a greater frequency of settlements upriver, especially in the zone that is close to the modern Turkish-Syrian border, than in the more southern reaches of the Euphrates River Valley as there was a greater availability of arable land on which to engage in non-irrigation agriculture. Here the softly rolling broad plateaus slowly descend in elevation from the southern edge of the Taurus range to the Syrian frontier, dropping from 600-900 metres above sea level to 350 metres above sea level in the Urfa province of Turkey (Dewdney 1971). These low foothills and plateaus of southeastern Anatolia and the Pleistocene terraces of northern Syria that flank the Euphrates River provided space on which to build settlements with natural protection from the seasonal flooding as well as from other populations and were also excellent cultivable areas for cereal production while the more marginal and inhospitable areas of the Jezireh, the semi-arid steppe that extends to the east of the Euphrates Valley in Turkey, Syria and into northern Iraq, were utilised for pastoralism to supplement the dependence on agriculture. The degree of agricultural fecundity would have been a key factor in settlement placement in the Euphrates Valley so that resources such as available arable land and water would have been maximised along with the nearby upland zones which were ideally situated for pastoralism. The increased emphasis on pastoralism, not only for food products but also for their secondary products that

were used in trade, can be seen in the faunal record from the Chalcolithic onwards (Ashkar 1995; Frangipane and Siracusano 1998; Frangipane *et al*. 2002; Frangipane *et al*. 2011; McCorriston 1997; Persiani 2008; Stein 1988, 1999a, 1999c).

As the map below shows, the area of the Euphrates River included in this work encompasses the northernmost extent of the Middle Euphrates in Syria into the Upper Euphrates Valley of southeastern Anatolia, which can be further defined as the area stretching from the site of Qara Quzaq in Syria north to the cluster of sites close to the Keban Dam in Anatolia, with the furthest site being Korucutepe. The disparate topography and geography of the Euphrates Valley within southeastern Anatolia and Syria necessitates that the valley be divided into 'landscape regions' (Wilkinson 2007) in order to better discuss the culturally and geographically heterogeneous Euphrates Valley. Therefore, the stretch of river included in this thesis has been divided into three sectors that are based on the concentrations of sites near the modern dams including the Carchemish sector near the modern border between Turkey and Syria, the wide floodplain of the Samsat-Lidar sector and the region further north and east that surrounds the Keban gorge in the Malatya sector.

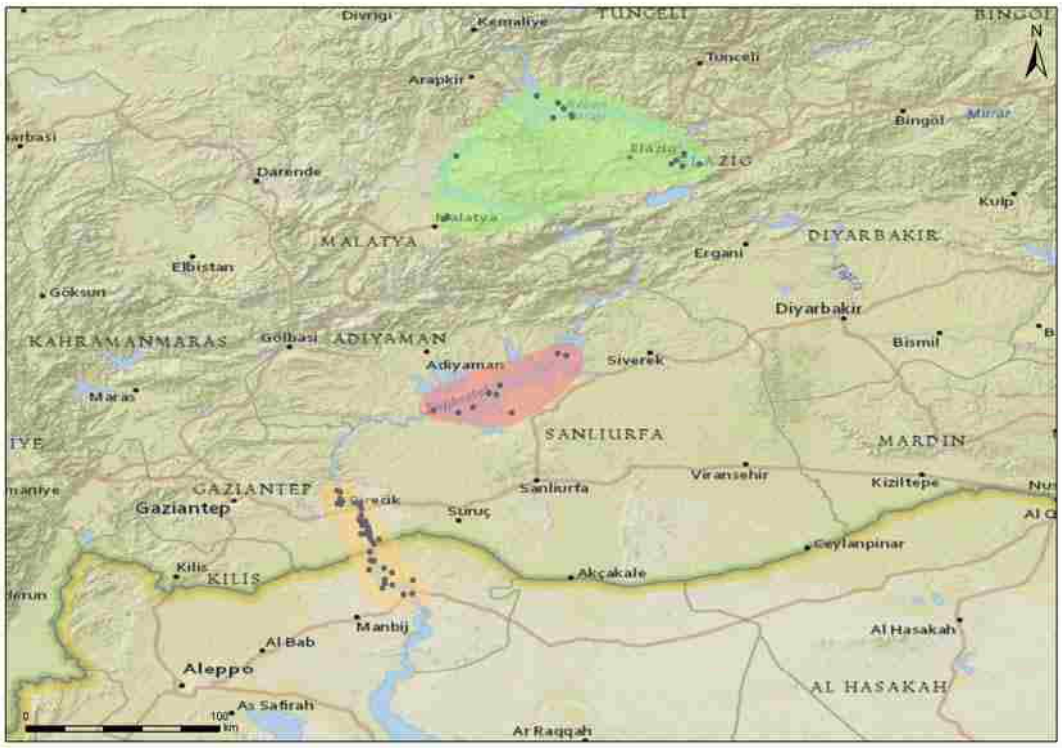

Figure 1 Map of the Upper Euphrates Valley with the sectors highlighted. Carchemish in orange, Samsat-Lidar in red and Malatya in green

The Carchemish sector with its Pleistocene terraces, floodplains and Eocene/Miocene plateaus has the largest concentration of sites in the area discussed in this thesis, with approximately forty settlements located between Qara Quzaq in Syria and Horum Höyük in Anatolia[14] (see Figure 2 below).

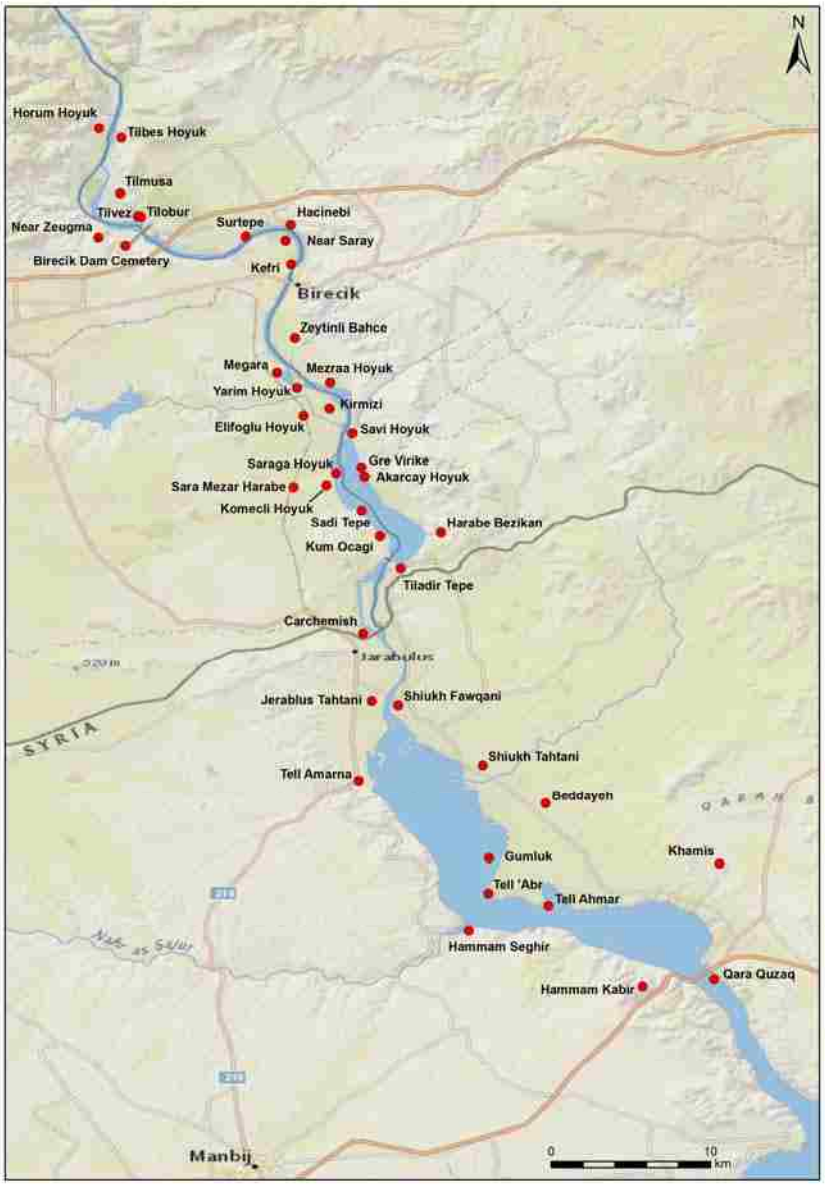

Figure 2 Carchemish sector sites mentioned in the text

The rich variety of flora and faunal resources in this southernmost sector were reliant on adequate rainfall, springs and seasonal watercourses as these sites

[14]Peltenburg describes this sector in greater detail; "…a 2 x 10 km plain from the Enesh gorge north of Horum (Fig. 1.1, site 32; Kennedy 1998, 21, fig. 2.2) to narrows at Zeugma, a 4-5 x 25 km plain from the dog-leg above Birecik to the Carchemish narrows, and the 28 km long plain of variable width from Carchemish to the Qalat Nedjim gorge by Qara Qûzâq" (Peltenburg 2007a: 7).

were still quite close to the marginal 200 – 250 mm isohyet zone of the Syrian Jezirah (Danti 2000; Danti and Zettler 2007; Wilkinson 1990a, 1990b, 1994, 2000, 2004, 2007, 2010). Subsistence crops included emmer and einkorn wheat, two-row barley and pulses (Cooper 2006a; Miller 2004; Miller and Weber 1996) which could be consistently grown in marginal environments with the help of fertiliser (Wilkinson 2004) or grown closer to the Euphrates flood plain without as much uncertainty. Apart from the crops there were also almond, poplar, pistachio and oak trees in this sector which are indicative of an open park woodland or a woodland steppe environment in addition to the riverine forest environment closer to the Euphrates River itself (Deckers and Pessin 2010; Wilkinson 1990b, 2000, 2007).

Though there are more sites reported in this sector than in the Samsat-Lidar and Malatya sectors, the sites in the Carchemish sector tend to be relatively small and were part of a two tier hierarchy in the Late Chalcolithic that expanded to a three tier settlement hierarchy in the third millennium (Bunnens 2007; Kepinski 2007; McClellan 1999). Many of the sites in this sector were situated either on or close by the Euphrates River as well as the east-west overland trade and communication routes that connected these sites to the rest of Upper Mesopotamia and beyond (Algaze 1999; Astour 1995; Peltenburg 2007a, 2007b). This accessibility meant that the Carchemish sector was a popular place for Uruk settlement in the fourth millennium, and many of the sites in this sector display varying degrees of material culture change[15] as part of the lengthy period of cohabitation and communication with the southern Mesopotamians.

In both the Late Chalcolithic and Early Bronze Age, the site of Carchemish was one of the major centres for this sector, though other large sites such as Beddayeh, Şadi Tepe, Tiladir Tepe and Surtepe may have also served as regional centres during the height of the Uruk Expansion in the mid-late fourth millennium. Of these sites, occupation at Carchemish is known to have continued into the third millennium with the site maintaining its regional importance, though Algaze (1999) relegates the Carchemish area to a socio-political and economic backwater. In his layout of the trade routes in the Early Bronze Age, Algaze (*ibid*.) posits that commodities, information and people travelled from the upper Balikh area west to

[15] Presumably there were also more personal levels of interaction going on, but without enough well-preserved skeletons to supply DNA evidence, this remains a supposition.

Kazane Höyük (see Creekmore 2008) and from there north to Titris Höyük (Algaze 1999; Algaze and Mısır 1995; Algaze *et al*. 1995), effectively bypassing the entire Carchemish sector and downplaying the potential importance of this area in the third millennium.

Moving north from the Carchemish sector to the area that Algaze (1999) focused on in his proposed EBA trade routes is the length of the Euphrates River and its floodplain that constitutes the Ataturk Basin (also referred to as the Karababa Basin in the literature). This basin sits on the northern periphery of the Syro-Anatolian plain and has an average of 400-600 mm of precipitation annually (Stein 1988). It also serves as a natural border between the plains and mountains, and in its modern incarnation this 120 kilometre long stretch of the Euphrates Valley behind the Ataturk Dam encompasses the land extending two to ten kilometres from both riverbanks. The west bank of the river is in the Adıyaman province of modern Turkey and is characterised by the rolling Adıyaman plain while the low hills of the east bank are in the Urfa province and divide the Euphrates River and Balikh River drainage areas (Stein 1988). During the course of multiple surveys in this area, approximately fifty archaeological sites have been identified, and of these known sites there are twenty-five Late Chalcolithic sites in the Ataturk basin and its immediate periphery (Algaze *et al*. 1986; Algaze 1989a; Whallon 1979; Wilkinson 1990c). A minority of these identified sites have been excavated or had limited soundings dug including: Hassek Höyük, Karatut Mevkii, Lidar Höyük, Samsat, Kurban Höyük, Hayaz Höyük and Titris Höyük (see Figure 3 below).

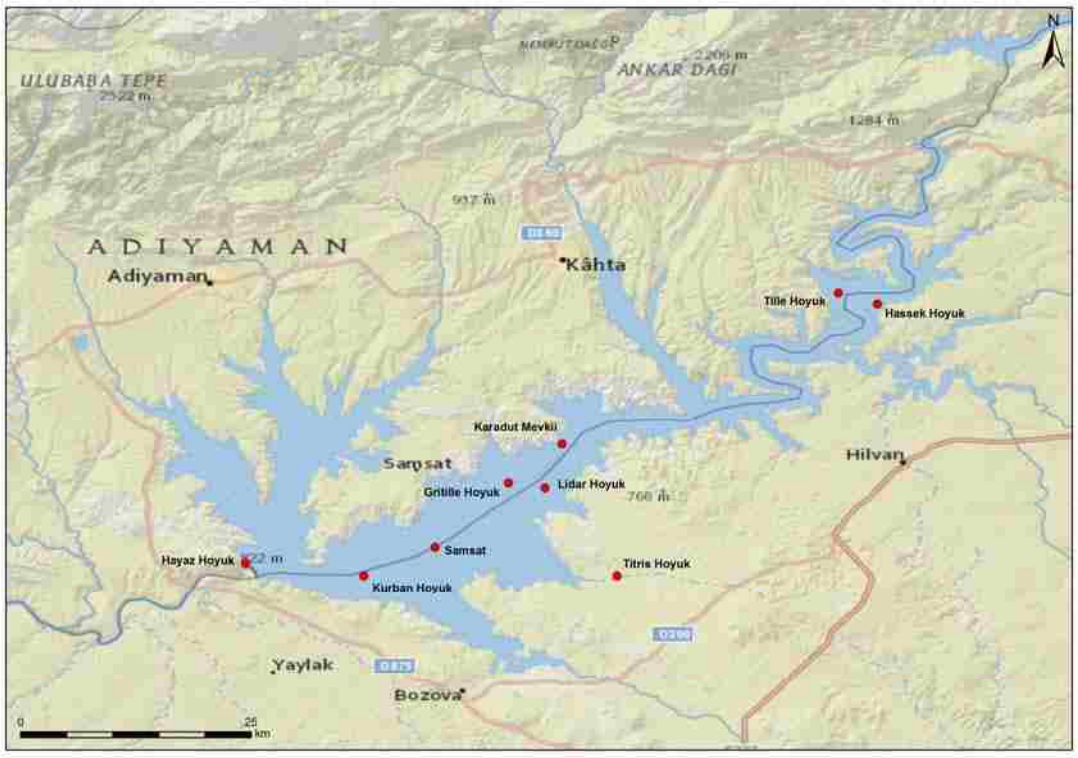

Figure 3 Samsat-Lidar sector sites mentioned in the text

As part of the Hassek Höyük excavation, the region around this site was surveyed for copper sources and it was found that the closest source was Kizil Tarla (TG 223) near the Euphrates River, about 30 kilometres away from Hassek (Behm-Blancke 2003). Kizil Tarla is further south than the Ergani-Maden mine complex to the east, making it more attractive as an ore source because of its relatively close geographical proximity[16]. The importance of the river crossings in this sector should not be ignored as the Euphrates River would have been an important route on which to move people and goods, especially energy inefficient items such as grain or perhaps raw copper ore from the Kizil Tarla source[17]. The location of many of the Samsat-Lidar sector sites appears to be oriented towards trade and communication

[16] Metals analysis carried out on the Hassek metal objects showed that some objects had a high amount of nickel present which indicates that the ore used to make them came from neither the local nor the Ergani mine as they do not have noticeable nickel contents. However, analysis of some of the objects also indicated that ore from the Ergani mine area was, in fact, also used (Behm-Blancke 2003). If the Kizil Tarla copper source was being exploited as far back as the early fourth millennium, this could account for the extensive metal industry at Hacınebi in the Carchemish sector, which is more than 200 kilometres from the Ergani – Maden mine that is thought to have been the primary copper ore source for the Chalcolithic and Early Bronze Age in Upper Mesopotamia.

[17] A raft-born survey of the Euphrates in 1981 showed that water transport from TG 223 to Hassek Höyük would take exactly one day when the water is at its mid-level height of flow (Behm-Blancke 2003: 483).

routes, and there are multiple river crossings in this sector which would have connected sites on both banks of the river to facilitate contact and access to sites further from the river.

Two other important sites located on the Euphrates River in this sector were the paired settlements of Samsat and Lidar Höyük, which are the oldest historically known Euphrates River crossing on the northernmost east-west trade route in this sector (Algaze 1993b, 1999). The importance of this route is confirmed by the remains of a much later Roman road that was almost certainly laid down over a pre-existing road or track at this river crossing (Evins 1998). Samsat's advantageous location meant that in the Late Chalcolithic it was the largest site in this sector at 17.5 hectares and played host to an Uruk population (Özgüc 1992, 2009), though this site was already thriving in the Halaf and Ubaid likely because it was the main crossing point on the east – west route (Algaze 1993b). Akkermans (1988) noted that this pattern of Uruk populations settling close to or even at the same site as established Chalcolithic sites is not unusual, and further evidence of this comes from the surrounding sites which have evidence of both local Late Chalcolithic and Uruk materials indicating a long history of interaction between diverse populations.

Compared to the Carchemish sector, the Samsat-Lidar sector seems to have fewer occupied sites in the Late Chalcolithic and Early Bronze Age, though this is quite possibly due to differing degrees of survey and excavation work carried out in these sectors rather than an actual lack of settlements. Like the Carchemish sector, in the Late Chalcolithic the Samsat-Lidar sector displays a two tier hierarchy, though by the Early Bronze Age there seems to be a reduction in the number of sites as well as the size of the sites which tend to be between 0.5 – 3 hectares in size. The decrease in number and size of settlements can not be blamed on a lack of subsistence resources as the botanical remains found at sites in this sector were very similar to profiles from the Carchemish sector (Boerma 1989-1990), with wheat appearing in greater quantities here than in the more southern sites (Cooper 2006a).

Samples from Kurban Höyük showed that the agricultural crops included wheat, barley and lentils (Evins 1998) and upriver at Hassek Höyük the crops also included chickpeas in addition to barley and lentils (Behm-Blancke 1984). The arboreal flora represented in the archaeobotanical and ethnographic records for this

region includes tamarisk, poplar, alder, pine, ash and juniper with edible remains such as fig, olive, pistachio and prune or almond remains were found at Titris Höyük (Algaze and Poumelle 2003). There is also limited evidence for flax production in the southern edge of the Ataturk basin which is hypothesised to have been used to make textiles in addition to those made of wool (Evins 1998; McCorriston 1997).

The third and northernmost sector of the Upper Euphrates Valley to be considered here is the Malatya sector. Early surveys (Özdogan 1977; Whallon 1979) prior to the initial phases of the construction of the Keban dam identified a substantial number of previously unknown sites in this region as this area of southeastern Anatolia had not been studied in great depth prior to these surveys. The sites included in this sector are located in the general vicinity of the Keban Dam reservoir, which includes the portion of the Euphrates River fed by the Murat River and part of the Elaziğ plain. The Euphrates River is deeply incised into the Eocene and Miocene lime and mudstone plateaus here making river travel almost impossible this far north (Algaze 1999). The deep and narrow gorges resulting from this deep incision into the plateaus limited the possible area of human habitation, and it is only when the gorges and canyons give way to more gentle terrain that the number and size of settlements increases. These settlements were strategically located in the plateaus and the hills above the valley floor of the Euphrates and Murat Rivers as the fertile river basins were more prone to flooding (see Figure 4 below).

In the northern part of the Malatya sector, the Euphrates and Murat Rivers flow in broad basins around the Malatya and Elaziğ plains, which are less than 800 metres above sea level (Whallon 1979). These basins are well-suited for agriculture as the ecology around the river and the upland zones was once much far more lush in the past than it is at present:

> At about 7000 BC the region from southeastern Turkey to the Zagros Mountains of western Iran appears to have been covered by an oak-pistachio steppe forest, and we can probably safely assume that this steppe forest was also characteristic of our area [the Keban district]. It is likely, then, that the oak-juniper forest became established in these areas sometime between 6000-4000 BC (Whallon 1979: 8).

The region's abundant rainfall and climate[18] allowed a wide variety of plant life to flourish throughout much of the Malatya-Elaziğ sector, leading Rowton (1967) to suggest that the forested Zagros Mountains in northern Iran and Iraq and the hills of eastern Anatolia were the 'wild cypress mountains' mentioned in Sumerian and Akkadian texts from the mid-late third millennium onwards.

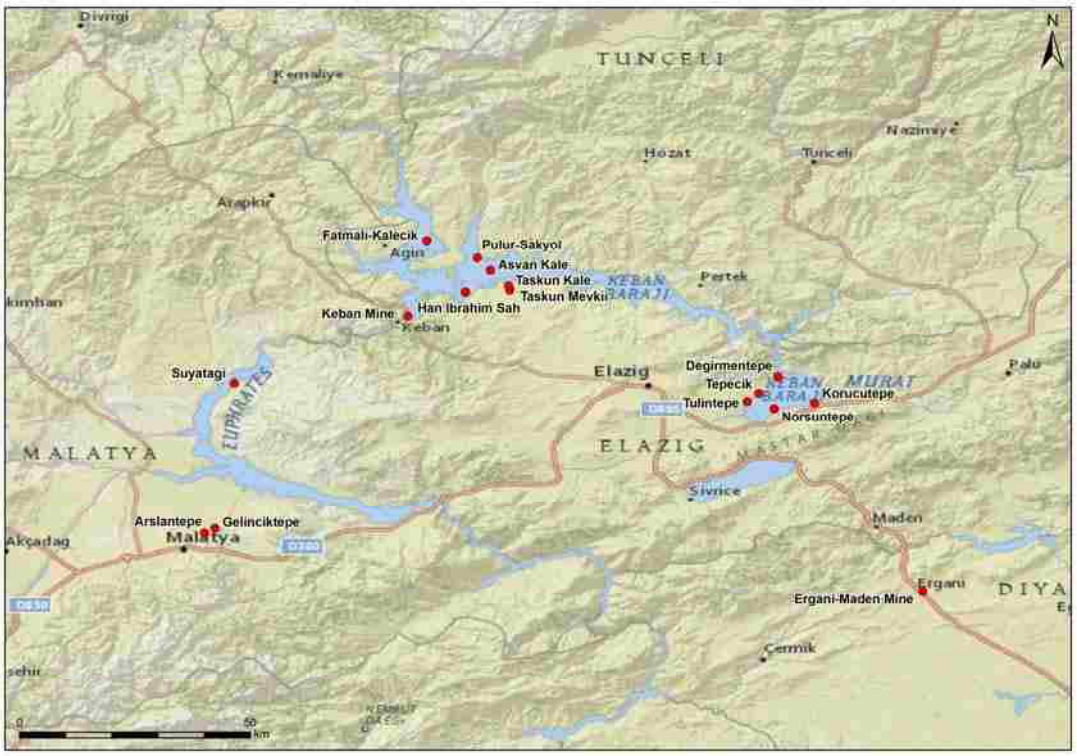

Figure 4 Malatya sector sites mentioned in the text

These forests would have been composed of oak and juniper, though other varieties of trees such as maple, hackberry, ash, almond and East Indian mastic trees were also once common to the region. Elm was also represented, though to a lesser degree in the Arslantepe archaeobotanical samples (Di Nocera 2000b). It is also likely that poplar covered much of the higher elevation area in antiquity, though a large proportion of the trees have long since been cleared for agricultural and fuel purposes (Horne 1982; Miller 1990). In terms of plants used for subsistence, the sites in this sector all had similar plant assemblages with barley and wheat far outnumbering other plant types such as chickpeas, lentils and grapes (Persiani 2008).

[18] This region traditionally has short, cold winters and long, hot summers with most of the annual precipitation falling as rain in the autumn and snow in the winter (Whallon 1979).

In addition to the plant and animal resources, this region of Anatolia is also mineral rich as:

> The main structural geological formation of Anatolia is very complex and is associated with the Alpine Geosyncline of Europe and Asia which passes through the country and which is of major economic and geotechnical importance (Shepherd 1993: 217).

Some of the earliest smelted metal objects were made from copper that was likely from the Ergani-Maden copper mine located southeast of the Malatya region. This prolific copper source has been exploited from the earliest days of metallurgy through the Roman period and is still being mined today (Caneva and Giardino 1996; Kelly-Buccellati 1990; Moorey 1982, 1985, 1994; Palmieri *et al*. 1993; Palmieri *et al.* 1995; Quenet 2008). Though the Ergani-Maden mine is taken to be the paramount copper source for the region, more local sources for native and polymetallic copper and other ores have been sought in the hopes of explaining the local developmental trajectories of metallurgy at sites beyond the immediate Ergani-Maden zone that have a metal industry or a relatively high number of metal objects (Caneva and Palmieri 1983; Caneva *et al*. 1988; de Jesus 1980; Gale *et al*. 1985; Muhly 1973; Palmieri and di Nocera 2004; Pamieri *et al*. 1993; Palmieri *et al*. 1999; Stech and Pigott 1986).

The survey conducted by Palmieri *et al.* (1995, 1996a, 1996b) identified several possible minor sources of metal ore within easy travelling distance from the Malatya area. Traces of what was described as 'early work' of copper with a high arsenic content were found at Zeytindağ in conjunction with galleries and a slag heap near the centre of the modern town, although there was not enough evidence to date the workings (Palmieri *et al.* 1995). The iron rich site of Polusagi had evidence of recent mining activities of the carbonatic ores; galleries and drilling areas were found in addition to burnt stone and slag which were found nearby on the slope leading down to the Maden creek, although again there was a lack of datable evidence. However, the surveyors had more luck at Karakas in the Başkil area where:

> … a large area containing numerous pottery fragments belonging to Early Bronze and a spearhead similar to those at Arslantepe VI A suggests a probable early use of these ores and provides evidence of close cultural contacts between settlements of these two areas (Palmieri *et al.* 1995).

Some of the samples recovered from this site had more than 1% arsenic and the vein itself was rich in malachite and azurite.

There are also silver and lead deposits and to a lesser degree tin[19], gold, zinc arsenic and antimony in Anatolia (Begemann *et al*. 1994; de Jesus 1978, 1980; Muhly 1973, 1985, 1993, 2001; Özbal 1997; Pernicka *et al*. 2003; Yakar 2002; Yener 1983, 1986, 2000; Yener *et al*. 1996). Galena, a lead sulphide from which most silver is derived[20], was exploited and used early on in Anatolian prehistory[21] (Yener 1983, 1986), and galena has been found in the Late Chalcolithic and Early Bronze IA levels of Arslantepe in association with other sulphide ores (Palmieri *et al*. 1996a, 1998; Palmieri *et al*. 1999). The mine at Keban was one of the main silver sources for the region from the Chalcolithic through the Roman period, though the area around the town also has multiple minor outcrops of copper ores. The early use of this silver-lead ore source is supported by the findings at the nearby Late Chalcolithic site of Fatmalı-Kalecik which seems to have been a silver refining site during its occupation based on the materials and residues associated with cupellation that were found during the course of excavation (Hess *et al*. 1998).

Unlike the other two sectors whose sites are located quite close to the Euphrates River, several of the sites in the Malatya sector were located between the upper reaches of the Euphrates River and the upper Tigris basin. These outlying sites exhibit a greater heterogeneity of traits and material culture including local Late Chalcolithic, Uruk, Transcaucasian and Upper Mesopotamian, which can be attributed to the proximity of these sites to the suggested overland trade routes running between the Upper Euphrates and Upper Tigris basins and beyond (Alden 1982; Algaze 1993b; Kohl 1987; Mellaart 1982; Oates 1993, 2002; Potts 1993), as

[19] Though the exploitation of tin sources in Anatolia during the Late Chalcolithic and Early Bronze Age is still being debated (Muhly 1993, 2001; Yakar 2001, 2002; Yener 2000; Yener and Vandiver 1993; Yener *et al*. 1993)

[20] In order to produce silver from sulphides or galena, the mixed ore must undergo a process called cupellation which refines the silver from the other metal elements present in the ore (Hess *et al*. 1998; Pernicka *et al*. 1998).

[21] Beads once thought to have been made of lead were found in the Neolithic levels of Catal Höyük, though a thorough examination and metals analysis has shown that the beads were actually made of galena (Heskel 1983; Maddin *et al*. 1999).

well as the overland routes to the Ergani-Maden mine complex[22] (Kelly-Buccellati 1979, 1990).

As an example of the level of contact between the various regions over time, there is imported pottery in the earlier Late Chalcolithic levels of Norşuntepe that is extremely similar to the pottery of Tepe Gawra XI-IX (Palmieri 1985a), and the later Ninevite V ceramic styles of Upper Mesopotamia also have a wide area of distribution in the Upper Euphrates Valley in the third millennium (Roaf and Killick 1987). At the very least, the ceramic evidence suggests that there were strong long-term links between the Upper Euphrates and Upper Tigris regions that were facilitated by trade networks (Rothman and Peasnall 2000). This interconnectivity has led Frangipane to describe the Malatya region as:

> … a cultural borderland, which became the theatre of mutual rapprochement and the collision between two completely different cultural environments and types of society, which founded the distinct trajectories of the Mesopotamian and Anatolian civilisations (Frangipane 2001b: 2).

The differences in degrees of interaction between the diverse population groups who moved into the Upper Euphrates Valley in the three sectors can primarily be attributed to distance and the region's geography which could serve as both a natural funnel and a barrier at different times.

The Taurus range[23] was one such natural barrier that is thought to have limited contact between the local Late Chalcolithic settlements in the Malatya sector and the Uruk settlements along the Euphrates and Tigris Rivers (Burney 1993;

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[22] "In eastern Anatolia the major route southward passes the Ergani mining area, continuing into the north Syrian plain via the Mardin pass. Ancient, as well as modern, merchants travelled this route from Ergani to the vast Syrian plains around Mozan. This route is about 180 km long and goes across mountain valleys from the Ergani area, just south of the source of the Tigris at the Hazar Gölü, past Diyarbakir and Mardin. It traverses the relatively low rolling hills located south of the main Taurus mountains, which are for the most part around 500 meters high, although there is a higher portion north of Mardin rising to around 1000 meters. Traveling through this country today we see that the landscape just north of Mardin is very rocky and becomes more so on approaching the higher mountains to the north. The route is dotted with narrow valleys not suitable for large-scale farming; these valleys do not seem to have encouraged heavy occupation, as the mounds are sparse and small for the most part. No major geographical impediments barred the way along this route, as it is well watered and neither as hot in summer as the lowlands to the south nor as cold in winter as the higher mountains to the north. Thus it is the easiest route for travel from the ore deposits in eastern Anatolia to the south" (Kelly-Buccellati 1990: 119).

[23] The Taurus range and the plateaus of eastern and southeastern Anatolia are more than 2000 metres above sea level with valleys and basins that range from 1500 – 700 metres above sea level (Dewdney 1971; Özbal 2011).

Frangipane 1997a; 1997b; 1998a; 2002), though the Upper Euphrates Valley is described as being:

> Accessible through a number of major routes, the fertile and resource rich Euphrates basin attracted Trans-Caucasians, Syro-Mesopotamians and, to a lesser extent, central Anatolians. The degree and nature of Syro-Mesopotamian contact allow the region to be divided into two cultural zones. One encompasses the Malatya-Elazığ region, north of the Anti-Taurus ranges, and falls within the expansive culture province of East Anatolia and Trans-Caucasia. The other incorporates the Euphrates region south of the Anti-Taurus (Sagona 1994: 15).

Despite this proposed natural barrier, there was contact between the settlements north and south of the Taurus during the period being studied here as Sagona (*ibid*.) noted above, and perhaps the best evidence for this can be seen in the ceramic assemblage found at the many occupied sites[24].

2.2 Chronologies and Cultures

The evidence gained from the dam excavations of the past forty years has contributed valuable information to a time period that was little understood throughout the Near East, especially in areas of Anatolia which had not been explored in-depth before the proposed and subsequent construction of the dams. Apart from the discovery of many more sites dating to the Late Chalcolithic and Early Bronze Age, the excavations in this region have also clarified some of the questions regarding the dating and duration of these cultural interactions.

While the previous chapter and the section above have mentioned the chronological period being examined within the scope of this work, what precisely is meant by the use of these terms needs to be described in greater detail. The period that is being discussed in this work falls within the broad chronological period of the Late Chalcolithic (LC 2-5) into the first two phases of the Early Bronze Age (EB I-II), which encompasses the early fourth millennium through to the early centuries of the third millennium BC This period was chosen to focus on in this thesis because of the widespread changes occurring during the transition from the Chalcolithic to the

[24] One example of this contact is the Late-Reserved Slip Horizon which ranged from northern Syria to the Altınova plain and displays a 'homogenous cultural *facies*' that united the region under a single cultural zone according to Palumbi (2007-2008: 14).

Bronze Age. This period was more than a transition in the basic three-age system outlined by John Evans (1881) or the technological stages described by Childe (1944), but instead is marked by major cultural, social, political and economic changes[25] beyond advances in technology.

The difficulty in discussing the temporal framework becomes quite evident when attempting to establish a chronological base that can be used across geographical and cultural lines. The diversity of populations who lived within this region during the period being studied here means that there are multiple terminologies in place that archaeologists use to describe these individuals and their material culture. This abundance of descriptive terms has resulted in there being a great deal of difference in how scholars report their conclusions and hypotheses for this area and time period. As a result of the multiple cultural and geographical descriptive terms that have been used for both regional and site-specific chronologies, there is no one chronology that is uniformly and consistently applied to the Upper and Middle Euphrates Valley region despite the best efforts of many archaeologists to simplify the regional chronologies to allow cross-cultural comparisons. Furthermore, the use of individualised site periodisations makes interregional site comparisons and relative dating of levels between sites difficult without the use of multiple chronological charts.

However, within the past ten years there has been a concerted effort by archaeologists to unify the disparate chronologies for the third millennium to create one which is widely applicable to southeastern Anatolia and the regions of Upper Mesopotamia. Spearheading this is the Associated Regional Chronologies of the Ancient Near East (ARCANE) project which draws together archaeologists working in the Near East and the Eastern Mediterranean in order to utilise absolute dates from different archaeological excavations as well as the associated ceramic and other material culture assemblages to create a more accurate chronology for the Near East and Eastern Mediterranean. Additionally, the collaborative efforts of multiple

[25] Inflammatory terms such as 'collapse', 'upheaval' and 'invasion' will be avoided when possible as these terms imply actions and events that sound more catastrophic than it appears actually happened. These terms were popular in the heyday of the World Systems model as it was applied to the Near East to explain the cultural transformation, changing settlement dynamics between millennia and the construction of fortification walls (Algaze 1989b; Cooper 2006b; Cowgill 1988; Eisenstadt 1988; Frank 1993; Johnson 1988-1989; Kaufman 1988; Kolata 2006; Lawler 2006; Tainter 1988; Weiss and Courty 1993; Weiss *et al*. 1993; Yoffee 1979, 1988, 2005, 2006).

scholars have formalised the local Late Chalcolithic chronology, which is published in *Uruk Mesopotamia and Its Neighbors: Cross-Cultural Interactions in the Era of State Formation* edited by Rothman (2001a), while the Early Bronze Age chronology is outlined by Marro (2000) in *Chronologies des Pays du Caucase et de l'Euphrate aux IVe-IIIe millénaires* that was edited by Marro and Hauptmann (2000). The chronological terms that are used in this thesis are taken from these two recent publications with specific chronological year ranges given when there is sufficient evidence to support these dates. For ease of comparison, the relevant chronologies are further described below in Figure 5.

When cultural and/or geographically descriptive chronological terms are used within this region, they are primarily used to describe their respective cultures, though confusion ensues when southern Mesopotamian terms are used to describe local chronologies both during and after the Uruk expansion period in Anatolia and northern Syria[26]. The movement of groups from eastern Anatolia and the southern Caucasus into the Euphrates Valley further compounds this problem as it introduces another set of cultural and geographical chronological terms for archaeologists to use and abuse. Much of the chronological confusion that exists can be mitigated if archaeologists utilise temporal based units in any regional chronologies created, as Rothman (2001a) suggests, though this is not always possible.

[26] Yener (2000) is among archaeologists criticised for using southern Mesopotamian chronological terms; in her case, she uses these terms when discussing the indigenous site of Kestel-Göltepe and its role in the development of Anatolian metallurgy.

<table>
<tr><th>Date BC</th><th>Uruk (Akkermans & Schwartz 2003)</th><th>Local Late Chalcolithic (Rothman 2001a)</th><th>Amuq Ceramic Sequence (Braidwood & Braidwood 1960)</th><th>Early Bronze Age (Marro 2000)</th><th>Transcaucasian (Rothman 2005a)</th></tr>
<tr><td rowspan="2">4000</td><td></td><td rowspan="2">Late Chalcolithic 2- Early</td><td></td><td rowspan="4"></td><td rowspan="4"></td></tr>
<tr><td rowspan="2">Early Uruk</td><td rowspan="3">Late Chalcolithic 2-Late</td><td rowspan="4">Amuq F</td></tr>
<tr><td rowspan="2">Middle Uruk</td><td rowspan="2">Late Chalcolithic 3</td></tr>
<tr><td rowspan="2">3500</td><td rowspan="3">Late Chalcolithic 4</td></tr>
<tr><td rowspan="2">Late Uruk</td><td rowspan="3">Late Chalcolithic 5</td><td rowspan="4">Amuq G</td><td rowspan="3">Kura-Araxes I</td></tr>
<tr><td rowspan="2">3000</td><td rowspan="2">EB I</td></tr>
<tr><td>Jemdet Nasr</td><td rowspan="6"></td><td>Kura-Araxes II</td></tr>
<tr><td>Early Dynastic I</td><td rowspan="2">Amuq H</td><td rowspan="2">EB II</td><td rowspan="3">Kura-Araxes III</td></tr>
<tr><td>Early Dynastic II</td></tr>
<tr><td rowspan="2">2500</td><td>Early Dynastic IIIa</td><td>Amuq I</td><td rowspan="2">EB III</td><td rowspan="3"></td></tr>
<tr><td>Early Dynastic IIIb</td><td rowspan="2">Amuq J</td></tr>
<tr><td>Akkadian</td><td>EB IV</td></tr>
<tr><td>2000</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Figure 5 Relative chronologies mentioned in the text

The two frameworks commonly used in the chronological descriptions of the fourth millennium are the Late Chalcolithic and the Uruk, though before placing these cultural descriptions within a temporal framework the terms should be defined as they are currently used. The 'Late Chalcolithic', commonly shortened to LC, is slowly becoming the most accepted term used when referring to the chronology and temporal descriptions of the material culture and settlement data of the local populations in northern Syria and southeastern Anatolia from the end of the Ubaid period (*ca*. 5300 – 4000) through to the period immediately preceding the Early Bronze Age. This description, as its name implies, is based on local cultural elements, mainly the 'Amuq chaff-tempered ceramic sequence (Braidwood and Braidwood 1960) and other indigenous attributes without relying on Mesopotamia as a benchmark. The Late Chalcolithic 1-5 chronological system largely came about as a result of a seminar on the problem of regional chronologies in the late fifth and fourth millennia that included multiple contributions from scholars working in Upper

Mesopotamia. The results of this collaboration, including the LC chronology corroborated by C14 dates, are comprehensively published in the volume *Uruk Mesopotamia and Its Neighbors: Cross-Cultural Interactions in the Era of State Formation* edited by Rothman (2001a).

Ceramics provide the most comprehensive *corpus* of information with which to establish a relative chronology for the region, with the 'Amuq types (following Braidwood and Braidwood 1960) constituting the majority of the local ceramic assemblage in northern Syria and the Taurus piedmont (Abay 1997; Algaze 1999; Fletcher 2007; Helwing 2000, 2002; Jamieson 1993; Restelli 2006; Rova 1999-2000; Thissen 1985). The 'Amuq F pottery signals the widespread mass production of easily made ceramics used for utilitarian purpose, and mass produced forms such as Coba bowls often had potters' marks that are thought to indicate their manufacturer, use or recipient (Akkermans 1988; Oates 1987; Restelli 2006).

Another important form in the 'Amuq F ceramic assemblage are the large jars used for storage and burials (Oates 1993, 2002; Trufelli 1997). The increased numbers of these jars and the construction of large public buildings where these jars are often found can be related to the burgeoning socio-political and economic need for organised accounting, administration and redistribution systems that coincided with the increased amount of trade being conducted at this time (Rothman 2002a, 2002b, 2004). Less frequent are the red-orange slip wares which are found mainly in western Anatolia and north-western Syria (Trufelli 1997). This ware was also mass produced with standardised forms for utilitarian use, but there are also finer vessels consisting of carinated, ring-based and high-footed forms. Additional painted decoration of the red slip wares are found only in western Anatolia and Syria in levels contemporary with the more common chaff tempered 'Amuq F pottery (Trufelli 1997; Helwing 2000).

It was not until the LC 3 and 4 periods, which spans the Middle Uruk period, that the grit tempered wares contemporary with the Uruk Expansion appear in increased quantities in the ceramic repertoire of the Euphrates Valley, which until that point had been dominated by the chaff tempered 'Amuq F types mentioned above. The majority of the ceramic evidence from the Upper Euphrates Valley sites at the end of the fourth millennium continues to point to a more localised ceramic

affiliation rather than to the south or east, though grit tempered and burnished wares were becoming increasingly frequent in the ceramic assemblages (Beale 1978; Braidwood and Braidwood 1960; Davidson 1981; Helwing 1999, 2002; Marro 2005, 2007, 2011; Mazzoni 1999; Palumbi 2008b; Pollock and Coursey 1995; Rova 1999/2000; Stephen and Peltenburg 2002; Thissen 1985). While local potters may have adapted foreign tempers, the forms and decorations tended to remain local thereby creating hybrid ceramics that display elements from a variety of influences.

The newly introduced ceramic styles and wares, notably the crudely made bevelled rimmed bowls, only increased in frequency as the trade networks expanded and southern Mesopotamians settled further and further from the alluvial plain (Beale 1978; Stein and Özbal 2007):

> The direct impact of these foreign influences on the local substratum, essentially recognizable by the introduction of southern ceramic types in the local assemblages, in this phase mainly concerns the area south of the Taurus along the principal fluvial basins, which probably also were the main routes for communication and trade. Only at a later date does it seem to extend to the areas of western Syria and the Anatolian plateau. The varying degree of influence which apparently applies to the various contexts, in relation to the more or less strategic location and the development and importance of individual sites, creates a wide diversity of situations, the understanding of which is complicated by chronological factors (Trufelli 1997: 15).

The mixture of southern and local pottery styles found in the Euphrates Valley sites refutes the idea that the migrant Mesopotamians created isolated southern enclaves; what was once thought to be a straightforward case of world-systems theory of migration, settlement and resource exploitation in the fourth millennium has been shown to be a complex socio-political and economic inter-mixing between several populations. As the foreign and local potters coexisted for centuries, the differences in the ceramics being produced became less distinct as the ceramic assemblage of the Upper Euphrates Valley became hybridised, particularly at those sites which had a long history of cohabitation.

One of the main issues in discussions of the Euphrates Valley is how complex the socio-political and economic structures actually were. Algaze (1999) dismisses claims of higher level socio-political and economic structures and instead posits that the regional centres of the Upper Euphrates Valley were the result of independent

chiefdoms[27] though Erarslan (2006a, 2006b) has more recently described the local Late Chalcolithic as exhibiting:

> …some key characteristics peculiar to complex societies among these two-level site-size hierarchies, a complex economy that consists of technological development and a high-degree of craft specialisation – most particularly in metallurgy – based on trade (Norşuntepe, Arslantepe VII, Korucutepe, Fatmalı Kalecik, Hacınebi A-BI), monumental structures in administrative quality with stamped and sealed system based on stamp seal (Norşuntepe, Arslantepe VII, Hacınebi A-BI), the economic centralisation and redistribution system (Arslantepe VII), class stratification reflecting to the architecture (Norşuntepe, Arslantepe VII), mortuary evidence for hereditary elites (Korucutepe, Hacınebi A-BI), and mass-produced bowls for food distribution for unpaid workers (Arslantepe VII) and long-distance exchange (Norşuntepe, Hacınebi A-BI) (Erarslan 2006b: 82).

The numerous seals and sealings, rooms of storage jars found in the religious/ administrative complex at Arslantepe Period VIA (Frangipane 1993a, 1994a, 2000, 2002; Palmieri 1989) and the massive storage structures at Hacınebi Phases A-B1 (Stein 1999b, 2001, 2002b; Stein *et al*. 1996a, 1996b, 1997, 1998) to name several examples apart from those mentioned by Erarslan (2006b) above would suggest that there was a fairly complex socio-political organisation present by the late fourth millennium.

The location of some of the Uruk sites along probable trade routes and natural river crossings on the Euphrates River seems to have been rather deliberate, leading to many of them being labelled as trading colonies or outposts (Algaze 1993b) while other so-called Uruk sites were located near pasture land or the interface between two environmental zones, what Polanyi referred to as gateway communities (Polanyi 1971, 1975; Silver 1983, 1985). The majority of the sites[28] classified as 'Uruk enclaves' (Algaze 1993b) or dating to the Uruk period were a mixture of local Late Chalcolithic material culture and the ubiquitous items of Uruk culture such as

[27] But see also Frangipane 1993a, 1994a, 1996, 1997a, 2000, 2001a, 2003; Frangipane and Palmieri 1983a, 1983b, 1988-1989; Palmieri 1985a, 1989; Rothman 2003a; Rothman and Peasnall 2000; Wright 1978, 1994, 1998, 2001, 2007

[28] Algaze (2001a) determined that in the area between the Tabqa and Tishrin dams of northern Syria alone there were approximately twenty-eight documented sites with associated Uruk material culture, though not all of these Uruk period sites were concurrent. Despite this seemingly high number of Uruk sites, there are few wholly Uruk sites in the Euphrates Valley, the most notable being Habuba Kabira Süd (Algaze 1986a; Kohlmeyer 1996; Meijer 1989; Pernicka *et al*. 1998; Strommenger 1980) in the Middle Euphrates region and possibly Samsat and Hassek Höyük in the Samsat-Lidar sector of the Upper Euphrates (Behm-Blancke 1980, 1983, 1985, 1988, 2003; Özgüç 1992, 2009).

bevelled rimmed bowls, cylinder seals in the southern glyptic style and southern style rectilinear architecture (Stein 2001). Sites with these features would seem to suggest a southern Mesopotamian settlement on the surface, though sites such as Arslantepe, Hacınebi, Samsat and Hassek Höyük had long-term contact between the Uruk and local populations and are increasingly being interpreted as local sites with some Uruk influence rather than being sites with isolated Uruk 'colonies'.

The results of this extended contact mean that assumptions of what the antecedents of the population that occupied these sites cannot be taken from the material culture alone. The assimilation of each other's culture meant that the social, political, religious and economic systems were not strict indicators of their original population as the artefacts, styles and ideologies that had previously been unknown began to be adopted and adapted by a new audience. Because of this sharing and hybridisation, the full impact of the Uruk withdrawal is incompletely understood, though the changing settlement pattern in the Euphrates Valley at the end of the fourth millennium/beginning of the third millennium is attributed to this withdrawal and marks the start of the Early Bronze Age.

There is no precise date for the end of the Late Chalcolithic and the beginning of the Early Bronze Age, though many chronologies begin the Early Bronze Age right at 3000 and end at 2000 BC. Marro's (2000) chronology of the Early Bronze Age is used here (see the chronology chart above) as it synthesises the ceramic and other cultural evidence rather than dividing the third millennium into roughly equivalent periods, meaning that the EBA I period begins at roughly 3100 BC, the start of the EBA II at approximately 2800 and the end of the EBA II period taken to be the mid-third millennium, or around 2600, a period marked by a distinct rise in the number of settlements displaying urbanisation and state-level societies in Upper Mesopotamia (Campbell 2000; Lebeau 2000; Marro 2000; Mazzoni 2000).

In the World Systems outline of Upper Mesopotamian prehistory, the early centuries of the third millennium were once thought to have been a period of disjunction and decline, if not all out collapse, as a result of the Uruk withdrawal (Adams 1988, Algaze 1999; Johnson 1988-1989; Quenet 2007). While there does appear to be some interruption during the LC 5/ EBA I transition, overall there was not a large decrease in population in the region and many newly founded sites appear

in the Euphrates Valley at this time just as the larger sites were being abandoned (Algaze 1989a; Özdogan 1977; Rothman 2003b; Rothman and Fuensanta 2003; Whallon 1979; Wilkinson 1990b, 2007; Wilkinson *et al*. 2007). On the surface, the absence of public monumental architecture and seals, sealings and ceramics linked with food redistribution (Coba bowls and bevelled rim bowls) towards the end of the fourth millennium would suggest that there was an interruption of administrative power (Rothman 1994b, 2007). The monumental public buildings are instead replaced by smaller public buildings, such as the one found at Shiukh Fawqani, and mud brick platforms like the ones found at Gre Virike, Surtepe and Tilbeş Höyük (see Gazetteer). Coupled with the widespread construction of fortifications and a dramatic increase in the consumption of metal, it is likely that new symbols of power and ideological affiliation, including architecture and ornamental items, replaced the old LC characterisations (Frangipane 2007, 2010a, 2010b; Parker Pearson 1984; Paynter 1989; Peltenburg 2007a, 2007b; Redman 1998; Sagona 2004a; Trigger 1990).

Ceramics found at the Euphrates Valley sites also reflect the increased population movements and trade contacts between Anatolia, Upper Mesopotamia and the southern Caucasus in the EBA, and it is at this point that ‘Amuq G pottery became the main ceramic repertoire closely followed by the burnished wares associated with the eastern Anatolia and the southern Caucasus and the Ninevite 5 pottery associated with Upper Mesopotamia (Braidwood and Braidwood 1960; Burney 1980; Burney and Lang 1971; Conti and Persiani 1993; Palumbi 2003, 2008a, 2008b; Roaf and Killick 1987). The ‘Amuq G ceramic types, particularly the cyma-recta bowls and reserve slip jars, continued to be used and are frequently found in mortuary contexts as grave goods (Carter and Parker 1995; Cooper 2006a, 2007; Curvers 1989; Helwing 1999, 2000; Laneri 1999, 2007; Peltenburg 2006).

The transition from the Late Chalcolithic to the Early Bronze Age is also viewed as being a period of decreased contact between the Euphrates Valley sites north of the Taurus Mountains to those sites south of the Taurus range, a conclusion based on the material culture dating to the beginning of the Early Bronze Age that was found at these northernmost sites (see Frangipane 1998a, 1998b, 2001b; Hopkins 1996; Palumbi 2008b; Rothman 2003b, 2005a, 2005b; Sagona and Zimansky 2009).

As was noted in the previous chapter, the inhabitants of these northernmost sites are described as being Transcaucasians, a broad-brush term for what was almost certainly a population comprised of multiple individual groups from diverse parts of eastern Anatolia and the southern Caucasus, not to mention the local Euphrateans who had been in contact with these groups over a long period of time. Over-generalisations will try to be avoided in the text of this thesis, though when unavoidable the term Transcaucasians[29] will be used with the understanding that these groups were unique entities rather than part of an organised empire.

The geographical area that has the greatest concentration of Transcaucasian settlements is the region surrounding the Kura and Araxes Rivers of Eastern Anatolia and further east into modern Armenia, Georgia and Azerbaijan. Based on the continuity of sites from the fourth to the third millennia, the Erzurum region in northeastern Anatolia is quite possibly the main candidate thus far for the Kura-Araxes 'homeland' (Burney and Lang 1971; Kiguradze and Sagona 2003; Kohl 2007; Rothman 2003b, 2005a; Sagona 1984, 2004b). Like the Uruk expansion, the catalyst for the migration of groups from this region is still unknown but:

> It is obvious also that for the most part these dispersals do not represent armed military invasions and that the movements involved considerable assimilation with preexisting local traditions, exacerbating the archaeologists' task of recognizing them (Kohl 2007: 98-9).

Excavations in the Kura-Araxes region have revealed that the cultural movement went both directions; at the site of Berikldeebi in the Kura Basin a mud brick rectangular building was found in the course of excavations of the Chalcolithic levels (Marro 2005). Elsewhere in the Near East a rectangular mud-brick building would go largely unnoticed, however in the Transcaucasian highlands it is entirely out of place as the architecture mainly consists of wattle-and daub circular or rectangular structures that often feature internal decorations such as plaques or wall-paintings.

[29] Though this culture complex is also synonymously referred to in the literature as Kura-Araxes and Karaz, "The terms Kura-Araxes, Early Trans-Caucasian, and Karaz are used interchangeably to designate a material culture complex that has a vast distribution, stretching across Trans-Caucasus to western Iran and eastern Anatolia. Its chronological spread is equally immense, spanning some 2000 years, though not uniformly across the highlands, from c. 3500 – 1600 BC, as indicated by radiocarbon dates, especially those from Sos Höyük. A closely related artefact assemblage occurs in north-western Syria (Amuq H – I) and northern Palestine, where it is named after the type site, Khirbet Kerak" (Sagona 1998: 16).

As Rothman's (2005a) chronological periodisations outlined in the chronology chart above, the ETC chronology has been divided into chronological periods labelled as 'Kura-Araxes', with the Kura-Araxes II period covering the late fourth millennium and the Kura-Araxes III period encompassing the early centuries of the third millennium. While there are radiocarbon dates from the majority of excavations in the Euphrates Valley, the use of ceramics to develop relative chronologies for the sites and the region as a whole is the primarily method used in eastern Anatolia and the southern Caucasus because of the dubious radiocarbon dates from the early excavations at Kura-Araxes sites (Ivanova 2007; Kavtaradze 1999; Kiguradze 2000; Kiguradze and Sagona 2003; Kushnareva 1997). These distinctive burnished wares fit into the 'Amuq G phase which succeeded the chaff and chaff-grit tempered wares of the earlier 'Amuq F phase (Braidwood and Braidwood 1960).

The highly distinctive burnished wares are, as their name implies, a burnished or highly polished type of pottery with a mixed grit and fine chaff temper. The red and black varieties come from the differences in colours on the interior and exterior surfaces that occur as a result of the firing conditions. There are often decorative elements to the Red-black burnished ware ceramic assemblage with prevailing themes including zoomorphic and anthropomorphic figures, geometric motifs and spirals which were either painted on the ceramics or made in relief (Helwing 1999, 2000; Kiguradze 2000), a technique that was known since the 'Eneolithic' (Kushnareva 1997). These designs recall the contemporary interior decorations of domestic structures which had:

> …a distinct iconography (eerie animal/human faces; vivid geometric designs, etc) (Marro 2005: 27).

Burnished wares were first found in the Gyandzha region of Azerbaijan in the 19th century A.D., but it was not until the 1930's that this type of pottery was termed 'Kura-Araxes ware' by B.A. Kuftin (Kohl 2007). By the mid-third millennium, Red-black burnished wares can be found at the majority of sites in southeastern Anatolia and northern Syria and as far south and west as northern Palestine[30]. Subsequent excavations at other sites in the Kura Basin have revealed that chaff-faced wares

[30] In the Levant this type of pottery is called Khirbet Kerak ware after the type site at which is was found, though it is still being debated whether Khirbet Kerak ware is truly part of the ETC Red-black burnished tradition (Kohl 2003).

occurred at several other sites dating to approximately 3500 BC, further indicating that there were long-standing intensive economic and social relationships between settlements in Upper Mesopotamia and those in the Transcaucasian highland (Lang 1966; Rothman 2001, 2005b; Rothman and Fuensanta 2003; Sagona 1984, 1994, 1998, 2004a, 2004b).

Altogether, the original hypothesis of widespread collapse following the Uruk withdrawal, either due to loss of leadership or incursions by the Transcaucasians, is becoming less of a foregone conclusion and more a case of isolated examples as it now seems that in the opening centuries of the Early Bronze Age, settlements and their populations adapted to suit circumstances and in many cases these settlements thrived to become regional socio-political and economic centres. The formation of individual settlements and settlement groups in the Euphrates Valley at the end of the Chalcolithic was likely due to the availability of resources in the Upper Euphrates Valley and its surrounding area as well as the multiple trade routes that crossed the region making it an ideal location for economic activity and the resultant cultural mixing.

2.3 Chapter Overview

The availability of natural resources including the mineral, plant and animal resources mentioned above contributed to the long history of occupation in the Upper Euphrates Valley by making it an attractive location for settlement:

> Both ecologically and historically the Turkish Lower Euphrates represents a transition zone between the Anatolian highlands with oak-pistachio forest vegetation and intensive orchard cultivation and the Syrian plain with Mesopotamian steppe vegetation and its emphasis on extensive dry-farmed grain cultivation…Historically, the area has represented a buffer or border zone between more powerful political entities centred to the north and south (Algaze 1986b: 276).

According to Algaze (*ibid*.), the Euphrates Valley was both an environmental and cultural transition zone, similar to what Barth (1953) described as a shatter zone between two contiguous culture areas[31]. This description of the region is based on its

[31] Cevik goes one step further than Algaze (1986b) and distinguishes this region from the rest of Anatolia, "…it must be emphasised that southeastern Anatolia was always different from the rest of

geography and resources as well as the relative ease of communication and transportation of people, goods and cultures between the Euphrates Valley sites and others outwith the immediate area.

While the Upper Euphrates Valley of northern Syria and southeastern Anatolia is a rather unique microcosm, it did not exist in isolation and the influence of multiple cultures on the local Late Chalcolithic populations can be seen well into the Early Bronze Age. This long-term interaction with multiple population groups meant that the 'Euphratean' culture can be considered to be one derived of many different aspects that coalesced to form one that was unique to the cultural milieus of the surrounding region. In order to gauge what impact this long-term contact and historical events had on the use of metal over time, the evidence for the production and use of metal artefact needs to be analysed in further detail. The Late Chalcolithic 2-5 data will be outlined first before progressing to the Early Bronze I-II data. It is only after the data and the contexts in which the artefacts and the metalworking paraphernalia were found in are described that the impact of metal on society and how the social use of metal changed over time within the Upper Euphrates Valley can be fully understood and described within economic and socio-political frameworks.

Anatolia, and experienced more complex socio-economic and political patterns, at least until the second millennium BC" (Cevik 2007: 134).

Chapter 3: The Use of Metal in the Late Chalcolithic

3.1 Late Chalcolithic 2-3

3.1.2 The Sites

3.1.2 Analysis

3.2 Late Chalcolithic 4-5

3.2.1 The Sites

3.2.2 Analysis

3.3 Chapter Overview and Discussion

Some of the most credible evidence for the earliest use of copper in the Near East comes from Cayönü Tepesi[32] in southeastern Anatolia where native copper was being exploited in the eighth millennium, though it was not until the sixth millennium that copper artefacts became more common in Anatolia, Luristan, Upper Mesopotamia, southern Mesopotamia and central Iran (Frangipane 1985). While not the earliest use of metal in the Near East, the local metal industry in the Upper Euphrates Valley in the Late Chalcolithic is first marked by the corporate use of metal objects and later by the more restricted use of metal which can be related to the socio-political and economic development of the Upper Euphrates Valley. Part of this development can be attributed to the increased degree of foreign interaction due to the Uruk Expansion and the influx of population groups from eastern Anatolia and the southern Caucasus in the second half of the fourth millennium, which is coincident with the Uruk withdrawal.

The following sections are a summation and analysis of the metal artefacts and metalworking material evidence in the Upper Euphrates Valley throughout the entire fourth millennium, though because the data is taken from published reports, at times the quantifying of certain artefacts can be problematic. As a guide to how the objects mentioned below were quantified, rings (either hair, ear or finger ring) are counted as one object apiece, and beads that are described as being from a single necklace or bracelet are counted collectively as one object as are fragments of a single item. Beads that were found in demonstrably different contexts (i.e. in different domestic structures, burials, etc.) were counted as a single object apiece. It

[32] Included in the metal repertoire at eighth millennium Cayönü Tepesi were approximately 50 native copper objects including beads made by manipulating the soft native copper by hammering and rolling the native copper ore into tightly rolled tubes (Özdoğan 1995), pear shaped pendants, and an awl and two hooks that have microscopic signs of annealing (Caneva and Giardino 1996).

should also be noted that in cases of ambiguity, when the plural is used by the author of the site report without a specific number of objects, they will be described as greater than or equal to (≥) the minimum number of objects, with the final total reflecting this ambiguity. Objects without an obvious function (*i.e*. as a tool, weapon or ornament) or objects that do not fit within one of the broad categories outlined below are listed under the 'miscellaneous' category.

It must be stressed again that the evidence presented below is based entirely on the currently available published material and therefore should not be viewed as a definitive list of all metal objects and metalworking items from the fourth millennium; this means that the resulting conclusions will remain hypothetical until all of the excavated sites in the Upper Euphrates Valley are fully published. While the lack of specificity in site reports is rather annoying, the interpretations of the data are based on general observations rather than specific quantities, which allows further discussion as to the social use of metal over time.

While there were a number of sites occupied in the Upper Euphrates Valley during the fourth millennium only a selection of these sites are discussed in detail below. This is partially because of length restrictions and partially because of the very different degrees of survey and excavation carried out at the sites in the Upper Euphrates Valley; in some instances the survey and excavation work done has provided a great deal of information while in others there is hardly any information available at all, either through a genuine lack of information or from a lack of publication. Because of this disparity in reporting and space restrictions, emphasis here is placed on sites that have published metal artefacts or metalworking evidence. A more complete description of sites with large exposures or well-documented evidence are mentioned in the Gazetteer in order to give a better idea of the scope and scale of settlement in the Euphrates Valley during the Late Chalcolithic without detracting from the main research goals.

3.1 Late Chalcolithic 2-3

The information pertaining to the first half of the fourth millennium (LC 2-3) is presented geographically south to north and includes descriptions of the main occupation phases of sites including: architectural features, the ceramic repertoire and the metal and metal related finds from each site, with a further description of the contexts in which the metal and associated material were found. Beyond brief in-text descriptions, a full listing of the known metal objects and metalworking evidence for the early fourth millennium are listed in Appendix I, which is divided both chronologically and geographically.

3.1.1 The Sites

As can be seen in the map below (see Figure 6), the number of well-published excavated sites dating to the early-mid fourth millennium is not very large, though several of them seem to have served as local centres of trade and possibly craft production. The use of metal and evidence of metalworking in the Late Chalcolithic 2-3 is limited to a small number of sites, though what evidence there is strongly indicates that metallurgy was practiced locally and that the local copper and argentiferous lead ore sources were known and exploited by the inhabitants of the Upper Euphrates Valley settlements. This period has not received nearly as much attention as either the preceding Halaf and Ubaid periods or the following Middle and Late Uruk (Late Chalcolithic 3-5 periods), allowing the possibility that the low amount of metal reported for this period may be a product of the amount of excavated sites and smaller excavated area when compared to the excavations of other time periods.

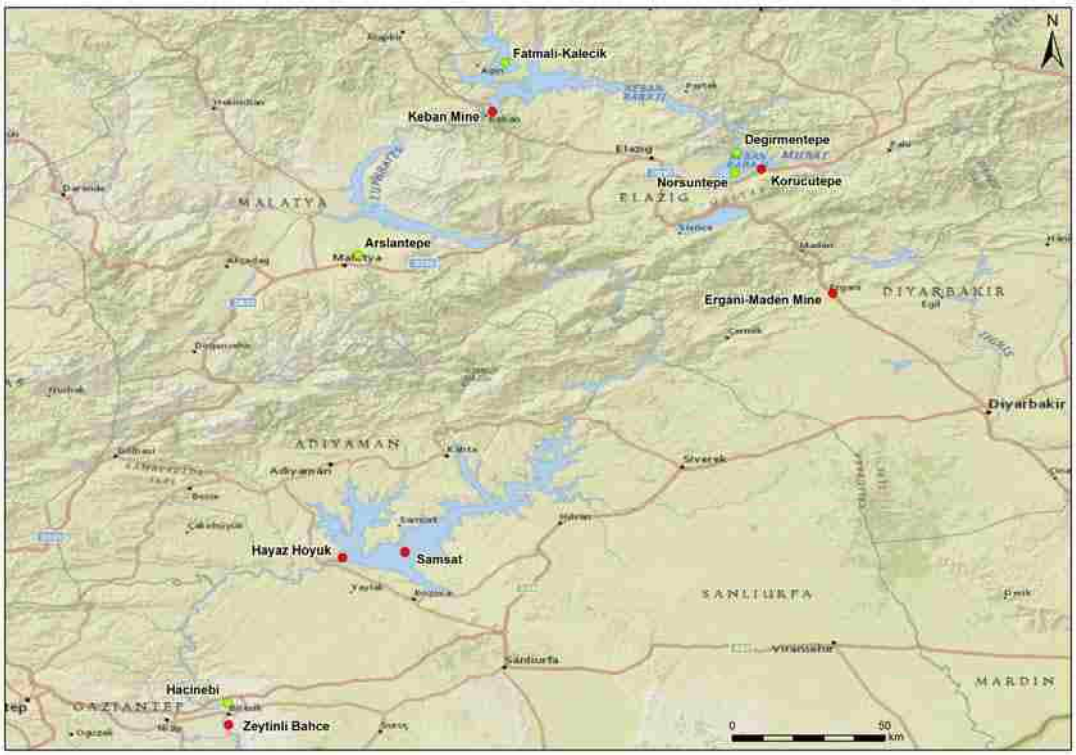

Figure 6 LC 2-3 sites discussed below and in the Gazetteer. Sites marked with green dots have metal objects and/or metalworking evidence

† Hacınebi

Located on the bluffs overlooking the east bank of the Euphrates River five kilometres north of modern Birecik, the settlement of Hacınebi was built on sterile gravel in the Late Chalcolithic and reached a maximum size of 3.3 hectares (Pearce 2000; Stein 1997). This strategically located site was situated on the trade route stretching between Anatolia-Syria-Mesopotamia and has been described as an important:

> …provincial industrial center within a web of complex trade networks (Özbal *et al*. 2000: 60).

The material remains of the pre-contact phases of the site[33] (Phases A and B1) indicate that Hacınebi was a fairly prosperous settlement whose inhabitants were organised enough to build monumental architecture including several stone and mud brick platforms of unknown purpose and a massive enclosure wall (Stein 1998b, 1999d).

[33] More than 650 square metres of the pre-contact settlement were excavated (Stein 1999b).

Evidence of the earliest architectural phases at Hacınebi consist of the Phase A architectural remains of three adjacent houses that were found underneath of the Phase B1 Platform 137[34]. The earliest phase of the third building had a trash pit cut into the floor which contained a stamp seal (HN 15690) depicting a cervid, a bird, and an anthropomorphic figure holding a mace. The centre house had ash deposits and a ceramic open-faced copper mould, a crucible with slag and a small, flat piece of copper (Stein 1999d). Other evidence of pre-contact metal production at the site was found in multiple Phase A contexts and included an ingot mould (HN 6549) that was used multiple times and a ceramic tuyere that was found in a building in Area C. In an earlier phase of this Area C building, a copper chisel and open-faced mould were also found with further metalworking detritus was found outside and to the west of the monumental enclosure wall in Area B in Operation 12.

This area is without permanent buildings, though there were 11 post holes that suggest a temporary shelter was erected in this open area at one point. Four large smelting pit furnaces that were filled with ash and charcoal were found here as well as another pit (258) that had crucible fragments, vitrified slag and a small piece of copper (Özbal *et al*. 2000; Stein 1999d). Other pre-contact metal objects found at the site include: one copper and two silver rings from a Phase A infant jar burial (see Plate 1), small chisels and multiple pins- including a conical pin (HN 17153)- from deposits associated with a building close to the enclosure wall. Özbal (1996, 1997) analysed a sample of the pre-contact objects and found that they were made from ores that most closely resemble those from the Ergani-Maden mine located 200 km northeast of the site.

Thus far Hacınebi is the only site in the Carchemish sector that has evidence of metalworking or metal objects in the Late Chalcolithic 2-3, though this may be due to lack of excavation rather than a lack of metallurgy. However, given the fact that the Carchemish sector is the furthest sector from the known copper sources it may be that very few Late Chalcolithic 2-3 settlements in the Carchemish region had access to the skills or resources to manufacture metal objects. The four smelting pits

[34] Though both pre-contact phases of occupation at Hacınebi had large platforms, Phase B1 had two stone platforms (137 and 121) and two associated terraces in area A of the site (Stein 1997, 1999b, 1999d; Stein *et al.* 1996a, 1996b). Phase B1 is further differentiated from Phase A by its later forms of local Late Chalcolithic ceramics.

dating to the pre-contact occupation of the site, the amount of labour and fuel required to operate each furnace, and the repeatedly used ingot mould[35] all suggest that the metal industry was well established at Hacınebi in the pre-contact period (Stein 1999c). It is quite likely that metalworking at Hacınebi was carried out on a large-scale basis periodically rather than having a designated smith or smiths[36] year-round, despite the familiarity of the inhabitants with metal production and finished metal items.

† Arslantepe

The period VII occupation at Arslantepe dates to the first half of the fourth millennium and shows a level of complexity not seen at many other sites in the Upper Euphrates Valley at this time. The domestic architecture is clustered at the northern edge of the site while the monumental buildings and 'elite' households are concentrated at the southwestern edge of the site (Palumbi 2008b). These monumental and elite buildings were intentionally constructed to be highly visible and include a building (thought to be a temple) with a tripartite layout and walls that featured distinctive red and black wall paintings (Frangipane 1993b, 2000, 2001a, 2003). This building is associated with the distribution of subsistence and other goods based on the numerous sealings and mass produced bowls found in its three rooms (Frangipane 2001a, 2008). There is little evidence of metalworking in the period VII occupation deposits, and what there is can be limited to items found in the temple/palace structure. These consisted of raw copper ore as well as several pins, including one loop-headed pin, and tools[37] (Frangipane 1992, 1993a, 1993b; Squadrone 2000b).

† Fatmalı- Kalecik

[35] The ingot mould (HN 6549) had a volume of 112.5 cm³, which would have produced an ingot weighing slightly over 1 kilogram. An ingot of this size would have been large enough to make quite a few objects when melted down or would have been ideal for export or in-site storage (Özbal *et al*. 2000). Other open moulds were used to make chisels and pins, examples of both objects have been found during the course of excavations at Hacınebi (see Appendix I).

[36] The use of tuyeres was a more labour intensive method of sustaining heat than bellows, and it is estimated that at least five individuals would be needed for each of the four pit furnaces, meaning that at least 20 people were employed in metalworking when these furnaces were used (Özbal *et al*. 2000).

[37] Squadrone (2000b: 175) mentioned ten examples of longer awls/perferators as well as short awls for the Chalcolithic levels from Arslantepe, though neither she nor Frangipane give a context for these items. Caneva and Palmieri (1983) list four chisels and five awls, which are assumed to be part of the examples mentioned by Squadrone (2000b).

Within the Keban salvage area in the Malatya sector is the less than one hectare site of Fatmalı-Kalecik located approximately thirty kilometres north of modern Elaziğ (Hess *et al.* 1998; Whallon and Wright 1970). This small site is related to several other small sites within the immediate area as well as other sites in the larger Keban region such as the regional centres of Korucutepe, Norşuntepe and Tepecik. Despite its small size, this site is one of the best known silver cupellation/production centres apart from Habuba Kabira further south in the fourth millennium (Pernicka *et al*. 1998). It is thought that the argentiferous lead ore used at Fatmalı was from the nearby Keban deposits (located approximately 25 kilometres away) or from the lead deposits slightly further away near modern Malatya (Hess *et al*. 1998). The metalworking remains consisted of slag and litharge and were found in the rooms and courtyards excavated in a small exposure whose main excavated architectural feature was a building made of standardised 25 x 14 x 8 cm bricks (Whallon and Wright 1970). However, other material remains excavated at the site seem to indicate that metallurgy was of secondary importance after subsistence (Hess *et al*. 1998). The small exposure of the site likely explains why no finished silver objects or objects made other metals were found. Other material remains from Fatmalı included typical Amuq F chaff tempered wares of the early fourth millennium features, a tanged projectile point along with other chipped stone items, hammer stones and a small corroded copper fragment in addition to vitrified slag, ore fragments and possible crucible fragments.

† Norşuntepe

Norsuntepe was the second largest (after Arslantepe) site north of the Taurus at roughly 1.8 hectares and was densely occupied in the first half of the fourth millennium (Cevik 2007). Middle Chalcolithic levels were excavated in a deep sounding in trench K 17 on the western side of the mound, though in a very limited exposure that was only nine square metres. The Late Chalcolithic exposure on the western slope was larger (15 metres by 20 metres) than the earlier Chalcolithic exposure and so there is much more material evidence from these levels of occupation (Lupton 1996). However, because the construction of the much later EB I fortification wall heavily disturbed the earlier levels, the best surviving architectural

level dating to the fourth millennium is the Late Chalcolithic level 8 (using the levels given by Hauptmann in the 1970, 1971, 1972, 1974, 1976, 1979 and 1982b Keban Dam reports). One room dating to this level in excavation square K-19 had walls decorated with red and black geometric motifs on white plaster, two niches and a small podium (Hauptmann 1972; Lupton 1996). Fragments of a similar style of wall painting were found in the preceding level 10. This style of painting is reminiscent of examples from the nearby contemporaneous settlement of Arslantepe (Frangipane 1993b) and earlier examples from Değirmentepe (Esin 1985, 1989) though there are also similarities to examples from Tepe Gawra levels XI-VIII in northern Iraq (Rothman 2002a) and Algaze links these motifs to Uruk designs (Algaze 2001).

The pre-contact metallurgical evidence from Norşuntepe comes from the western area of the site where smelting furnaces and a large quantity of copper slags were found (Hauptmann 1970, 1971, 1972, 1974, 1976, 1979, 1982b; Zwicker 1980) (see Plate 1). The metal objects included an array of items such as personal ornaments, tools and weapons (Algaze 1993b; Hauptman *ibid.*; Lupton 1996; Schmidt 2002), with tools being the most frequent item (see Appendix I). The close proximity to the Ergani-Maden copper complex is thought to be responsible for the proliferation of metal objects and metalworking at this site, though the trade route linking this region to northern Iraq might also be another major contributing factor to the proliferation of metal at Norşuntepe if finished items were being exported to other settlements.

A number of burials were found in the Late Chalcolithic levels XXXVII – XXXI (using the later site chronology), all of which were pithos burials of children or infants (Schmidt 2002). The oldest group of burials was found in Level 35c and consisted of eight pithos burials of children (Graves 68-75), none of which had grave goods. The following level, 34, had another pithos burial (Grave 67), also of an infant with no grave goods. Level 33 had a further three pithos burials (Graves 64, 65 and 66) of children between the ages of two and six.

Despite Norşuntepe's size and apparent success as a regional centre, there was an occupation hiatus in the second half of the fourth millennium that lasted until the transition to the Early Bronze Age when the site was once again occupied. One possible explanation for this may be that the rise of Arslantepe as a regional trade,

administration and possibly cultic centre in the LC 4-5 contributed to the decline of Norşuntepe, or perhaps a breakdown in trade networks between northern Iraq and Norşuntepe was responsible.

3.1.2 Analysis

The evidence presented above, summarised in Figure 7 below, suggests that the production of metal objects was fairly limited in the first half of the fourth millennium, with the objects found in varying quantities between one site in the Carchemish sector (Hacınebi) and two sites in the Malatya sector (Arslantepe and Norşuntepe). As the figures below show, thus far there are no reported metal objects or metalworking detritus at any of the Samsat-Lidar sector sites in the LC 2-3; however this does not mean that metal items were foreign to the inhabitants of these sites- merely that they were not found in the course of the limited excavation of the Late Chalcolithic levels.

Site	Site Size (ha)	Total Excavated Area (m²)	Number of Objects in Mortuary Contexts	Number of Objects in Non-Mortuary Contexts	Total Number of Metal Objects	Objects/ excavated m²
Hacınebi	3.3	*ca*. 1300	3	≥4	≥7	0.005
Arslantepe	2	*ca*. 2000		≥7	≥7	0.0035
Norşuntepe	1.8	*ca.* 2500		20	20	0.008
Total	7.1	*ca*. 5800	3	≥31	≥34	0.0059

Figure 7 Distribution of metal objects in the Upper Euphrates Valley in the LC 2-3

The difference in the quantity of metal between Norşuntepe and Hacınebi and Arslantepe can tentatively be attributed to the much closer proximity of raw ore sources to Norşuntepe than to Hacınebi whose metalworkers would have had to import all of their ore from a significant distance. However, this reasoning does not explain why Arslantepe, which was close to several small local ore deposits, did not have more metal items. It is possible that that this discrepancy is due to the differing degree of fieldwork and publication length dedicated to each site and time period; despite having a very large exposure of the fourth millennium levels at Arslantepe, only seven or so metal objects were recovered from this site in the early fourth millennium levels. In contrast, Norşuntepe has a very high ratio of objects to

excavated square metres despite only having a very small exposure, though it is difficult to know if this is a reflection of how common metal was at this site or if the quantity of metal recovered from a relatively small exposure is simply a result of the excavators of this site hitting 'pay dirt' in terms of where they placed their trench.

A comparison of the number of artefacts recovered to the total published excavated area shows that the site with the most metal objects also had the greatest excavated area, though admittedly the sample size is not very large and so the results must be used cautiously.

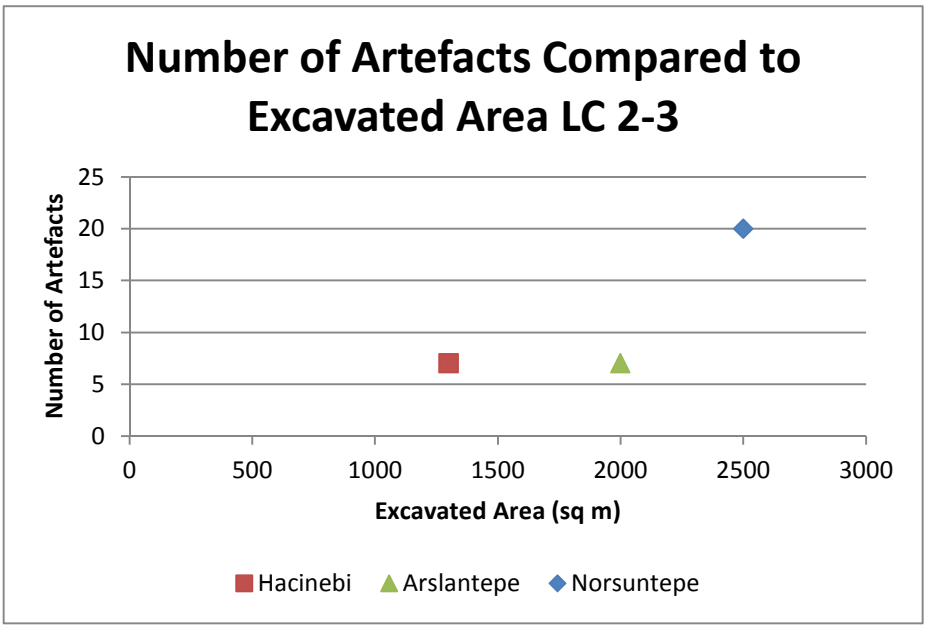

Figure 8 A comparison of excavated area to number of metal artefacts found in the LC 2-3

When the remaining site information for the sites listed in the Gazetteer is included (*i.e.* occupied sites without metal objects and occupied sites with evidence of metalworking but no objects), three of these four sites are grouped towards the smaller end of site sizes while only one[38] is at the end of the spectrum towards the larger sites (see Figure 8 above). This orientation of sites is quite possibly linked to the two tier settlement hierarchy that was in place in the Upper Euphrates Valley at this time (Özbal 2011), and though the graph seems to show this trend, there are justifiable concerns over the validity of any conclusions drawn regarding this period because of the paucity of sites with metal artefacts.

[38] This site is Zeytinli Bahçe, which was a well-established site by the Late Chalcolithic 3. However, its true extent at this time is not known, and so it may be that the LC 3 settlement at Zeytinli is actually smaller than the 2.6 hectares that it is reported to be (see Gazetteer for more information).

When the objects excavated from these sites are broken down into what contexts they were found in, the evidence overwhelmingly points to metal being utilised more by the living for everyday use rather than as items specifically produced and deposited as part of a collection of grave goods. Of the total metal assemblage for the LC 2-3 period, only three items were found in a mortuary context compared to the remaining thirty-one items which were found in domestic contexts (see Figure 9 below).

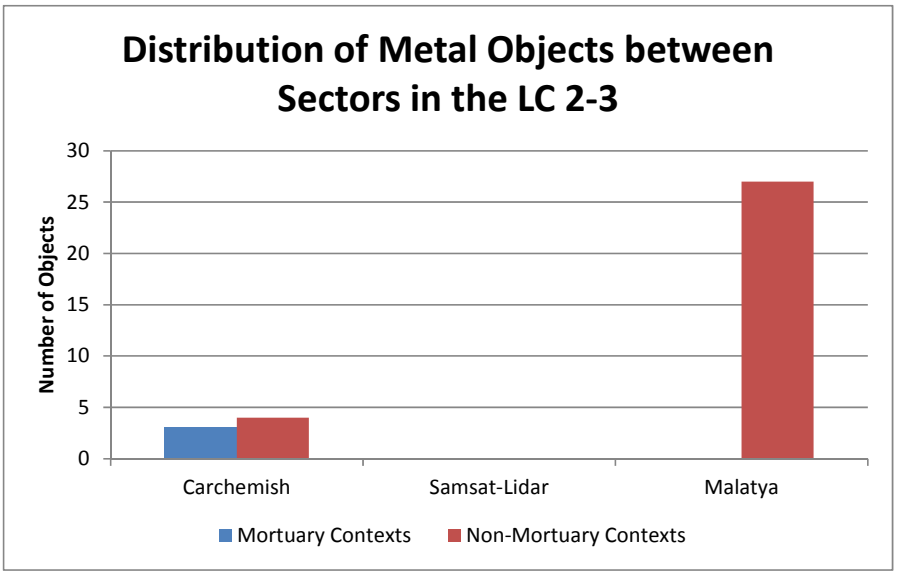

Figure 9 Distribution of metal artefacts by context in the Euphrates Valley during the LC 2-3

As the tables and figure above illustrate, Hacınebi is the only site in the first half of the fourth millennium where metal is reported in a burial. This find was made all the more impressive because two of the three rings were made of silver (see the discussion below regarding Fatmalı-Kalecik and silver production) and the Phase A burial they were found in was a jar burial of a child (Stein *et al*. 1997). The presence of metal grave goods in a child's burial at a period of time when such burials typically tend to have no grave goods or only a pot or bead or two suggests that this child was held in high regard by its surviving family or settlement members. It is difficult to estimate the economic or social value that these rings would have had at the time they were deposited in the child's burial, either for their placement in a burial or because they were made of silver, but it can be assumed that they were valued and/or valuable objects. The remaining metal and metalworking objects from Hacınebi were found in a domestic, possibly industrial, context associated with a building near to the enclosure wall. Upriver in the Malatya sector, the pins and tools

dating to the first half of the fourth millennium were found in several rooms of the public building at Arslantepe while at Norşuntepe the pins and other ornaments were found in a metal workshop in the western area of the site. In all three cases, the metal artefacts were found in close association with the materials or detritus used in their manufacture.

When categorised by object type (see Figures 10 and 11), metal in the early-mid fourth millennium was used primarily to make utilitarian tools, especially chisels, and secondarily used to make simple personal ornaments such as beads, pins and rings. The hair spirals from Norşuntepe, the pins from Arslantepe and Hacınebi or the chisels from all three sites would not have required a great deal of skill or finesse to manufacture. In contrast, the silver earrings from Hacınebi stand out from these other items because they required a great deal more skill to make due to the refining of the argentiferous lead ore rather than in their complexity of design.

Site	Pins	Pendants & 'Seals'	Necklaces Beads, Rings & Bracelets	Chisels & Awls	Flat Axes	Knives, Daggers & Swords	Mace Heads	Spear-heads	Misc
Hacınebi			3						

Figure 10 Distribution of object types in mortuary contexts during the LC 2-3

Site	Pins	Pendants & 'Seals'	Necklaces, Beads, Rings & Bracelets	Chisels & Awls	Flat Axes	Knives, Daggers & Swords	Mace Heads	Spear-heads	Misc
Hacınebi	>2			≥2					
Arslantepe	≥2			5					
Norşuntepe		2	4	8				3[39]	3[40]
Total	≥4	2	4	≥15				3	3

Figure 11 Distribution of objects types in non-mortuary contexts during the LC 2-3

[39] Schmidt (2002) lists these as being projectile points.
[40] These three items include two wire hooks and a lead 'ball'.

Figure 12 is a more visual representation of this division; utilitarian tools make up the vast majority of the metal artefacts found in the domestic and industrial contexts of the early-mid fourth millennium. Personal ornaments are the next largest group of metal artefacts from this period, while weapons and the uncategorised objects are the least represented. The preservation of such a large amount of metal tools is unusual as these items are frequently recycled when they wear out, but the quantity of chisels and their find context at Norşuntepe strongly suggests that these objects were being produced on-site which may account for their high rate of preservation.

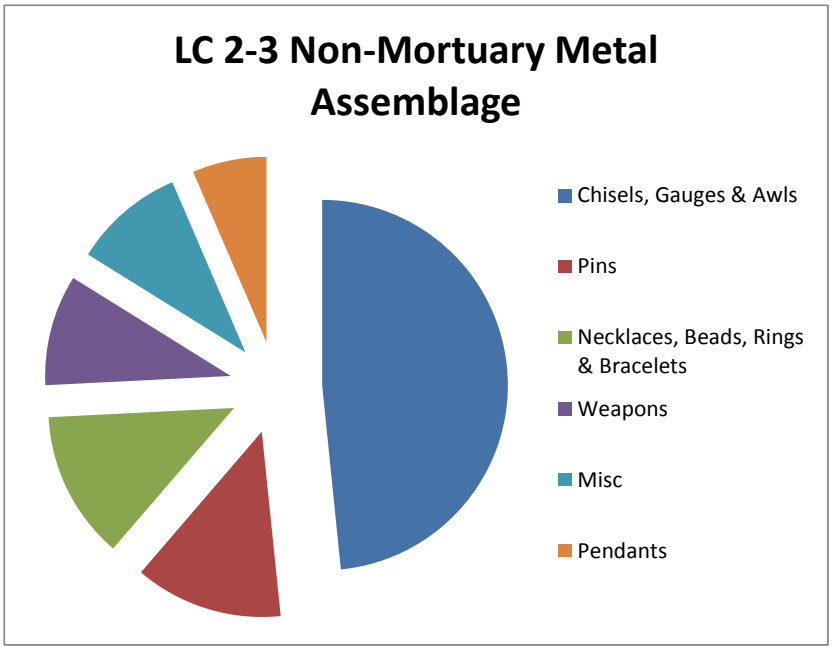

Figure 12 Distribution of metal artefact types in non-mortuary contexts in the LC 2-3

While the above tables and figures and information describe the context and types of objects found in the Upper Euphrates Valley during the early fourth millennium, the manufacture of these objects should also be considered. Looking at the evidence from the occupied sites in the early part of the fourth millennium, all of the sites that had metal objects also had evidence of at least basic intramural metalworking. The outlier to this pattern of on-site metal production and use is Fatmalı-Kalecik, which had evidence of metalworking but no finished metal objects (see Figure 13 below and Appendix I).

Site	Metalworking Evidence	Metal in Mortuary Contexts	Metal in Non-Mortuary Contexts
Hacınebi	x	x	x
Arslantepe	x		x
Fatmalı-Kalecik	x		
Norşuntepe	x		x

Figure 13 Distribution of metal objects and metalworking evidence in the early-mid 4th millennium

In terms of where metalworking was taking place, both finished objects and metalworking equipment were found in close proximity to each other at Norşuntepe and Hacınebi in domestic and industrial contexts (*i.e*. designated craft working areas), while at Arslantepe raw ore was found alongside finished metal items in room A617 of the public building. The amount of metalworking detritus from these sites in the first half of the fourth millennium, and more specifically the chisel mould found in the same context as the chisel (HN 6561.1 and 2) at Hacınebi is indicative of localised, small scale metal production in the Upper Euphrates Valley. This fits in with Yalçin's (2008) summary of metallurgical development stages where the objects were manufactured and discarded (through accident or by intention) in the same site.

Fatmalı-Kalecik seems to have had a slightly different focus to the production of metal objects; while copper ores were being smelted and made into simple objects using monovalve moulds at the other sites, the inhabitants of Fatmalı-Kalecik were engaged in silver cupellation on a part-time basis. The excavators further suggest that the site's population was focused more on local agricultural production rather than craft goods production, possibly because silver was not a major trade commodity at this time (Hess *et al*. 1998). As was noted above, the nearby silver/lead ore at Keban was the most likely source of the ore processed at Fatmalı, which is further strengthened by isotopic analysis of the earrings from Hacınebi which suggested that the silver used to make them came from the Keban mine (Yener 1983). While it is indirect evidence, the fact that there are no known silver cupellation materials or traces of raw silver/lead ores at Hacınebi, but an abundance of both at Fatmalı, implies that there was at least a limited Euphrates Valley trade in finished metal items and/or technology prior to the Uruk contact in the mid-late fourth millennium. The fact that these sites had a thriving metal industry before the Uruk expansion is an important consideration in the development of the local political economy and the

social use of metal within local systems. In terms of redistribution and trade of the finished products, it can tentatively be suggested that in addition to primarily manufacturing items for local consumption, Hacınebi was also possibly exporting some of its smelted ore based on the re-used ingot mould (HN 6549) (Özbal *et al*. 2000) and was able to obtain the silver earrings through trade, likely from a silver working site near the Keban mine or from population movement.

The public buildings, mass production of bowls and quantity of sealings found at sites with evidence of metallurgy all point to societies in which the acquisition and redistribution of metal products and resources was fairly well monitored[41], though it may be the case that the production of metal items was by and large carried out on seasonal basis rather than there being dedicated attached metalsmiths year-round. There is little evidence to support this theory, but the ore found in Room A617 of the Arslantepe complex could indicate that the raw ore was stored in a public building before being released at designated times to be smelted in a designated area such as the one found at Hacınebi and the 'industrial' area at Norşuntepe.

[41] Apart from Fatmalı, all of the sites had stamp seals or sealings from the pre-contact period (Frangipane 1993a; Hauptmann 1976; Stein 1999c).

3.2 Late Chalcolithic 4-5

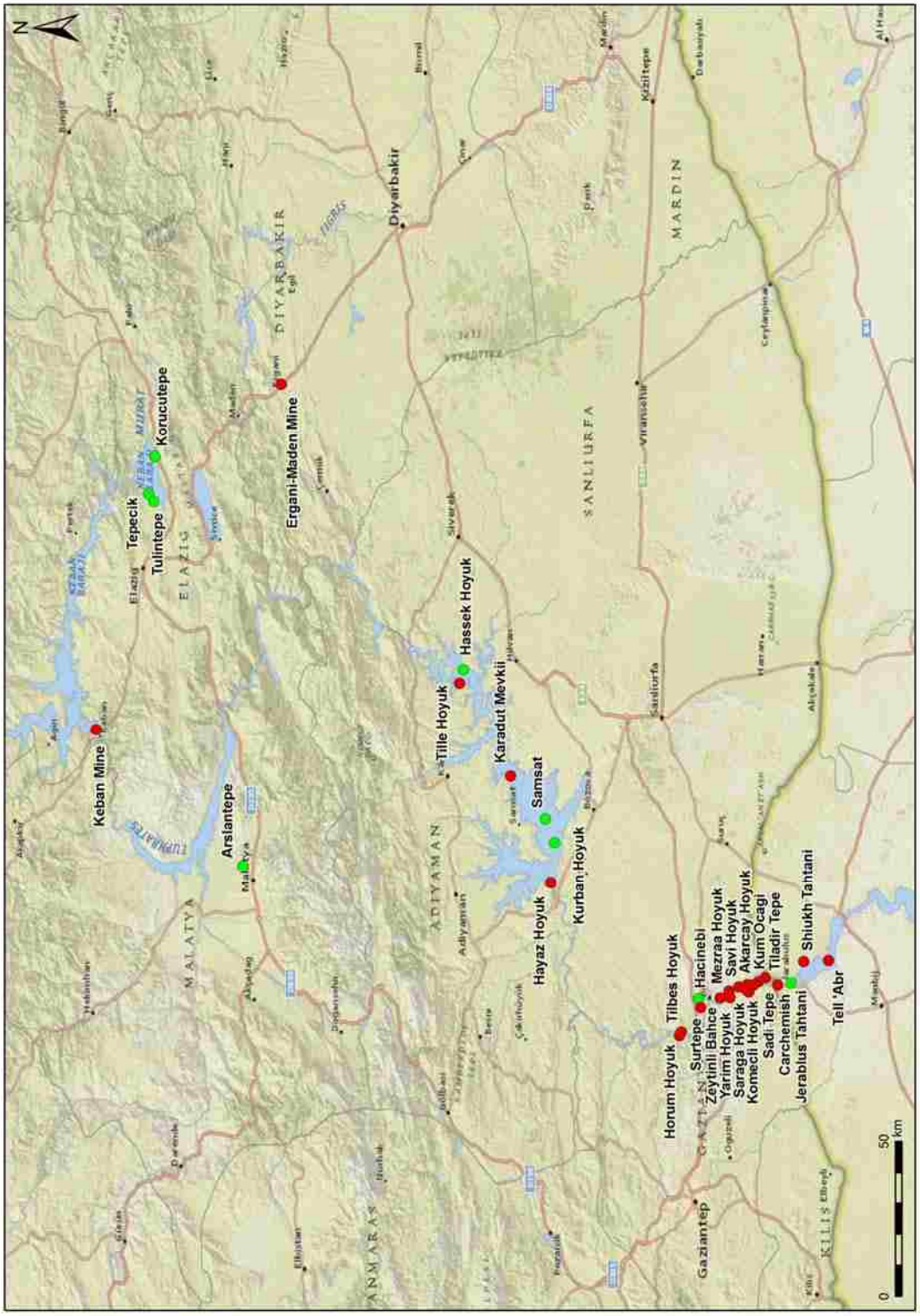

Figure 14 Occupied sites in the Late Chalcolithic 4-5 period. Sites that have metal objects or metalworking material are identified with green dots

There is an increase in the number of settlements dating to the Late Chalcolithic 4-5 in the Upper Euphrates Valley compared to the first half of the millennium. Many of these later sites were newly founded and were quite small with several of them displaying a mix of local and Mesopotamian material culture as well as a slight increase in burnished ware ceramics. In an example of the classic pots equal people argument, this increase is taken to mean that population groups originating in eastern Anatolia and the southern Caucasus began to make a discernable impression on the material remains of the sites north of the Taurus. While much of the scholarship in the past has been focused on the impact that the southern Mesopotamians had on the socio-political and economic development of the Euphrates Valley, excavations in the region are now showing that external contact and influence did not come from southern Mesopotamia alone. This increased interregional connectivity may have played a role in the increased production and more widespread use of craft items, possibly because of a newfound need to publicly display identity, status and/or wealth to diverse population groups.

Because more sites dating to this period have been surveyed and excavated (see Figure 14 above), the corpus of metal and metalworking material is greater for this part of the fourth millennium. Compared to the nearly 3,000 square metres of excavated area from the sites with metal in the Late Chalcolithic 2-3, in the Late Chalcolithic 4-5 there were approximately 8,600 excavated square metres between the nine sites that had published metal artefacts. Many of these sites were excavated with the goal of better understanding the Uruk expansion in the Euphrates Valley, and so this disparity in the amount of excavated area and number of sites between periods made the Mesopotamian impact on metallurgy artificially inflated and contributed to the assumption that the Mesopotamians brought advanced metallurgy to the Euphrateans. However, based on the evidence from the first half of the fourth millennium and the styles and contexts of the metal artefacts from the mid-late fourth millennium, the extent of the impact that the Mesopotamians are thought to have had on the local metal industry can be questioned.

3.2.1 The Sites

Carchemish Sector

† Jerablus Tahtani

The earliest phase of occupation at Jerablus Tahtani dates to the Late Chalcolithic 4-5 based upon finds from a 2 x 6 metre exploratory trench within the larger Area III trench. These finds included features typical to domestic structures, such as postholes and a hearth cut into a mud brick platform, and the remnants of a building that was overlain with a widespread ashy level. These early occupation levels at Jerablus were heavily disturbed by deep pits thought to have been dug for material with which to make mud bricks in the Late Uruk phase (Period 1B) of occupation (Peltenburg 1999; Peltenburg *et al.* 2000).

Building 2185 dates to the Late Uruk occupation of the site and was fairly well preserved, showing multiple rebuilds and additions. The building itself was fairly clean when it fell out of use, though the external courtyard had two levels of surfaces featuring numerous bevelled rim bowls that seem to have been complete when deposited. Towards the end of this building's use, there was a secondary burial of seven neatly stacked long bones that had been placed into a small cut that had been made in the top of wall 2000 (Peltenburg *et al*. 2000). A copper awl can be associated with this late phase of building use and wall 2000, though the awl was not found with the secondary burial (Peltenburg personal communication). The LC 4-5 ceramics were almost entirely comprised of Late Uruk wares with little to no local pottery in evidence, especially in the eastern portion of the site (Peltenburg *et al.* 1995; Peltenburg *et al*. 1996; Peltenburg *et al*. 1997; Stephen and Peltenburg 2002).

Other notable finds from the Late Chalcolithic deposits included 12 fragments of bowls and jars with bitumen residues. An analysis of the residue determined that it was from Hit, one of the main bitumen sources in Mesopotamia. The quantity of residues was interpreted as evidence that bitumen was processed locally at Jerablus Tahtani after it was imported (Peltenburg *et al*. 1996). Hacınebi, located slightly upriver, also had evidence for the contemporary use of bitumen (Schwartz *et al*. 1999) so it can be assumed that this was an imported commodity that was used at multiple settlements with southern Mesopotamian contact. The bitumen

residues at Jerablus were concentrated on the riverine side of the site while at Hacınebi they are found only in the Uruk area of the site (Peltenburg *et. al* 1996: Figure 3; Stein *et al*. 1997).

Evidence detailing the end of the Uruk influence at Jerablus Tahtani can be found in sounding P16 where the Uruk deposits are partially sealed by water-laid gravel of a riverine source rather than an incidence of slopewash following abandonment (Peltenburg *et al.* 1995; Peltenburg *et al.* 1996). This gravel deposit is highly suggestive of at least one flooding event at the end of the fourth millennium that potentially truncated the settlement's growth.

† Hacınebi

Given the profusion of metal artefacts and metalworking detritus from the pre-contact period, it is not too surprising that metal industry at Hacınebi continued to flourish in the following 400-500 years that make up the contact phase (B2) at Hacınebi. Similar to the sequence of events at other local sites in the region, the material culture at Hacınebi gradually included a larger number of southern Mesopotamian features with the settlement of an Uruk population at the site. While mixing of cultural artefacts and populations undoubtedly occurred, the two populations inhabited different areas of the site. The Uruk domestic and administrative artefacts are predominantly found in area A in the northern portion of the site while local features were found in the other areas of excavation (Pittman 2000; Stein 1997; Stein 1998b; Stein and Mısır 1994a; Stein and Özbal 2007). Artefacts from this area included clay wall cones, various administrative items, cruciform groove weights, bitumen and clay sickles (Stein 2001; Stein and Mısır 1994b, 1995, 1996). The Uruk contact period phase of the settlement was fairly well represented thanks to the approximately 1300 square metres of excavated area (Stein 1999b).

A late phase B2 domestic building that was excavated in area A had a complete southern Mesopotamian repertoire that included: complete ceramic vessels and bevelled rim bowls leaning against wall 16 and bin 21, a bitumen pad impressed with a reed mat, and a broken distal end of a wall cone that was coated in bitumen (Stein *et al*. 1996b). Other finds from the building included a stone pestle, flat stone

palette and 2 basalt grinding stones, leading Stein (1997) to interpret this area of the building as a kitchen or food preparation area- though the presence of the bitumen pad and broken wall cone do not quite seem to fit within the expected culinary tools. Also found in the Operation 1 excavation area was a bulla (HN 1100) filled with twelve unbaked clay tokens and displaying two distinct cylinder seal impressions on the exterior surface. The first seal impression displays two animals, possibly a bull and large deer, while the second is more provocative. It consists of two parts: a procession of two men with bows and arrows led by a man with a staff or spear and a second scene showing two seated women who are facing two possible Inanna symbols (Pittman 2000; Stein and Mısır 1995; see also Pittman 2001 for further discussion of this theme).

Craft items, including textiles (Keith 1998), metal (Özbal 1997; Özbal *et al*. 2000) and administrative tools[42] (Pittman 2000; Stein and Mısır 1996), were produced at Hacınebi based on artefacts found in both the local and Uruk areas of the site (Stein and Blackman 1993). In terms of metalworking at Hacınebi, contact period finds included: a fragment of raw malachite adhering to the wall of a bevelled rim bowl[43] (see Özbal 1997 for possible interpretations), open-faced casting moulds, and crucible fragments which were found in both the Local and Uruk areas of the site. Stein (1999c) interprets the metal production at Hacınebi as having been a specialised, but not centralised, small-scale activity conducted by independent smiths from both populations throughout the site; however, Özbal, Adriaens and Earl report that:

> There is hardly any archaeological evidence for metal production activity in alluvial Mesopotamia or in the colonial enclaves in the northern periphery. Therefore, metal production was strictly an activity practiced by the indigenous population (Özbal *et al*. 2000: 65).

While it is difficult to assess the extent to which the local population influenced the metalworking skills of the Uruk population, the fact that metalworking detritus was found in both local and Uruk areas of the site indicates that neither population had a monopoly on the metal industry at the site, but rather that the two populations were

[42] In a pit cut into a Phase B2 building, 47 local-style stamp seal impressions, a limestone stamp seal in the local style showing 2 animals separated by a curvilinear design, and two unfinished seals were found suggesting that these items were being produced locally (Stein and Mısır 1996).
[43] For comparison, a Coba bowl from Norşuntepe XXXVI contained crushed copper ore as well (Özbal *et al*. 2000).

likely sharing and trading technology and finished items, not quite the dominance that Algaze (1993b) originally described.

† Kurban Höyük

Kurban is a low, double mound located on one of the river-cut terraces that comprise the Karababa basin. The southern mound rises 10 metres above the plain and is 180 x 250 metres while the smaller northern mound rises 5 metres above the plain and measures 120 x 170 metres (Algaze *et al*. 1986). On the larger southern mound there were almost two metres of Late Chalcolithic deposits found in the Area A step trench that was divided into 5x3m units with a total length of 55 metres. The Late Chalcolithic section of this step trench was made up of squares A07, A08 and A09 and measured 15 metres by 3 metres. The Late Chalcolithic deposits were from both the pre-contact and contact phases; VI B is the earlier, pre-Uruk phase of the Late Chalcolithic occupation while period VI A is the Uruk contact period. Walls, occupation surfaces, plastered floors and a hearth dating to the VI A level were found in Area A in trenches A07-A08. A shallow pit burial[44] containing a 25-30 year old female and a 20-22 year old male was also found in addition to the domestic architecture. Further Late Chalcolithic settlement evidence was found in trenches A08 and A09 where the Chalcolithic inhabitants had dug quite a few pits.

The depth of the Late Chalcolithic deposits and their concentration on the southern mound was interpreted as evidence of the original settlement of the site being founded on the southern mound in the VIB level, or roughly the Middle to Late Uruk period. It is in the slightly later period VI A occupation of the site that metal objects were first found at Kurban. These few items consisted of a poorly preserved pin with a bird-like zoomorphic[45] head and a conical-headed pin with a loop that were both found in area CO 1 (Algaze *et al*. 1986).

[44] These individuals seem to have been flung into the pit violently (Algaze *et al*. 1986).
[45] The zoomorphic pin is similar to examples from Chagar Bazar 5 in northeastern Syria, Iran, and at the Birecik Dam Cemetery and Hassek Necropolis Grave 16 later during the EB I. Conical headed pins are not uncommon in the region at this time, and parallel examples were found in the Hacınebi contact period (Stein 1999a). The widespread co-occurrence of pin types is not surprising; there was likely a communication route from the Incesu valley toward the Harran basin, Balikh valley and northern Syria that would explain the presence of pin types in northeastern Syria and the Euphrates Valley (Algaze *et al*. 1986).

As time progressed, Kurban expanded first to the saddle before the settlement further expanded to include the northern mound. However, by the end of the fourth millennium large areas of Kurban had been abandoned, including the entire south mound. The areas with continuous LC 5/EB I occupation showed no evidence of destruction or hiatus levels (Algaze 1986, Algaze 1990), with one possible explanation for this reduction in settlement size based on the over-exploitation of the locally available agricultural land[46] rather than because of violent causes. This contraction period at Kurban is contemporaneous with the increase in the number of small sites in the Karababa basin and the decrease in the quantity of Amuq F and Uruk wares in the local ceramic assemblage.

† Samsat Höyük

The Late Chalcolithic 4-5/ Late Uruk levels at Samsat were found approximately 18 metres below the modern surface of the site (though still 15 metres above the estimated level of virgin soil) in a deep sounding measuring 16 m x 20 m (Özgüc 1992, 2009). The later Late Chalcolithic settlement is thought to have been quite large, but the archaeological remains from this period had literally tonnes of overburden on top of them making it extremely difficult for the excavators to reach this material except in the deep sounding.

Uruk associated finds and domestic architecture were found in levels XX-XXVII, with level XXVII having the earliest clear evidence of Uruk occupation at Samsat. In this level the foundations of a structure with large rooms were excavated as well as the floors of several other buildings, revealing eleven burials of children (5 pot, 5 pithoi and 1 pit). The only remains from the following level XXVI were floors paved with pebbles, though like the previous level under these floors were the burials of ten children, nine of which were in pots and one in a pit. A further three children's pot burials and one child's pit burial were found under the floors of the domestic structures of level XXV, which was one of the better preserved levels in terms of architecture (Özgüç 1992). Two neighbouring houses were also excavated and

[46] One interesting side note is that the inhabitants of Kurban seemed to have begun cultivating grapes at the end of the fourth millennium in addition to the regular subsistence agriculture (Algaze 1986, 1990). It has been suggested that wine may have been one export from the site, though there is no conclusive evidence for this as of yet.

showed a striking similarity of layout with others from Samsat as well as with the structures excavated at Hassek Höyük (see pull-out map in Helwing 2002). A fortification wall was found in level XXIV, though the remains were very fragmentary and only exposed in a small area (Özgüç 2009).

In regards to the small finds from Samsat, a number of stamp and cylinder seals were found suggesting that both local and southern administrative systems were being used at Samsat. The ceramics are strongly linked to Kurban Höyük and Karatut Mevkii, and finds from the deep sounding could be linked to Habuba Kabira Süd (Lupton 1996). A single metal pin was found in a two room structure dating to the very latest Uruk occupation of the site (Özgüc 1988).

† Hassek Höyük

This small, one hectare flat mound was founded on virgin soil in the northern periphery of the Samsat-Lidar sector at an important ford point on the left (east) bank of the Euphrates River. Hassek is described as being an example of a 'Late Uruk station' by Behm-Blancke (2003: 481) with a similar purpose to that of Habuba Kabira, another Uruk station located approximately 260 kilometres south of Hassek on the Euphrates River. One interpretation of the site's location is that Hassek was situated at the very northern edge of the Uruk expansion area, which may account for the thick enclosure wall surrounding the purpose-built settlement. Inside of the walls were domestic and public buildings which included a 31m x 23m 'manor house', a 15m x 7.5m 'meeting house', a granary and several small workshops (Behm-Blancke 1980, 1983, 1985, 1986, 1987, 1988, 1991-1992). Domestic structures were built immediately outside of the wall, and many of these buildings had evidence of burning and items left *in situ*, including ceramics, stone vessels, the only four metal pins that were found, bone tools and chipped stone implements (Behm-Blancke *et al*. 1981; Behm-Blancke *et al*. 1984). The amount of artefacts left behind in the structures suggests that the conflagration that destroyed them was sudden and prevented the inhabitants from gathering up their belongings before they fled.

The interpretation of Hassek as an Uruk outpost is due mainly to its blatantly southern Mesopotamian architecture and material culture such as clay wall cones[47], stamped plaques, cylinder seals with geometric motifs[48], clay tokens and metal pins with hemispherical heads (Behm-Blancke 1988, 2003) in addition to the ceramic assemblage which contained a large quantity of bevelled-rim bowls and coarse flower pots (Helwing 1999, 2000, 2002). Perhaps the strangest bit of evidence that was attributed to the southern Mesopotamian presence at the site was the swordfish vertebrae that were found during excavation. This type of fish is most definitely not found locally and instead comes from the Persian Gulf (Behm-Blancke 1991-92; Lupton 1996).

Interspersed with the Mesopotamian finds were black burnished ceramics that Behm-Blancke (2003) referred to as northern imports. These burnished ceramics bear similarities to the examples that were found upriver at the contemporaneous tripartite building at Tepecik (Behm-Blancke 2003; Esin 1976a, 1982a). The remainder of the ceramics were forms and wares closely related to those from other sites in Upper Mesopotamia, including Plain Simple Ware and 'Amuq G types, and are therefore not strictly 'Uruk' wares as they are characteristic of northwestern Syria (see Helwing 2002). An interesting addition to the ceramic assemblage at Hassek is the appearance of an early Ninevite 5 element which brings up questions regarding the relationship between the Upper Euphrates Valley and the settlements along the Tigris and in the Jezireh to the east (Helwing 1999, 2000, 2002). While the original interpretation of the evidence described the site as being occupied by Mesopotamians rather than a local population who utilised southern materials, neither Lupton (1996) nor Helwing (1999, 2002) discount the possible presence of a local population at the site based on the percentage of local and hybrid ceramic types (such as the Reserved Slip ware) and the fact that Hassek seems to be more of a large farmstead rather than a fortified trade site.

[47] These clay wall cones have also been found at other Uruk sites or enclaves such as Hacınebi (Stein 1999b) and Şadi Tepe, located 6-9 km upstream of Carchemish (Algaze 1993b).
[48] One of the seals bearing an antelope motif is similar to a stamp seal impression from Arslantepe (Behm-Blancke 2003), possibly indicating that the Hassek inhabitants had contact with the northern Euphrates Valley sites.

Malatya Sector

† Arslantepe VI A

The defining feature of Arslantepe VI A (3400/3350 – 3100 BC) is the political and/or religious complex that was the centre of the political and economic organisation for the settlement, which has been extensively discussed by the excavators (see Frangipane 1992, 1993b, 1994b, 1996, 1997a, 1997b, 2000, 2001a; Frangipane and Balossi 2004; Frangipane and Palmieri 1983a, 1988-89; Palmieri 1981, 1985b, 1986; Palmieri and Frangipane 1987, 1990). Of the four buildings constructed on three terraces, Temple B was built on the upper[49] level and was accessed via a set of stone slab steps[50]. The temple itself measures 14.5m x 11.5m, was constructed from huge stone blocks at least 5 – 6 metres high and was roofed with large beams and plant matting that were then covered in mud (Frangipane 1996).

The building has a bipartite plan that features one large cella[51] and a row of small rooms along one side (A365, A364 and A340). These storage rooms contained numerous sealings, some of which are linked to the sealings in space A206[52] across the corridor which appears to be a sealing dump based on the thousands of sealing fragments found in this room. Room A364 was especially rich in finds as it contained many storage vessels, bone pins, punches, spindle whorls and a fragment of a gypsum mace head (Frangipane 1992) in addition to a wall painting that features anthropomorphic figures (the better preserved example is obviously male) with large eyes, hourglass shaped bodies and comb-like hands.

The majority of the ceramics recovered from Temple B was found in the cella (Palumbi 2008a, 2008b) and quite likely represent offerings that were left immediately before a conflagration destroyed the building at the end of the fourth

[49] A pot burial of a child dating to the VI A period was found near the top of the mound in the western area of the site.

[50] On the west wall of this passage was a doorway that had one of the wooden beams of the door frame preserved along with a door socket made of arsenical copper-nickel alloy that was in the shape of a bowl with curved edges and four nails to hold it in place (Frangipane 1996).

[51] The cella has interesting architectural features that include: two niches on the short sides and multiple niches on the long side facing the entry, two altars (one higher than the other), a bench/platform running along the west side of the room, two podiums in the centre of the room, a low rectangular basin with a hearth in the centre, two small offering tables near the larger altar and another table between the two niches on the short wall (Frangipane 1996; Palumbi 2008b).

[52] Caneva and Palmieri (1983) report that a silver ring was found in a grave from this room as well. See Appendix I

millennium. The side rooms also had evidence of pots that were being sealed at the time of destruction, further indicating that the building was abandoned in haste (Frangipane 1992, 1993b 1996). After the fire, the complex was abandoned and the interior sacked, though a gold disc[53] (possibly part of a clothing ornament) was found on the floor of the temple cella (Frangipane 1996).

Two further buildings of interest[54] were found in the western half of the complex (Buildings IV and III) and are similar in layout to the other public buildings in the VI A period. Building IV is the larger of the two and consists of four rooms with hearths, benches and an open space or a courtyard, while Building III features two rooms (A113 and A127). Room A127 had two niches, three basins, a central platform, a hearth and a bench. The adjacent room A113 contained a quadruple spiral[55] plaque and a group of 21 weapons consisting of nine swords and twelve spearheads (see Plate 2) (Palmieri and Di Nocera 2000; Palumbi 2008b). The placement of these weapons in a public building suggests that they were held in public trust[56] until times of conflict or that these weapons were part of a tightly controlled ideology enacted by the administrative power.

Temple A is the fourth and latest building of the VI A period complex. Architecturally, it follows the earlier Temple B layout and has a 9m x 5m cella with two niches, a basin and a small podium. Two smaller rooms lead off of the eastern

[53] Apart from the one mention by Frangipane (1996) in Volume 1 of *17 Kazı Sonuçları Toplantısı*, this disc is not mentioned again in any other publication and so is not included in the count of metal items for this site and time period.

[54] The contemporaneous Buildings IV and III were connected by a corridor and an upper level wooden walkway (Frangipane 1996). The walls of the inner part of the corridor that led to the temple were plastered and decorated with a painting of two bulls pulling a cart with a driver. Further ornamentation featured relief decorations made by a stamp seal that had been pressed into the wet plaster (Palumbi 2008b). The painting of the cart and bulls provides a tantalising glimpse into the mechanisms that facilitated the local economy and may be related to the purpose of the storage rooms that make up part of the VI A complex, though Algaze (2001) gives an alternative, Mesopotamian-based interpretation of this scene.

[55] While this motif is relatively rare for objects made of metal, it was not unknown in the region as double and quadruple spiral motifs have been found on Amuq F pots. See Maxwell-Hyslop (1989) for further discussion of the distribution and interpretations of this motif.

[56] Later examples of this practice can be found at Mari where the texts note that metal was carefully distributed and accounted for by the palace (Archi 1993; Mazzoni 2003; Palmieri and Hauptman 2000) and at Tell Sifr near Larsa where a cache of metal agricultural tools was found bundled together with scrap metal, which Moorey (1971) interpreted as being part of a temple-owned agricultural kit that had come back to the temple after it had been used for the season. The later Linear B texts can also be looked to for examples of a strict control of metal resources by the political administration; the texts note that metal agricultural equipment was distributed to the farmers during the harvest and then collected again when the harvest was finished (Killen 1985).

wall of the cella and it is thought that these rooms for the preparation of offerings or served as a storage space (Palumbi 2008b).

The Arslantepe VI A period is marked by an increase in both the quality and quantity of metalwork being produced and consumed at the site, possibly as part of the connection between socio-political authority and the control of metal production. The swords[57] found in the A113 cache have no provenanced comparisons within the Near East, though several of the spearheads and the quadruple spiral plaque have been suggested as having regional ties to the metal assemblage from the southern Caucasus, and metals analysis showed that the copper-arsenic ore(s) used to make these items was possibly of Caucasian origin (Caneva and Palmieri 1983; Palumbi 2008b).

† Tepecik

There seems to have been a coexistence of styles and/or populations at Late Chalcolithic 4-5 Tepecik; the ceramics from this period include both chaff-faced wares with strong similarities to examples from Arslantepe VIA, ceramics that are typical to other contemporary sites in the region and a large quantity of burnished wares including Red-black, Black and Monochrome burnished wares that also resemble examples from Arslantepe VIA (Esin 1970, 1971, 1972, 1974a, 1976a, 1979a, 1982a). It could be suggested that the adoption of the burnished ceramics at Tepecik is indicative of a greater affiliation with the southern Caucasus- whether cultural, socio-political, and economic or a mixture of all three- or perhaps this was a result of the long-term, long-distance trade with the Transcaucasian area. Palumbi (2008b) suggests that Tepecik's location on the Murat River made it an ideal meeting place of cultures as the Murat River:

> …served as a direct route to the regions of Van and northeastern Anatolia (Palumbi 2008b: 99).

Possible reasons for this may be the importance the inhabitants placed upon the metal trade rather than the changing socio-political orientation often cited (Frangipane 1998a) as a reason for changing cultural alliances.

[57] Three of these swords had silver inlay in their hilts indicating the degree of metallurgical technology present at Arslantepe between 3300-2900 BC (Frangipane 1985; Palmieri and Di Nocera 2004; Palumbi 2008b)

Evidence of external contact with Upper Mesopotamia is also present at Tepecik; one of the burnished ware sherds has a round stamp seal impression featuring a scorpion motif in the Jemdet Nasr style (Esin 1976a), and Esin (1979a) mentions that a wall of one of the Late Uruk buildings contained a small mud brick tomb. However, this context was too disturbed to securely date or make any direct comparisons with the Korucutepe tombs or the Tepe Gawra tombs (see below) beyond general similarities in mortuary architecture. Further evidence of external contact is the 10m x 12m stone footed mud brick tripartite building that bears a resemblance to similar architecture at Godin Tepe V (Helwing 2005; Young 1986). The Tepecik tripartite building provides fairly complete evidence of a craft workshop; in phase 3c (the earliest phase), slags and a double spiral headed pin (T 74-30) were found associated with this structure. Inside the phase 3a (last phase) building, two hearths, an oven, ores and slags were found, giving credence to the suggestion that this was a copper working area (Esin 1982a).

Other evidence for both craft production and raw materials storage at this building included: a number of horn and bone tools, Cananean blades, the metalworking detritus and products already mentioned and detritus relating to pottery production (Esin 1982a). This building seems to have been continuously used as a craft production area until the last phase of the building at the end of the fourth millennium when it was destroyed by fire (Esin 1976a).

The Late Chalcolithic/Early Bronze Age I transitional levels 2 and 1 are more fragmentary; level 2 had architectural remains that included floor levels, the remains of a fireplace and the stone foundations of a rectangular building, while the more recent level 1 had a series of pits and no architectural remains (Esin 1979a, 1982).

† Tülintepe

This site was part of a cluster of medium and large sized sites that were occupied roughly contemporaneously from the Early Chalcolithic onwards (Arsebük 1983; Arsebük and Korfmann 1976; Esin 1974b, 1976b, 1979b, 1982b). While initially a very promising site, in a rather sad case of cultural mismanagement:

> Tülintepe was requisitioned in order to provide earth for the embankment of the new railway, and in the autumn of 1966 bull-dozers completely removed

> the upper layers of the mound, leaving Tülintepe at the same level as the surrounding plain (Esin and Arsebük 1974: 149).

Because of the bulldozing, any remains post-dating the Early Bronze Age were lost and the earlier occupation levels were extensively damaged. However, limited rescue excavations were undertaken which allows a tantalising, if incredibly incomplete, glimpse into this site.

A stone-footed building was preserved up to 1.23 metres (about 12 courses) before the bulldozing activities destroyed the upper, presumably mud brick, superstructure. Underneath of this wall was a burnt level dated to the Chalcolithic by the ceramics while the remaining domestic architecture consisted of quadrangular mud brick houses that adjoined one another[58]. One of the excavated domestic structures had a domed oven in the courtyard with crucible remains and copper slags in and around it. This building was interpreted as either serving as a metal workshop or the house of the village's metal smith based on this evidence (Erarslan 2006a; Esin 1976c, 2000). All of the analysed slags appear to be crucible slags and were likely from smelted oxidized copper ores (Cukur and Kunç 1989). The low amount of copper remaining in these slags indicates that the fourth millennium smiths were quite accomplished at obtaining maximum amounts of copper during the extraction processes (Cukur and Kunç 1989). Other finds from the site included a higher than usual amount of obsidian, possibly indicating that Tülintepe may have been an obsidian processing centre in addition to its metalworking activities (Esin and Arsebük 1974).

† Korucutepe

The dating of the Chalcolithic remains at Korucutepe is problematic at times due to the sometimes ambiguous site chronology; the Late Chalcolithic occupation was labelled as Phase B and is demarcated from earlier levels by its burned domestic buildings and foundation deposits composed of the lower jaws of pigs (van Loon 1971, 1978; van Loon and Buccellati 1970; van Loon and Güterbock 1972). The only metal object recovered from the Phase B domestic contexts was a single spiral copper bead (KRC 70-473) on the floor of the Strata XXXII-XXXIII unburned

[58] This is similar to an early wall at Habuba Kabira in the Middle Euphrates (Heusch 1980) and Pulur-Sakyol in EB I-II, though Pulur was an ovoid shaped settlement (Palumbi 2008b).

house. It was also in Phase B that a cemetery was established in the northwest corner of the mound, *ca*. 3000[59] BC according to van Loon (1978).

Only a small area of this cemetery was excavated, though five fairly rich graves were found[60]. The graves consisted of: one double rectangular mud brick tomb (K 12 no. 5; K 12 no. 4) roofed with timber, one single rectangular mud brick tomb (K 12 no. 3) with the fragmentary remains of another individual (K 12 no. 2) placed on top of the covering stones of K 12 no. 3, a simple inhumation (J 12 no. 1) and an infant jar burial (K 12 no. 1). The simple inhumation (J 12 no. 1) was without grave goods, only pot sherds remained with K 12 no. 2, and the jar burial (K 12 no. 1) had a pot, a broken pot and copper ore, though it was noted that the association of grave goods with this jar burial is uncertain and likely intrusive (van Loon 1978). It is unclear what the relationship of K 12 no. 2 with K 12 no. 3 is; it is possible that this individual was placed on top of the single mud brick tomb at the same time or soon after the female in K 12 no. 3 was interred- perhaps as a sacrifice- or that K 12 no. 2 represents an intrusive burial from slightly later in the Late Chalcolithic. The fragmentary nature of the remains means that any interpretation of this is speculative; however, similarities exist with the later Arslantepe 'royal' burial and Transcaucasian burials which are described in the following chapters.

The finds in the double burial (K 12 no. 5 and 4) that were associated with the first (possibly male) individual included a mace head thought to have been made of iron or an iron ore and next to the individual's right arm were a tanged dagger and a silver bracelet ending in spirals (Brandt 1978). Small limestone beads were found around the centre of the body and were likely part of a belt decoration. The second individual in this tomb[61] (possibly female) had a solid silver 'cone-shaped' stamp seal weighing 30 grams and was decorated with a rough engraving of a horned animal (Brandt 1978). The seal ended in two long tabs that would have been tied

[59] Palumbi (2008b) describes this phase as Late Chalcolithic 2-3, which would date the tombs nearly 500 years earlier than van Loon's date. Lupton (1996) also dates the Korucutepe tombs to the Pre-contact period of the early fourth millennium.

[60] Korucutepe was further excavated by a Turkish team (Ertem 1979, 1982a) after van Loon's team left, though they focused on the later periods of occupation at the site and did not return to excavating the cemetery.

[61] Winn (1981) links the Korucutepe mud brick tombs with the later Kurgan culture burials and further describes the double burial as, "The burial of a woman with an important male is reminiscent of the Indo-European practice of suttee" (Winn 1981: 114). There are obvious problems with this interpretation.

around the wrist. Next to the skeleton was a round decorated button, a blue chalk bead and many small white beads. While relatively rich in metal, this double mud brick grave had only two ceramic items; a grey burnished jar and a cream-slipped orange pot stand (Brandt 1978).

The single mud brick grave (K 12 no. 3) contained the remains of a female and a much larger quantity of silver objects, which is unique for the region until the finds at Arslantepe dating to the EB I. The female had a silver band or diadem decorated with bone beads placed around her head and nearby were two pairs of silver rings with overlapping ends. Two more silver rings that served as hair ornaments were found on top of her head, while around her neck was a silver crescent-shaped gorget. Other items of jewellery included: two silver sheet metal lozenge-shaped beads that were part of necklace, 16 pieces of silver 'thread' that probably formed a bracelet with shell beads and a bent silver pin with a thin silver thread with a red bead. In terms of costume, the young woman seems to have been wearing a dress ornately decorated with thousands of small limestone beads and a girdle made of strings of white, red and blue beads, based on the number of beads found in the tomb (Brandt 1978). Like the double mud brick burial, in the single mud brick tomb there were also only two vessels; one was a grey scraped beaker and the other was an orange burnished bowl (Brandt 1978).

The construction of these two mud brick tombs and their contents, particularly the stamp seal from the double burial and the headband from the single mud brick burial, have striking similarities to the mud brick tombs found at Tepe Gawra in northern Iraq (Rothman 2002a) and later examples from northern Iran such as Tepe Hissar (E. F. Schmidt 1937). These connections are supported by the ceramics of the two graves which were similar to examples from Strata XI-IX at Tepe Gawra (Brandt 1978), and Yakar (2011) notes that the grey vessel is similar to the grey ware from northern Iran. The comparison of the mud brick tombs and their contents with examples and artefacts from the northern reaches of Upper Mesopotamia allows the possibility that that the inhabitants of Korucutepe had a long history of connections with this region and that the Korucutepe tombs may in fact be earlier than the *c.* 3000 date ascribed to them by van Loon (1978: 11).

3.2.2 Analysis

In the later half of the fourth millennium the production and social use of metal objects in the Upper Euphrates Valley displays overall continuity with the previous centuries, with the exception that metal objects are now found in all three sectors (though this is likely due to scale of excavation rather than a real trend). Like the first half of the millennium, there are still considerably more metal items found in domestic and industrial contexts rather than mortuary contexts across the sectors in the mid-late fourth millennium (see Figure 15 below).

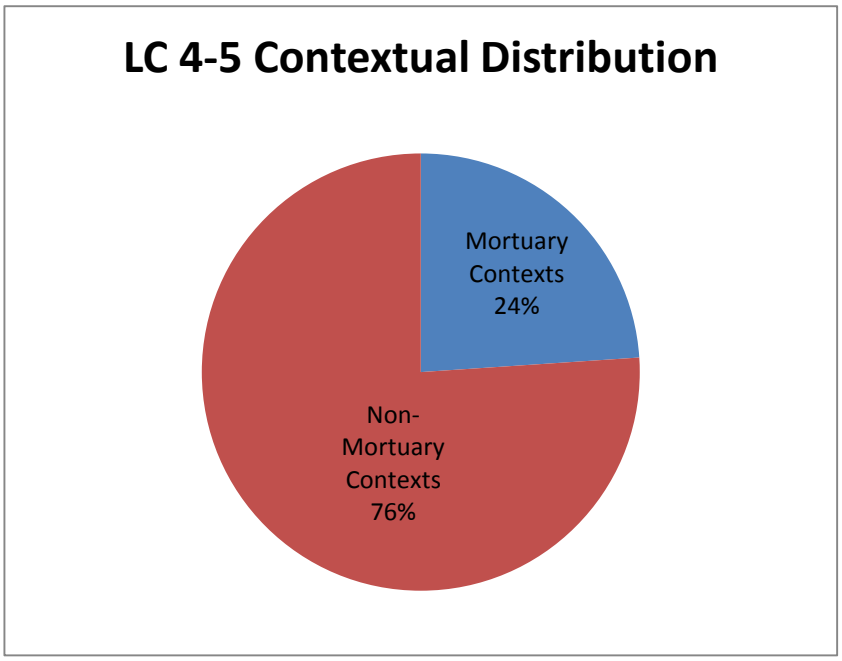

Figure 15: Distribution of metal artefacts by context in the mid-late 4th millennium

Despite the fact that metal was still mainly being used in domestic, public and industrial contexts, there is a visible rise in the quantity of metal being interred with the dead from the LC 2-3 (see Figure 16).

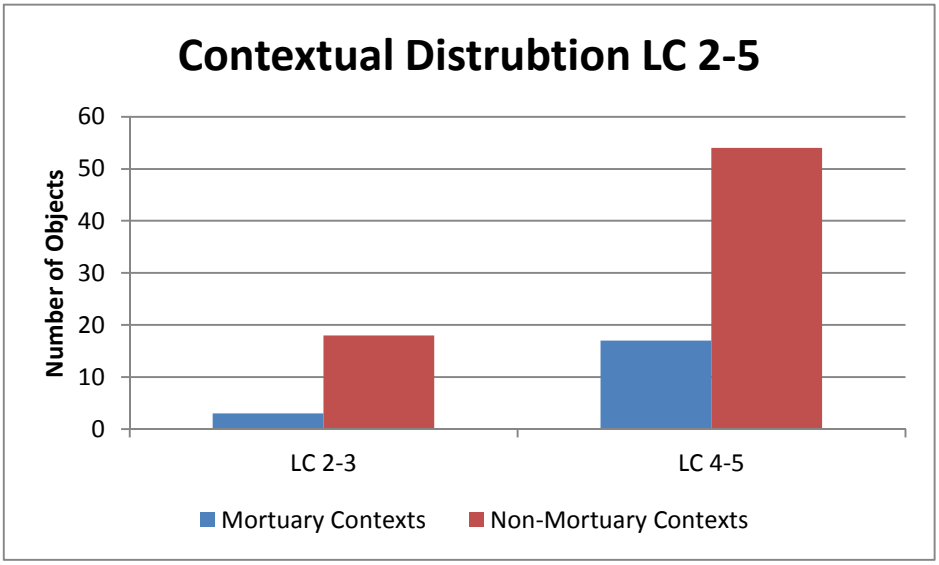

Figure 16 Distribution of metal objects across contexts throughout the 4th millennium

The rich array of grave goods and new styles of objects emphasised the use of silver in the iconoclastic mud brick tombs at Korucutepe and the grave at Arslantepe, hinting at the increasing trend towards public displays of wealth, status and ideology within the Upper Euphrates Valley. The practice of putting silver in graves seems to have been a cultural holdover from the first half of the fourth millennium based on the presence of silver rings in the Hacınebi jar burial, though the styles of objects in the Korucutepe tombs have stronger parallels with objects from Upper Mesopotamia than with items from the Euphrates Valley[62] (See Appendix I and above).

Like the first half of the fourth millennium, there were also clear differences in the number of objects per site between the settlements north of the Taurus and the settlements located closer to the modern Syrian-Turkish border (see Figure 17 below).

[62] Further exploration of the potential link between the use of silver in specific Upper Euphrates Valley burials and the contemporary burial customs of Upper Mesopotamia will be discussed at greater length in Chapter 5.

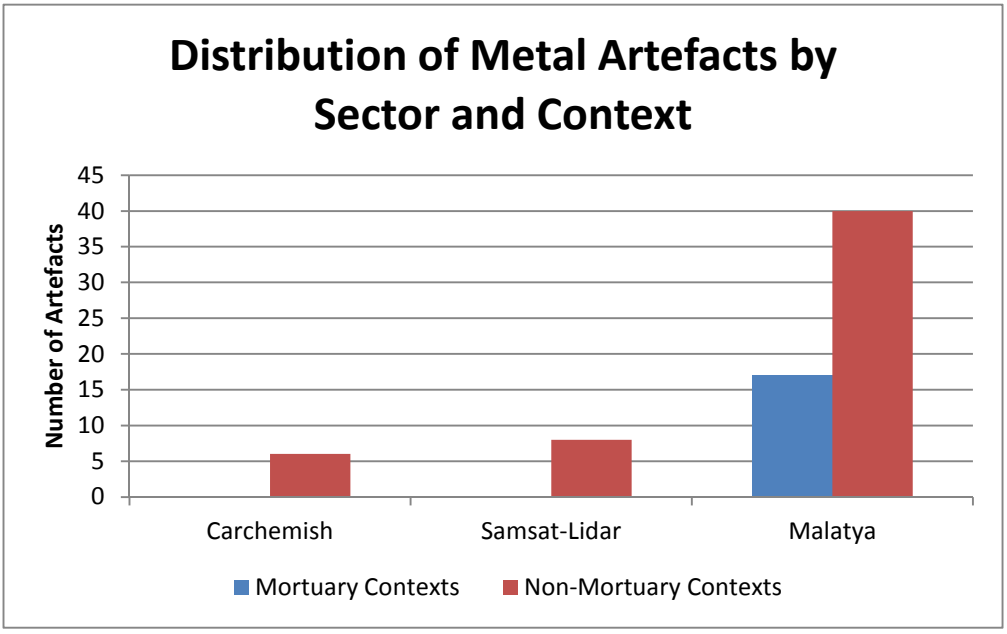

Figure 17 Distribution of objects across sectors in the LC 4-5

The table below (Figure 18) illustrates this change; 57 objects are from sites in the Malatya sector[63] compared to the approximately 14 items from sites in the Carchemish and Samsat-Lidar sectors. Additionally, the two sites with metal artefacts in burial contexts were both from sites north of the Taurus.

Sector	Number of Objects in Mortuary Contexts	Number of Objects in Non-Mortuary Contexts	Total Number of Objects
Carchemish		7?[64]	7?
Samsat-Lidar		7	7
Malatya	17	40	57
Total	17	54?	71?

Figure 18 Distribution of metal objects by context in the LC 4-5

When the settlement sizes are compared to the number of artefacts found at the sites, there is no clear trend in the distribution of metal objects by site size (see Figure 19 below).

[63] The Malatya metals have been one of the most thoroughly analysed metal assemblages in the Euphrates Valley region in terms of stylistic and elemental comparisons. See Palmieri, Sertork and Chernykh (1993) for extensive references and information on the ore sources near Ergani- Maden and Malatya.

[64] The lack of detailed context information regarding the metal finds from Hacınebi makes this number uncertain.

Site	Site Size (ha)	Total Excavated Area (m²)	Number of Objects in Mortuary Contexts	Number of Objects in Non-Mortuary Contexts	Total Number of Metal Objects	Objects/ excavated m²
Jerablus Tahtani	1.5	*ca*. 1500		1	1	0.0007
Hacınebi	3.3	*ca*. 1300		6?	6?	0.005
Kurban Höyük	4	*ca*. 3000		2	2	0.0007
Samsat Höyük	17.5	*ca*. 320[65]		1	1	0.003
Hassek Höyük	1	*ca*. 3700		4	4	0.001
Arslantepe	2	*ca*. 2000	1	38	39	0.02
Tepecik	2.1	*ca*. 1200		1	1	0.0008
Korucutepe	1.3	*ca*. 12,725	16	1	17	0.001
Total	32.7	*ca*. 25,745	17	54	71	0.0027

Figure 19 Distribution of metal objects in the Upper Euphrates Valley in the LC 4-5

In a more general look at the use of metal by the inhabitants of the Upper Euphrates Valley, the scatter graph below shows that there were far more occupied sites in the second half of the fourth millennium. Despite there being several very large sites at this time, all but one of the sites with reported metal objects were four hectares or less in size. The scale of excavations and research goals at these very large sites[66] may be responsible in part for this discrepancy in metal object distribution, however, this result is still somewhat surprising given that the expected trend would be that the larger sites were 'urban' and therefore had more contact with areas outside of the Euphrates Valley through trade and were more likely to have had a more stratified population that would have required prestige items, including metal objects (see Chapters 5 and 6 for a more comprehensive discussion).

[65] The extent of excavations at this site are not known, though Özgüc (1992) specifies that approximately 320 square metres of the Late Chalcolithic deposits were excavated in a sounding.
[66] For example, Samsat is estimated at being 17.5 hectares during the Late Chalcolithic, however the excavations carried out at the site were focused on the later periods of the site so that the Chalcolithic levels were given very little attention because of the amount of overburden from the later occupation phases and the site was flooded before more work on these early levels could be undertaken (Özgüç 2009).

In the Carchemish and Malatya sectors, the pattern of metal artefact distribution reflects the two tier hierarchy of the region, though the Samsat-Lidar sector evidence seems to suggest more of an equal distribution of metal objects between large and small sites. This oddity in the Samsat-Lidar sector upper tier sites may be due to lack of excavation and reporting, however the largest sites are all thought to have been either Uruk sites or mixed Uruk and local sites and it is uncertain to what extent the transplanted southern Mesopotamians actually used and consumed metal on a day-to-day basis.

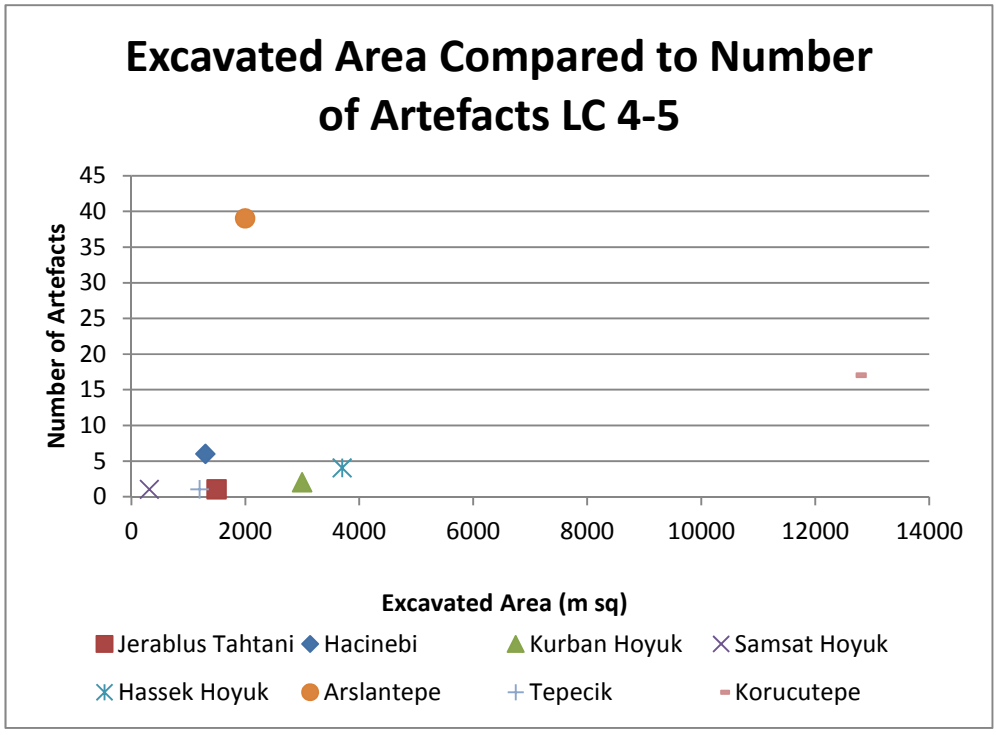

Figure 20 Excavated area compared to the number of metal artefacts found for the excavated sites dating to the LC 4-5

By comparing the excavated area to the number of recovered metal artefacts at these sites (Figure 20 above), several observations can be drawn. The first is that the Late Chalcolithic 4-5 has many more excavated sites from this period, with quite a few of these sites much larger than the scale of sites reached in the Late Chalcolithic 2-3, though the scale of excavation does not necessary follow the total site size. Coincident with the overall increase of investigated sites from this period in the Upper Euphrates Valley is the increase in the number of sites with reported metal artefacts, which doubled from the LC 2-3, and contributed to the finding of more

than twice as many metal objects dating to the LC 4-5. There is also more variability in the number of artefacts from these later sites. Furthermore, the increase in the number of sites with metal artefacts may have a degree of superficiality to it based on the fact that there were more than 25,745 square metres of excavated area from the sites with metal artefacts dating to this period compared to the approximately 5,800 square metres of total excavated area for sites with metal artefacts in the Late Chalcolithic 2-3.

When comparing excavated area to the number of metal of artefacts found, there is quite a range in the objects per excavated square metre, as can be seen in Figure 19 above. Jerablus Tahtani and Kurban Höyük had the lowest objects per excavated square metre with just 0.0007 while Arslantepe had the highest amount with 0.02 metal objects per square metre because of the comparatively high number of objects found at this site compared to the other settlements with metal objects from this period. The average number of objects per square metre for the second half of the fourth millennium is quite low (0.0027) which is less than the average number of objects per hectare from the first half of the millennium (0.0059), though this discrepancy relates to the fact that there was more than five times the excavated area of late fourth millennium occupation levels from a greater number of sites thereby driving the average number down despite there being more metal artefacts from the Late Chalcolithic 4-5.

Of the total metal artefact assemblage from the mid-late fourth millennium, personal ornaments were the most numerous items deposited in both mortuary and non-mortuary contexts. Corresponding to this increased use of personal ornaments by the inhabitants of the Upper Euphrates Valley is the presence of new types of ornaments being deposited with the deceased, most notably in the Korucutepe burials whose objects further stand out because they were almost all made of silver (see Figures 21 and 22 below).

Site	Pins	Pendants & 'Seals'	Beads, Rings, Bracelets, Diadems	Chisels & Awls	Flat Axes	Knives, Daggers, Swords	Mace Heads	Spear-heads	Misc
Arslantepe			1						
Korucutepe	1	1	12			1	1		
Total	1	1	13			1	1		

Figure 21 Distribution of object types in the Upper Euphrates Valley mortuary contexts during the LC 4-5

Despite the presence of novel object types in the Korucutepe tombs, the majority of these objects were ornamental in function with the most ostentatious of these being the silver diadem decorated with bone beads (KRC 70-232) from the single mud brick tomb of the adult female and the solid silver stamp seal from the double inhumation. The non-silver items are also notable, mainly because of their form; for the first time metal weapons are found in a burial in the Upper Euphrates Valley, though the mace head is more implicitly associated with weapons than the dagger. Apart from this one physical example of a weapon, several other contemporary pictorial representations of warfare and violence can be found on stamp seals and seal impressions from Hacınebi, Tilbeş Höyük and Surtepe (see above and Gazetteer of Sites).

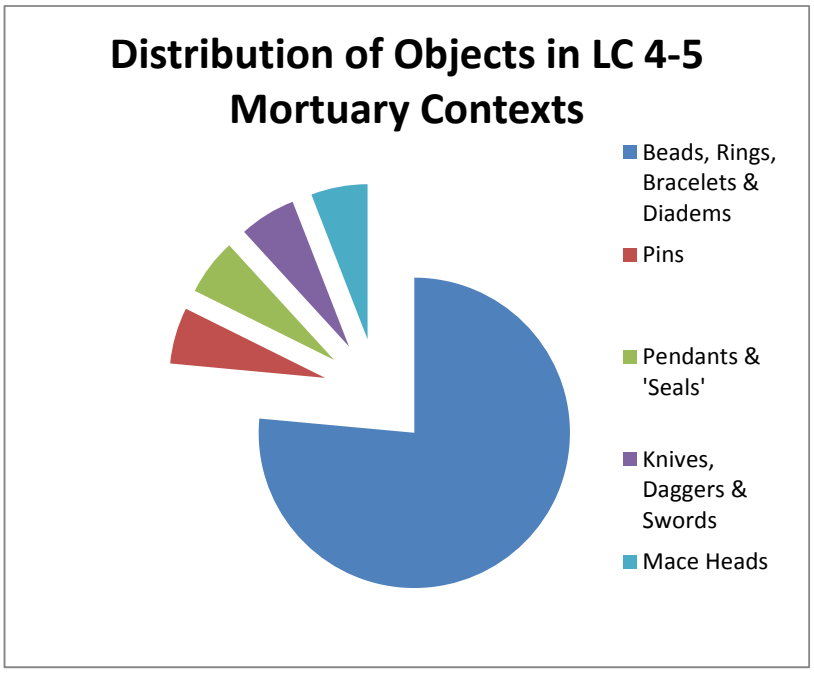

Figure 22: Distribution of objects in mid-late 4th millennium mortuary contexts

More impressive than the metal weapons found in the Korucutepe burial are the weapons found in public building at Arslantepe with its cache of 9 swords, 12 spearheads and a quadruple spiral plaque of unknown purpose. As was noted above, it may be the case that these weapons were curated by the administrative sector until such time as they were deemed necessary, perhaps for socio-political 'rituals' or distributed to select individuals during times of conflict. It has not yet been confirmed if these weapons showed any use on their edges, but it is entirely possible that these weapons were only for ceremonial use because of their cost and level of technological skill required to manufacture them and then ornament several of them with silver inlay. It can be assumed that these weapons possessed a high value- whether it was economic value because they were rare forms and decorated with a costly material, or high social value because of the context of their use and their curation in a public building.

In contrast to the rich weapons hoard from Arslantepe, what is most notable about the remaining objects found in the domestic, public or industrial contexts is that there is a variety in the types of metal objects that are found in these contexts (see Figure 23).

Site	Pins	Pendants & 'Seals'	Beads, Necklaces Rings, Bracelets,	Chisels & Awls	Flat Axes	Knives, Daggers & Swords	Mace Heads	Spear-heads	Misc
Jerablus Tahtani				1					
Hacınebi	4								2
Kurban Höyük	2								
Samsat Höyük	1								
Hassek Höyük	4								
Arslantepe	4	2[67]	1	2		9		12	7[68]
Tepecik	1								
Korucutepe			1						
Total	16	2	2	3		9		12	9

Figure 23 Distribution of object types in non-mortuary contexts during the LC 4-5

[67] One of these items is the quadruple spiral plaque from the A113

[68] This consists of the arsenical copper-nickel alloy bowl socket and nails (counted as one single object) and 6 fragmentary items.

As the figure above shows, in addition to the weapons there were also personal ornaments such as pins, pendants, beads and a plaque, along with tools and miscellaneous objects that do not fit into the other categories (see Figure 24 below). In contrast to the LC 2-3, utilitarian tools are the least well-represented artefact grouping among the variety of object types found in domestic and industrial contexts from the LC 4-5, a situation which can possibly be attributed to their recyclability.

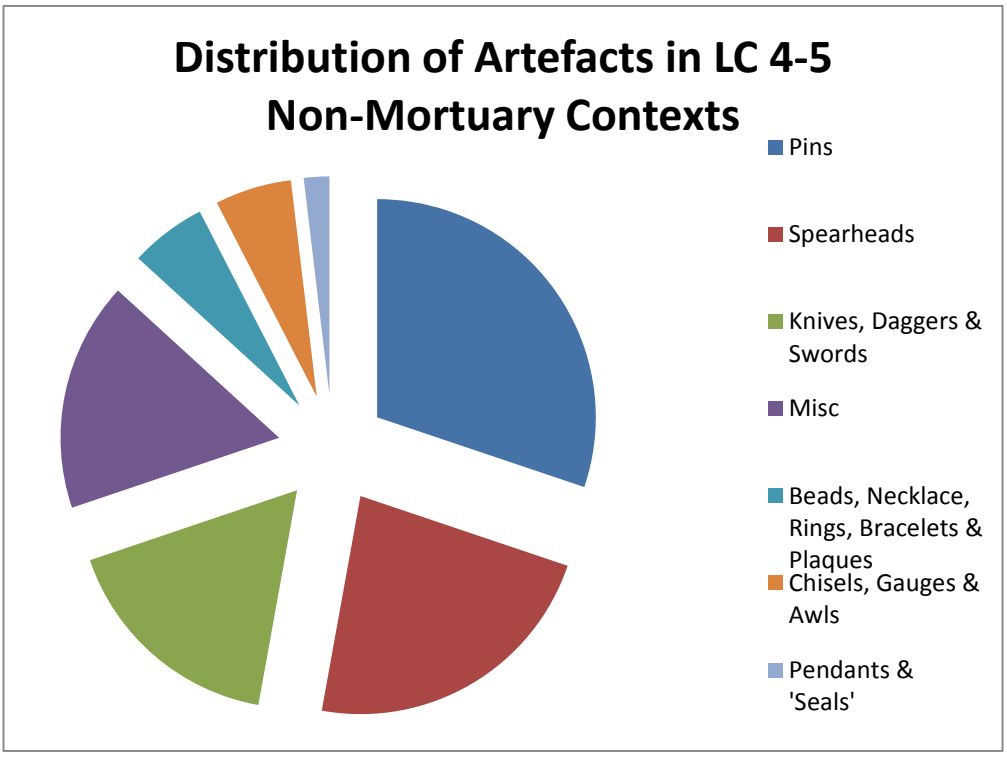

Figure 24: Distribution of metal artefacts in non-mortuary contexts in the LC 4-5

The increase in the total number of metal objects in the second half of the fourth millennium as well as the increase in the number of sites with metal objects possibly indicates that metal was more available at this time than in previous centuries. The consistency in the contexts (*i.e.* predominantly industrial, domestic or public) in which these items were found suggests that the tradition of metal use had not changed greatly over time despite there being a greater availability of copper alloys[69] and silver. Unlike the LC 2-3 periods when metal was clearly being

[69] Analyses of ores and objects from multiple sites dating to this period have shown that copper alloys, whether intentional or accidental, were also being used to a greater degree. Arsenical coppers with varying degrees of nickel and antimony are found at Hacınebi (Özbal 1996; Özbal *et al*. 2000) Hassek Höyük (Schmitt-Strecker *et al*. 1992), Tülintepe and Tepecik (Cukur and Kunç 1989a, 1989b) as well as at Arslantepe (Caneva and Palmieri 1983; Palmieri *et al*. 1999).

produced and utilised locally, in the LC 4-5 the sites which had metal objects were no longer guaranteed to have evidence of on-site metalworking. In contrast, three of the four sites that did have evidence of metalworking taking place on-site also had metal objects reported (see Figure 25 below). The lack of objects at the fourth site, Tülintepe, is almost certainly due to the bulldozing of the site and the hasty rescue excavations rather than a true dearth of objects.

Site	Metalworking Evidence	Metal in Mortuary Contexts	Metal in Non-Mortuary Contexts
Jerablus Tahtani			x
Hacınebi	x		x
Kurban Höyük			x
Samsat Höyük			x
Hassek Höyük			x
Arslantepe	x		x
Tepecik	x		x
Tülintepe	x		
Korucutepe		x	x

Figure 25 Distribution of metalworking evidence and metal objects in the LC 4-5

With Jerablus, Kurban, Samsat and Hassek- all sites with metal objects but no metalworking materials- the small number, skill involved in the manufacture of some of these items[70] and the portability of the objects found at these sites could indicate that these objects were brought to the site rather than being produced there. This explanation may find further support in the fact that Özbal (1997) noted that Uruk sites in Upper Mesopotamia typically do not have an abundance of metalwork.

In the case of Korucutepe, what makes the metal found in the mud brick graves more intriguing is that there was no metalworking evidence recorded for this period at the site (either copper smelting or silver cupellation) allowing the possibility that they were imported to Korucutepe. Furthermore, the types of objects that were found in the tombs are not typical to the region; closer comparisons to the diadem and seal can be found at Tepe Gawra (Rothman 2002a) in Iraq, Tepe Hissar (E.F. Schmidt 1937) in Iran and later at Arslantepe (Frangipane 1997c; Frangipane *et al.* 2001) and Kvatskhelebi in central Georgia (Glonti *et al.* 2008) rather than from other contemporary local sites, giving weight to the argument that at least some of

[70] Specifically the awl with the spirally twisted shank from Jerablus and the bird-headed pin from Kurban (See Appendix I)

these items were imported. The copper dagger (KRC 70-146) from the double mud brick tomb and the solid metal mace head may have been made closer to the site given that mace heads have been reported at other sites[71] in the vicinity.

Of the sites with metalworking materials, Hacınebi provides the majority of mid-late fourth millennium examples. These remains were found in both the 'Euphratean' and Uruk parts of the site, as was also the case with the metal items (Stein 1999c). This can be compared to Tepecik where the metalworking equipment was localised to the tripartite structure along with the one metal artefact reported for this site (Esin 1976a). The Tülintepe metalworking area was associated with a domestic structure that is argued to have been the workshop of the settlement's metal smith given that there was a domed oven, crucible remains and slags around it. Analysis also showed that the Tülintepe smith (or smiths) appeared to have been quite adept at smelting based on the low amount of copper remaining in the slags (Cukur and Kunç 1989a, 1989b; Esin and Arsebük 1974).

The localisation of the metalworking evidence from Tepecik and Tülintepe would seem to argue that the smelting and manufacturing processes were being more closely monitored by a central authority, which would also indirectly be supported by the plethora of administrative related artefacts found in the Arslantepe public building complex and the association of metal items with this complex. High levels of centralisation of the metal industry may be one dividing factor between the sites with metalworking evidence and serve to indicate their socio-economic strategies, though without more excavation this can only be hypothesised. In the case of Tepecik, Palumbi argues that:

> The Late Uruk presence in Tepecik could have been focused on the transport, processing and shipping of metal ores coming from Ergani Maden or Northeastern Anatolia and the stronger northeastern Anatolian taste of the pottery production could have been a direct consequence [of] these trade relationships (Palumbi 2008b: 100).

The presence of metalworking materials in this building along with the imported southern Mesopotamian ceramics would seem to illustrate such a trade connection between the Uruk population, metalworking and ties with eastern Anatolia or the

[71] Arslantepe Room A364 contained a fragment of a gypsum mace head (Frangipane 1992) while earlier examples were found at Norşuntepe in stone (Schmidt 2002) and a metal example was found at Can Hassan (Sagona and Zimansky 2009).

southern Caucasus as a source of arsenic. The Tülintepe domestic workshop could then also be argued to have operated similarly, though Tülintepe may have been more of an obsidian production centre in the Late Chalcolithic rather than a metal production centre. Tülintepe also had a more local ceramic repertoire than Tepecik did, making it less likely that the southern Mesopotamians had anything to do with the direct movement of ore and/or finished metal products from the site to the Uruk outposts, colonies or homeland in the LC 4-5. The degree of control over the metal craft industry at Hacınebi is uncertain, though Stein refers to it as a specialised, but independent activity (Stein 1999c). This may have been a result of the daily interaction between the local and Uruk populations making the local authority's centralisation of metal production impossible as individuals competed with each other to trade with the southern Mesopotamians rather than banding together and establishing higher set market values for their products.

Arslantepe also had evidence of copper metallurgy taking place on site (Caneva and Palmieri 1983; Palmieri *et al*. 1999) and possibly silver cupellation, though there is no direct evidence for this as yet. The assumption for silver cupellation taking place at Arslantepe is based on the silver ring from the burial, the pin from A113 and the silver inlay decorations featured on several of the weapons from the Arslantepe A113 cache, a collection of weapons that are found nowhere else in Anatolia at this time. It is thought that these unique items were manufactured at Arslantepe (Caneva and Palmieri 1983), and presumably the metalworkers would also have been capable of making a simple silver wire ring such as the one found in the A130 burial or the pin from room A113 if this was the case.

Looking back to the evidence of silver production from the first half of the fourth millennium, the metalworkers of Fatmalı-Kalecik had a fairly advanced knowledge of silver cupellation, and it is quite possible that objects made during the Late Chalcolithic 2-3 were treasured items that were passed down through the generations until they were deposited through various processes in the contexts in which they were excavated thousands of years later. However, it should not be assumed that Fatmalı-Kalecik had a monopoly on the technology of silver cupellation or the resulting finished objects or that the knowledge died when the site was abandoned in the mid fourth millennium. The closest site with confirmed

contemporaneous silver cupellation is Habuba Kabira (Pernicka *et al*. 1998) located approximately 350 kilometres south of the Malatya sector sites as the crow flies. Another possible theory to explain the presence of silver in this sector would be that these items were introduced through trade or by foreign owners; this scenario would be more plausible for the Korucutepe silver items that were found in anomalous mortuary architecture.

3.3 Chapter Overview and Discussion

There are noticeable differences in the use and production of metal in the Upper Euphrates Valley during the course of the fourth millennium in terms of the intensity, distribution and types of objects being manufactured. A review of the early fourth millennium sites shows that metal objects were still fairly limited at this time, with only three sites (Hacınebi, Arslantepe and Norşuntepe) having documented metal artefacts and one further site (Fatmalı-Kalecik) only having evidence of metalworking taking place on site but no objects reported. However, the three sites that did have metal objects all had evidence of metalworking taking place on site in both domestic and industrial contexts. Therefore it can be concluded that metal was being produced and consumed locally as all of the sites with metal objects (either from mortuary or domestic, public or industrial contexts) also had intramural evidence for metalworking based on the materials and detritus found during the course of excavation. In the case of Fatmalı-Kalecik, the occupants seem to have made silver objects or refined the silver-lead ore from the raw ore from the nearby Keban mine when they had the time or perhaps needed items or services that could be acquired through trading silver objects[72]. At sites where both metal objects and metalworking equipment were found, there is no clear preference towards metal being worked in domestic or industrial contexts, and it may be the case that metal objects were produced on an *ad hoc* basis. Geographically, there are more published metal objects from the sites north of the Taurus likely for the simple reason that these sites were located much closer to both the local native copper sources as well as the

[72] This may account for the presence of the silver earrings in the Hacınebi infant jar burial.

Ergani-Maden mine complex which is located less than 100 kilometres from the Malatya sector sites compared to the more than 200 kilometres that Hacınebi was to the Ergani-Maden mine, though this great distance does not seem to have hindered the metal industry at Hacınebi in any way.

The possibility that these objects were made on site coupled with the relative absence of metal in mortuary contexts and the preference for metal tools all point towards metal being utilised more for practical purposes than for displays of wealth or status in mortuary contexts. The silver rings from the infant jar burial at Hacınebi are the outlier for several reasons; it is rare for child burials at this time to have grave goods let alone silver rings which were almost certainly imported as finished objects rather than manufactured on site. This use of silver is more in keeping with the mid-late fourth millennium when silver was used more frequently to make ornamental items as part of displays of social differentiation, though the overall pattern of metal production and use remains consistent with the preceding centuries, albeit on a slightly larger scale. Metal artefacts are still primarily found in domestic, public and industrial contexts in the second half of the fourth millennium, with the Korucutepe mud brick graves and the Arslantepe burial the only published exceptions to this trend.

The metal industry was thriving in the second half of the fourth millennium, especially at Hacınebi if the quantity of crucible and mould fragments and ore pieces found within both the local and Uruk areas of the site is a guide (Özbal *et al*. 2000; Stein *et al*. 1998). Two additional sites also had evidence of metallurgy taking place in domestic or industrial contexts; the tripartite building at Tepecik seems to have been a dedicated craft workshop where metallurgy and several other crafts were carried out based on the tools left in and around the structure (Esin 1982a). The nearby site of Tülintepe also seems to have had a dedicated building where metalworking was carried out, perhaps by a village smith or it may have been the case that this was the site of the communal metal workshop (Esin 2000; Erarslan 2006a). An analysis of the detritus from the structure at Tülintepe showed that there was very little copper left in the slags indicating that the smith or smiths were very adept at extracting copper from the available ore (Cukur and Kunç 1989).

A survey of the site reports shows that there are about twice times as many metal objects in total dating to the Late Chalcolithic 4-5 as there were in the Late Chalcolithic 2-3 periods; these 70 or so metal objects were found at seven different sites, though again there are almost certainly more metal objects dating to this period of time that will never be found. Of these objects, 16 were from the Korucutepe mud brick tombs with the other main contributor of artefacts at this time being the regional centre of Arslantepe, which accounts for 39 objects, most of which were from a single context. At this time there is a slight increase in the amount of metal deposited in mortuary contexts; roughly 24% of the entire mid-late fourth millennium metal object repertoire was from mortuary contexts which is an increase over the first half of the fourth millennium where 19% of the total number of metal objects were deposited in mortuary contexts.

It is at this time that metal weapons are first reported in burials in the Upper Euphrates Valley, though in total this is an insignificant number compared to the weapons from the A113 cache found in the Arslantepe temple/palace complex. The Arslantepe A113 examples are particularly intriguing because of the degree of skill involved in their manufacture (particularly those with the silver inlay designs) which is not seen in any of the other Late Chalcolithic 4-5 metal objects. Only one other example of such a sword exists in southeastern Anatolia from this time period, though this is of such dubious provenance that it cannot safely be used as a comparison despite the very close similarities in manufacture and style to the Arslantepe examples (Zimmerman *et al*. 2011).

Altogether, the metal artefacts excavated from the LC 4-5 period sites were fairly evenly distributed between items that can be termed personal ornaments and those that were tools or weapons. The limited numbers of metal weapons and their very controlled curation (a burial and a public building) suggest that these items were beyond the ken of most individuals in terms of private ownership of the items. The difference between the amount of metal objects in the Upper Euphrates Valley in the LC 4-5 and the number of sites with proof of metalworking seems to be disproportionate. It would be easy, then, to conclude that the three sites that had evidence of metalworking were producing objects or refining ores on a larger scale than were needed for local consumption- especially in light of the dearth of metal

objects recovered from Tülintepe and the single pin found at the Tepecik workshop. Unfortunately, it is impossible to say with certainty that these three sites were manufacturing objects specifically for trade purposes (what Stein and Blackman (1993) term 'specialised production') with the southern Mesopotamians and perhaps with other Euphrates Valley sites, and the possibility of unexcavated metal artefacts or metalworking paraphernalia makes the assumption of several sites manufacturing metal objects for the remainder of the Late Chalcolithic 4-5 Upper Euphrates Valley sites questionable.

As a result of the salvage excavations motivated by the damming of the Euphrates River, the Late Chalcolithic in Upper Mesopotamia has recently become the focus of a great deal of academic research that motivated the overhaul of previous held views regarding the level of complexity not only in Upper Mesopotamia, but also in Mesopotamia proper despite the fact that the Upper Euphrates Valley sites are more than 2000 kilometres north of the alluvial plain of southern Mesopotamia (Pollock 2001). These excavations have revealed a level of complexity not previously ascribed to the region, especially in terms of the metal industry. While not uncommon, metal items were still fairly restricted in the first half of the fourth millennium and the skill involved in their production, especially in terms of the silver cupellation, indicates more than a passing association with various metals.

Based on the context in which the majority of these items were found and the types of objects found, it can be concluded that the early use of metal in the Euphrates Valley was primarily oriented towards utilitarian tools and secondarily for personal ornaments and other items that could be used for public displays, with both categories of items being made for and used by the living inhabitants of the settlements. The Euphrates Valley excavations also provide evidence detailing the complex economic and social interactions between the local, Uruk and Transcaucasian populations throughout the fourth millennium and to what extent this long-term contact influenced the local, 'Euphratean' material culture as all of the sites with metalworking evidence also had varying degrees of interregional interaction.

One of the reasons given for the Mesopotamians venturing into northern Syria and Anatolia was to acquire resources (Algaze 1993b), and like the Uruk expansion, reasons for the spread of the Transcaucasian population groups into the Euphrates Valley centre on resource acquisition though internal and external conflict, natural disasters and trade ventures have also been proposed as explanations for regional population movement. In particular, the agricultural richness of the Upper Euphrates Valley has been suggested as a motive for the movement away from the Transcaucasian highlands into Anatolia (Rothman 2005a). The increase in metal objects and the use of specific typological styles from the mid-fourth millennium onwards has been associated both with the Uruk presence in the region[73] (Algaze 1993b) as well as with increased contact with the inhabitants of eastern Anatolia and the southern Caucasus (Frangipane and Palmieri 1994-1995; Palmieri *et al*. 1993). As the evidence above has shown, there was already a fairly advanced metallurgical industry present in the Upper Euphrates Valley by the Late Chalcolithic 4-5 meaning that metallurgical advances or in fact the widespread use of metal cannot be attributed solely to the influence of foreign populations.

The early use and manufacture of metal items in the Upper Euphrates Valley can be summarised as a progression from a localised industry in the beginning of the fourth millennium where the quantity of metal objects being produced was relatively small and chiefly comprised of utilitarian tools that could be shared amongst multiple members of a population group. The small number of objects corresponds to the lack of diversity of objects being made; ornaments and utilitarian tools such as chisels were the main types of objects being manufactured and were almost all exclusively made of copper or copper alloys. Any status differentiation as expressed through the use of metal was quite obvious based both on the context of disposal as well as the materials of manufacture, though this was fairly limited.

While the overall social use of metal seems to have remained the same in the second half of the fourth millennium, the inclusion of metal items in burials is now seen in sites north of the Taurus. The main example of this change comes from Korucutepe with its novel mortuary architecture and richness of grave goods which

[73] Following this, any technological advances in the indigenous settlements and societies were attributed to the Mesopotamians sharing their knowledge with the local population in a continuation of Orientalism, or *ex oriente lux* (Adams 1996).

can be associated more with northern Iraq than with local customs in terms of object types, mortuary architecture and mortuary behaviour. Another noticeable difference at this time was that the number of weapons outnumbered personal ornaments, though this was due to the cache found at Arslantepe rather than a general trend at all of the sites. There were also definite changes in the amount of objects being produced and their mode of production; metal objects were no longer necessarily being manufactured at the sites at which they were found as seemed to be the case in the first half of the fourth millennium. These changes all preceded and facilitated the drastic change in the social use of metal that occurred at the beginning of the Early Bronze Age.

The acquisition of metal objects through trade would seem to be a simple explanation for the appearance of metal objects at sites without evidence of metalworking; however, this also implies that not all sites had access to metal ore resources or the technology by which to manufacture these items. This is an oversimplified explanation for a lack of evidence when it is also just as likely that the metalworking areas were not excavated at many of the Upper Euphrates Valley sites before they were inundated, which was discussed in the first chapter.

The end of the LC 5 heralded the end of the Uruk Expansion, an event which was originally thought to have caused widespread collapse in the Upper Euphrates Valley (Algaze 1993b, 2001a, 2001b). Instead, the socio-political and economic transformations that occurred during the transition from the Chalcolithic to the Bronze Age served as a catalyst for widespread cultural changes; the emerging socio-political and economic structures allowed a greater number of individuals private access to material wealth and from there developed a more visible conspicuous consumption and disposal of this wealth. The re-structuring of settlements, increased reliance on craft items and the re-orientation of trade routes all contributed to the change in socio-political and economic systems in the Upper Euphrates Valley. Visible, physical manifestations of these changes can be seen at this time as the need for outward symbols of belonging and status became more vital to social interactions which is reflected in the rapid increase in metal consumption from the LC 5 to the EB I- the evidence of which is described in the following chapter.

Chapter 4: The Use of Metal in the EB I-II

Following the influx of southern Mesopotamian settlers and traders into the Upper Euphrates Valley in the mid-fourth millennium, the end of the Late Chalcolithic in the Euphrates Valley witnessed a decrease in external contact and potentially interregional population movements. A number of sites that Algaze (1993b) identified as being 'colonies' and 'outposts' saw a decline in population with the result that many of these settlements contracted in size or were abandoned altogether (see Gazetteer). Despite this apparent regional 'collapse', the number of small and very small sites increased as the number of large sites decreased. This settlement pattern suggests that the inhabitants of these larger sites moved to other, smaller sites or founded completely new sites rather than all of the supposed foreign inhabitants fleeing back to their homeland. This population dispersal promoted the three tier settlement hierarchy that emerged in the third millennium, though none of the top tier sites grew to the size of the largest LC 4-5 sites in the Upper Euphrates Valley.

The transitional period between the Late Chalcolithic and the Early Bronze Age also marks a change in socio-political and economic strategies, which is reflected in the material culture. Included among these changes was how the inhabitants of the Upper Euphrates Valley perceived and used metal; building on the metallurgical technology and skill of the previous centuries, the total number of metal artefacts in the EB I and II seems to have reached a scale nearing mass production and the overall metal assemblage shows a greater diversity of object types. This is counter to what would be expected if the local metal industry had been

tightly controlled by the Mesopotamian population who had moved into the region during the Uruk Expansion as the metal industry would then have collapsed with the Uruk withdrawal.

In order to explore the potential reasons for the increased use of metal during the early part of the third millennium, the sites and contexts in which these artefacts were found will be looked at in greater detail. Similar to the layout of the fourth millennium evidence presented in the previous chapter, the sites listed below are in geographical order from south to north and are only listed in this chapter if they had published evidence of metal artefacts or metalworking materials from secure contexts (but see the Gazetteer for a more complete list and description of occupied sites). The sites are separated into sectors rather than chronologically due to the fact that the division of the EB I from the EB II is often difficult to determine with any sort of accuracy. Objects and contexts that are listed here as specifically belonging to the first phase of the Early Bronze Age or the second have been reported as such by their excavator or report author.

As in the previous chapter, the evidence presented below is based almost entirely upon published information with the remaining information coming from unpublished materials graciously provided by several excavation directors. In cases such as Carchemish where the original excavation report and the recent reassessment disagree, the recent reassessment is used. At some sites there was found to be an inexact and/or changeable quantity of metal artefacts and types of objects listed in the site reports. Therefore, when items are listed as being plural but have no amount ascribed to them it is assumed that there are at least two objects, and the total amounts are listed as being greater than or equal to (≥) the minimum number of objects. Items with multiple fragments or beads that are part of a single necklace or bracelet are considered to be one complete object (i.e. a necklace with 23 silver beads is only one necklace). Unprovenanced items, notably the metal items 'discovered' by Woolley (1914) in his survey of the Euphrates Valley, are noted in the Gazetteer but not included with the cumulative counts of metal artefacts. The items themselves and the context in which there were found are briefly noted in text, though further description of the items can be found in Appendix II.

4.1 The Carchemish Sector

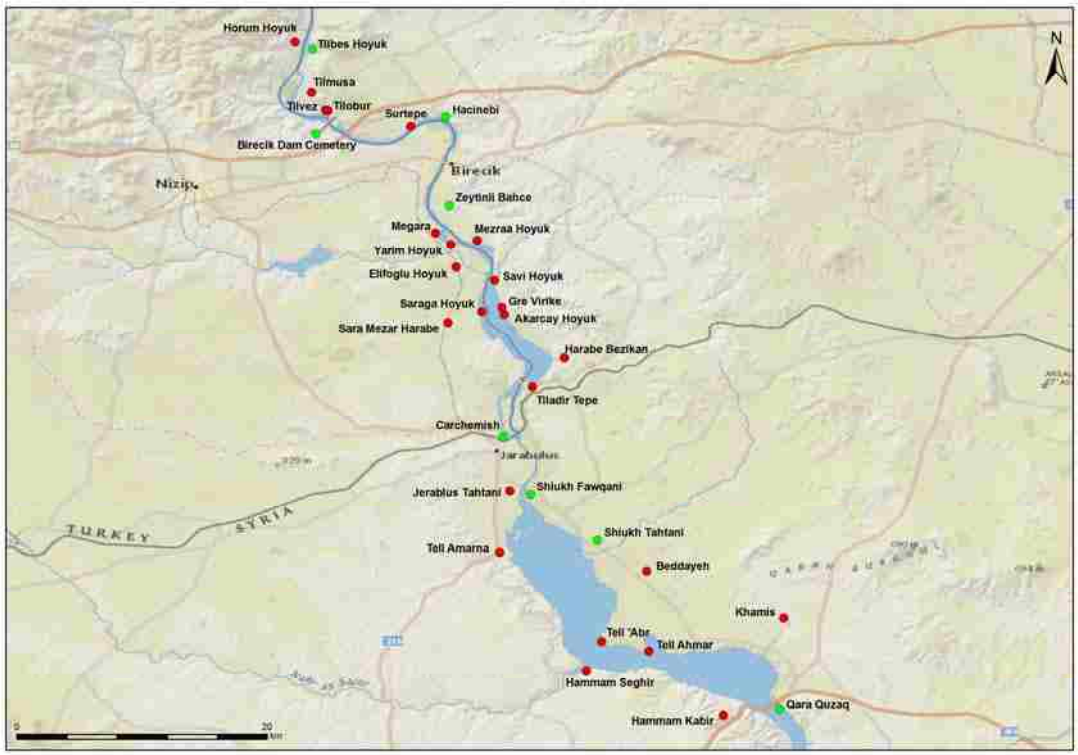

Figure 26 Close-up view of the Carchemish sector in the EBA I-II. Sites with metal objects and/or metalworking detritus are marked with green dots.

4.1.1 The Sites

† Qara Quzaq

First noted as part of Woolley's work in the Carchemish region, Qara Quzaq is a small mound approximately 150 metres in diameter with occupation deposits reaching 20 metres in depth. Woolley (1914) published some of the material looted from the site and described it as being representative of 'Hittite burial customs'. Qara Quzaq was later re-evaluated as part of a local survey in 1977 and then excavated as part of the Tishrin Dam salvage excavations from 1989 – 1997 (Pereiro 1999). Qara Quzaq was one of a number of newly founded sites in the region dating to the early third millennium, which is supported by the fact that the earliest phases of the mound are reported to date to the beginning of the Early Bronze Age.

These early EBA remains are quite substantial, with at least part of the site featuring a 'cultic compound' whose temple (L. 247) was constructed on top of a massive mud brick platform. The platform was orientated exactly north-south and

contained a low altar, two aurochs' horns and a broken conical limestone monolith (Pereiro 1999). Associated with temple L. 247 at the top of the platform are vaulted structures that were used as mortuary[74] chambers, though they also seem to have also been used for residential use. Both the temple and mortuary structures were delineated from the other buildings at the site by a temenos wall (Olávarri 1995).

Only one of these earlier vaulted burial chambers (L. 12) on the western slope of the mound was left in its original state- at least partially- because its ceiling had collapsed in on the chamber (Cooper 2006a). This building, called the 'Red Building', is a square burial chamber with outer walls approximately 3 metres thick (preserved up to a height of 2.8 metres) and a thin wall (40 cm wide) that divided the 5 metre by 3.5 metre building into two rooms (Locus 12-E and Locus 12-W). Each of these rooms contained an individual burial; the individual in Locus 12-W was a 12 – 13 year old juvenile of unknown sex[75] while the individual in Locus 12-E was an 18 year old female who was labelled as a 'princess' based on the wealth of grave goods interred with her. Both individuals' bones were grey in colour as a result of post-depositional *in situ* burning (Montero Fenollós 2004). This semi-cremation of the bodies is unique to this area during the Early Bronze Age[76] and is thought to have been connected with funerary rituals, though it is not known if the burning occurred soon after death or at a more advanced stage of the decomposition process (Montero Fenollós 2004).

The grave goods interred with the two individuals included: typical early third millennium ceramic vessels, seven metal spearheads, 25 metal pins and numerous beads made of white, black or reddish-brown paste (Montero Fenollós 2004). The spearheads were made of pure copper and are closely related to EB I – II examples found in Arslantepe VI A, Hassek Höyük and Carchemish as well as the

[74] It was also noted that an EBA cemetery has been located in the fields around the site, but as yet there is little published information regarding this cemetery or to which phase of the EBA it dates to (Olávarri 1995).
[75] Though Montero Fenollós leans more towards the individual being a male (Monterro Fenollós 2004: 38).
[76] Evidence for earlier cremation comes from Late Neolithic Sabi Abyad in the Balikh. The 'Burnt Village' level (6200 – 6100 BC) seems to have been a period when the custom for several generations was to cremate adults in the derelict buildings from the previous occupation phase (Akkermans 2008).

examples that Woolley (1914) reported to have been found at Kara Hasan[77] to the west of the Euphrates Valley (Pereiro 1999). The pins can be subdivided into two groups: toggle pins with hemispherical heads and disc-headed pins without the hole below the head; both types of pins are widely distributed throughout the Upper Euphrates Valley. Altogether, it is estimated that the total weight of the metal objects from the Locus 12-E interment is approximately one kilogram, which is quite impressive as the excavators believe that the copper ore used[78] to make these objects did not come from the Ergani-Maden mine complex or any of the other known EBA mining areas in Anatolia that were close to Qara Quzaq (Montero 1995; Montero Fenollós 2004).

† Shiukh Tahtani

The site of Shiukh Tahtani is favourably situated on a low, flat terrace in the agriculturally rich open plain of the Upper Tishrin Basin about halfway between Carchemish and Tell Ahmar. It is thought that a channel of the Euphrates River may have run close by the site in antiquity similar to how it does today (Falsone 1998, 1999). The summit of the tell has suffered significant modern damage caused by the construction of a water tower, the laying of water pipes, the creation of a road and the terracing of the area immediately beyond the tell.

The excavated material showed that Shiukh Tahtani was occupied at the end of the fourth millennium, if not earlier, and the ceramic assemblage was predominantly comprised of local wares with a degree of Uruk influence. The excavation of the Chalcolithic levels of occupation at Shiukh Tahtani has been fairly limited due to the extensive later overburden (more than seven metres), and it is only because of the modern disturbance that the third millennium levels were reached so quickly. In the first season of excavation a wide trench had been dug in the southern side of the tell to transport water from the water tower to the modern village. This trench allowed the EB I and II deposits, labelled as Phase 1, to be quickly accessed. The exposed section of this massive trench revealed a 'heavy' mud brick wall

[77] The finds from Kara Hasan are thought to have been from a grave, though recent survey was not able to find evidence of a cemetery or discrete graves and Woolley's (1914) reports are not entirely to be trusted as to geographical or contextual accuracy.
[78] Only two pins (QQ92C7.323 and 325) were analysed (Montero Fenollós 2004), so one should be cautious about drawing too many far reaching conclusions from this.

preserved over one metre high that was followed for up to five metres. Further excavation of the wall revealed multiple buttresses, construction rubble and a destruction level which were all associated with this structure. The destruction level consisted of a thick ashy/burnt layer that was found throughout the excavated area (Falsone 1998, 1999). After the destruction level, a clear difference in phasing occurred and the rebuilt buildings were defined as a distinct phase (phase 2) of the Period 1 remains.

Further architectural features were found in Area C3, most notably the large niched and buttressed building (the 'South Building') that was oriented north – south, and it appears that this large compound (the building and its courtyard) had undergone several episodes of remodelling dating back to the early EB I (Phases 13 and 14) (Falsone and Sconzo 2008, 2010). This building is thought to have served a public function at the site, which is supported by its longevity of use. (Falsone 1999) Whether it was used for political or religious reasons is unknown, though the earlier mud brick platform topped with a white slab (Falsone and Sconzo 2008) would suggest a religious connotation. However, the stray find of a possible EB II cylinder seal with a zigzag design also hints at an administrative use for the building. Also associated with the early phase of this building was an infant jar burial that had been sealed with an upside-down champagne cup. Thus far, this burial (T. 116) is the earliest found at Shiukh Tahtani (Falsone and Sconzo 2008).

More architectural remains were found underneath of the EB III destruction layer in Area D1 where an eight metre long mud brick structure was found. The associated remains suggest that this open-air building was used for domestic purposes such as food production based on the large oven and embedded pots full of ash and carbonised plant remains (Falsone and Sconzo 2008). Area D1 also had several intrusive burials dating to the EB I-III periods including an EB III shaft and chamber tomb (T. 107) containing a child and numerous pots and one small gold bead (Falsone and Sconzo 2008). The EB I and II burials included three fairly standard infant jar burials and two additional large pithos burials, but unlike the jar burials, the pithos burials (T. 109) included grave goods such as pottery (including *cyma recta* and champagne cups), metal pins and small stone beads that were likely part of the clothing decoration (Falsone and Sconzo 2008).

The ceramics found in the EB I-II levels at Shiukh Tahtani are typical of the region for the period and fit well within the wider Carchemish and Samsat-Lidar area ceramic assemblages (Sconzo 2006, 2007; Sertok 2007). The forms include the ubiquitous champagne cups, open bowls, a *cyma recta* cup and large storage jars with thickened rims (Falsone 1998). It has also been suggested that Shiukh Tahtani must be close to a flint source based on the sheer quantity of flint flakes, pebbles and large boulders that have been found during the course of excavation, and it may be that the production of flint tools[79] and their subsequent trade may have been a major industry at Shiukh Tahtani (Falsone 1998).

† Shiukh Fawqani

Similar in size to nearby Shiukh Tahtani and Jerablus Tahtani, Shiukh Fawqani is another site within the Carchemish catchment area that was occupied from the end of the Late Chalcolithic through to the EB II period. Like the other small conical tells in the immediate vicinity, the amount of later overburden has prevented large-scale exposure of the early occupation levels, though excavation revealed that there were substantial EB I deposits that were divided into three periods (A, B and C). Period A is the most recent level and therefore closest to the surface, but because of modern disturbance this level was heavily damaged, meaning that the majority of the early third millennium evidence from Shiukh Fawqani comes from the B and C periods of occupation (Bachelot and Fales 2005).

Of note in period B is Building 3 which is architecturally the most complex among all of the excavated buildings thus far; it has a slightly different orientation, is larger in size, has thick walls, the buttresses are internal rather than external and the eastern wall features a small niche in the centre of the wall between two buttresses. On the floor at the base of this niche was a baked clay crucible complete with copper droplets and a low pouring spout. The crucible itself is typical for the region, but the main point of interest is the fact that the crucible fits inside of the wall niche perfectly (Bonacossi 2000). The size, construction and contents of the building led the excavators to describe this structure as a 'bâtiment de prestige', though not

[79] Included in the flint blade finds in the early third millennium remains are examples of the Canaanean type which were also found at the nearby site of Jerablus Tahtani in the late fourth millennium (Peltenburg *et al*. 1995).

necessarily one of religious significance or function (Bonacossi 2000). The adjacent structure, Building 2, had a large oven that could have been associated with the activities carried out in Building 3 (Bachelot and Fales 2005).

The earliest EB I level at the site (period C) also seems to have had a 'bâtiment de prestige' as Building 1 in this initial phase of occupation had a strong similarity in function to the later (period B) Building 3, implying a long-lived tradition and use for this type of building. Of particular note is that the period C Building 1 also had a similar lime-plastered niche, but in the earlier building this niche was built into the southern wall rather than the eastern wall, as was the case in the later building. This niche went through several phases of remodeling before its final incarnation which was identical in shape to the niche found in the period B Building 3.

The overall EB I (periods A – C) ceramic assemblage from Shiukh Fawqani is similar to that of Carchemish, Shiukh Tahtani, Tell Ahmar, Horum Höyük, Hayaz Höyük, Kurban Höyük, Hassek Höyük and Hacınebi (Bachelot and Fales 2005; Bonacossi 2000), which reflects the close ties that these small sites had with each other and the rest of the Carchemish and Samsat regions. While metal objects were found in the EB III and IV burials (Capet 2000), there were no metal objects reported from the EB I and II occupation levels of the site, despite Shiukh Fawqani having evidence of metalworking in Building 3.

† Carchemish

The original excavations at Carchemish were carried out on behalf of the British Museum in the early 20th century A.D. first under the direction of Hogarth and later by Woolley. These early excavations were very much a product of their time and were focused primarily on the monumental remains, though the loss of excavation records due to hostilities and the sometimes haphazard system of excavation have also made interpretation of the occupation sequence at the site somewhat problematic (see Falsone and Sconzo 2007; Hogarth 1911; Ussishkin 1967; Woolley 1914, 1952, 1969). Compounding the problem is the fact that the site is split by an international border and a railway line; the lower town is in Syria while the main mound is in Turkey with a military post situated on top of it. The main

mound had also been heavily mined in the more than 90 years since the original excavations, and it was not until 2010 AD that these mines were cleared to make it safe for archaeologists to finally resume archaeological investigation.

Despite past difficulties, recent reassessment of the site reports (see Falsone and Sconzo 2007) has cleared away some of the confusion surrounding Woolley's stratigraphy and classifications. The occupation sequence of Carchemish and its immediate environs has also been further clarified through the recent Land of Carchemish survey project (Peltenburg and Wilkinson 2008; Wilkinson *et al*. 2007). Through the original excavations, the reassessment and the local survey, it was found that there was a Late Chalcolithic occupation at Carchemish (though the extent of this settlement is largely unknown[80]) as well as a fairly rich Early Bronze Age occupation at the site.

The bulk of the Early Bronze Age information from Carchemish comes from the 'Chalcolithic' jar burials and the 15 or more cist burials that Woolley (1952) dated to 2600 BC[81]. The jar and cist burials have varying degrees of grave wealth associated with them, leading Woolley to conclude that the graves were spatially separated by social class as the 31 pot burials (only 20 of which were recorded though most of the records were lost when the site was abandoned in 1920) were located between the 24.5 – 28.9 contour lines and the cist burials were located above the 28.0 contour line. Woolley further noted that:

> The cist graves must be associated with the earliest fortification of the mound and the erection on it of official buildings (Woolley 1952: 223).

In contrast, Falsone and Sconzo (2007), report that the cists actually seem to have been found between the 27 – 29.50 contour lines which, if true, would mean that there was overlap between the placement of the cists and jar burials. The jar burials had 'quantities of hand-made bowls' (Woolley 1952: 216) associated with them, which Woolley suggested contained food offerings for the dead. Apart from ceramics, the cist burials also contained beads and metal weapons and ornaments, which are outlined by grave in Appendix II.

[80] Carchemish is reported at being roughly 3 hectares by Hogarth (1914), 4 hectares by Bunnens (2007), 42 hectares by McClellan (1999) and 44.5 hectares by Algaze *et al*. (1994)
[81] This date is roughly accurate, though Woolley ascribed these burials to the Hittites, which is not.

† Zeytinli Bahçe

The EB I deposits at Zeytinli are 8-10 metres deep and were mainly excavated in sounding CG (Frangipane *et al*. 2001; Frangipane *et al*. 2002; Frangipane *et al*. 2011). The excavated remains show that this was a well-organised settlement based upon the planned layout of the occupation levels (Frangipane and Bucak 2001; Frangipane *et al.* 2002). The corresponding ceramics show that the long-term contact with the Uruk population had tangibly influenced the local material culture as local ceramics imitating Uruk styles were typical to the ceramic assemblage at the beginning of the Early Bronze Age (Frangipane 2007; Frangipane and Balossi 2006). The local economy is well attested to by the high numbers of sheep, goat and pig bones excavated at the site, a situation which closely resembles the local subsistence base of Hassek Höyük and other sites south of the Taurus (Frangipane 2007; Frangipane and Siracusano 1998).

The only two metal objects found in sounding CG were a chisel and a conical-headed pin (Frangipane *et al*. 2002). The scarcity of metal items at this small to medium sized site may be attributed to the inhabitants' emphasis on the subsistence economy, or perhaps this is a result of a residual southern Mesopotamian and/or mixed population living at the site who kept with the general Uruk trend of restricted access to metal artefacts. Despite the thick level of EB I deposits, there was a lengthy period of occupation hiatus (3.5 metres of hiatus deposits) before the site was again occupied in the EBA IV (Frangipane and Balossi 2009).

† Hacınebi

There is limited evidence from Hacınebi that indicates that the site was still occupied in the EB I, but by the EB II the site had clearly been abandoned as the population most likely moved to where the modern village of Uğurcuk is now located. Hacınebi was then used as a cemetery with the graves placed in the open, sloping area at the south edge of the site in Area B, Operation 12 as well as on the north edge of the site in Area A, Operation 18 (Stein 1998b, 1999d; Stein *et al*. 1997).

In Operation 12 in area B there were two phases of use; the later level had a small stone structure while the earlier level was used as a cemetery that contained

eight EB I burials of adults and infants either in jars, cists or pits. Jar burials 129, 135, 140 and 201 were infants buried in re-used storage jars that were sealed with band rim bowls. The grave goods that were found in these jar burials included frit beads, small ceramic vessels, and in the case of Jar Burial 135 there was a copper or bronze pin. Two adults were buried in simple pits (128 and 141), neither of whom had designated grave goods. Burial 141 was the grave of an adult who seems to have been tossed into the grave along with the mandible of a donkey or onager (Stein 1998). Two other adults were buried in stone cists (153 and 145); burial 145 was robbed in antiquity though burial 153 seems to have fared better possibly because the top of this cist was sealed with two large limestone slabs. Neither of these burials contained metal grave goods and only burial 153 had ceramics.

In the north edge of the site in area A, four more EB I burials were excavated in Operation 18. Of these four burials, numbers 4, 6 and 10 were robbed in antiquity leaving the adult burial 5 as the only intact grave. Of all the burials excavated, cist burial 5 in Operation 18 had the greatest quantity of grave goods. These goods included pottery that was typical to the Birecik Dam cemetery (Pearce 2000) Carchemish, Jerablus Tahtani, Hassek Höyük and Arslantepe (Stein 1998b). Other grave goods included faience and frit beads and six metal objects[82] that are described further in Appendix II. The graves in both operations contained a variety of goods, though the Operation 18 burials were richer in metal objects overall. Stein (1999b, 1999d) interpreted the differential distribution of grave wealth between the two burial areas as possible evidence of the social identity of the individuals buried there; whether elite and non-elite or divided along other lines such as gender or social roles. However, it is also just as likely that any perceived differences are the result of looting following the original interment of the deceased.

[82] It was noticed that there is one item in the picture, both on the excavation's website as well as in the *KST* report (Stein 1998b: 201), of the tomb's grave goods that is not described or listed in the tomb's contents. It appears to be a flat looking metal object, though neither the picture on the website nor the picture in the *KST* publication are clear enough to identify what this object is. This was also the case for another object (HN 12784) that was not listed in the description of the tomb's contents (Stein 1998b) but was included with drawings of the pins from the tomb (Stein 1998b: 207) and appears in the picture of the tomb contents. The EB I graves and their contents are described in further depth in Appendix II, with the list based on the limited EB I information available on the excavation website (<http://facultyweb.at.northwestern.edu/anthropology/stein/HNexcavationsEB-I.html>) and the *XIX KST* report (Stein 1998b).

After the site ceased to be used as a cemetery, ephemeral architecture composed of thin stone walls and post-holes was erected in Area B and it may be that the site was used on a seasonal or temporary basis by shepherds (Stein 1999b).

† Tilbeş Höyük

Tilbeş has approximately 1.5 metres of EB I deposits (Levels VII to X) that are primarily composed of domestic remains that were found in multiple small exploratory trenches (Fuensanta and Mısır 1997; Fuensanta *et al*. 2002; Rothman and Fuensanta forthcoming). More is known about the architecture of the later EBA periods when large public buildings are reported to have been constructed during the site's occupation peak. It is at this time that a monumental mud brick platform at least 10 metres high was built in the northern area of the site (Fuensanta 2007; Fuensanta *et al*. 2004; Rothman and Fuensanta forthcoming; Wossink 2009). A contemporaneous platform was found at Gre Virike while similar platforms were built at nearby Surtepe and Hacınebi in the fourth millennium, suggesting that there was a continuity of this type of specialised architecture in the immediate vicinity.

The southern slope of the tell had the least amount of overburden (though there were still Islamic and Middle Bronze Age deposits) on top of the EBA remains, and the excavation of an 11 x 10 metre trench (square E4aE3E8) revealed significant architecture from the mid-third millennium and earlier (Fuensanta 2007; Fuensanta *et al*. 1999, 2000). Earlier building phases were found underneath of the EB III-IV 'Burned Building'[83] in a smaller excavation unit that had been opened beneath the eastern part of the Burned Building. The remains from this small square included two stone lined cist burials, a corner of an earlier building and a rubbish pit. The associated ceramics date these remains to the EB II at the latest, and it is in this small square (mainly from the two tombs) that the majority of the burnished pottery from Tilbeş was found (Rothman and Fuensanta forthcoming). Apart from ceramics, the two burials also contained beads and several metal objects that are listed in Appendix II.

Further EB I and II architectural remains were found downslope in trench E4b underneath of the packing and construction materials of the EB III-IV mud brick

[83] This building has strong parallels to Beycesultan- at both sites multiple sets of clay horns were found in well-planned building design (Fuensanta *et al*. 2002; Lloyd and Mellart 1962).

platform. These remains consisted of a workshop area and courtyard that was used from the Late Chalcolithic 5 through the beginning of the Early Bronze Age. This area featured two non-domestic mud brick structures, a pit, a firing pit and the remains of two mud brick platforms (Rothman and Fuensanta forthcoming). Micromorphological analysis (see Rainville 2005) of the firing pit showed that it was used for metal smelting (Fuensanta *et al*. 2002; Rainville 2005; Rothman and Fuensanta forthcoming) which was further confirmed by the amount of slag and metalworking detritus found in this square. Other craft activities were also carried out in this area based on the detritus and negative features that were excavated, including a pit with misfired figurines (Rothman personal communication). The nearby excavation square AE 1-5 also had further evidence of metallurgy, though significantly less so than trench E4aE3E8.

† Birecik Dam Cemetery

This nearly three hectare cemetery is located roughly thirty metres from the west bank of the Euphrates River approximately twenty-five kilometres north of Carchemish. Despite the large size of this cemetery no attached settlement has been found[84], and it is thought that this site was a central cemetery used by multiple groups, including settled and nomadic populations, in the region. In total, the Birecik Dam cemetery includes several hundred burials, most of which:

> … do not display any stratification and extend without causing damage to one another suggests that the cemetery was used intensively for a rather short period of time (Sertok and Ergeç 1999: 88).

Apart from the graves, the cemetery also features a number of shallow depressions and pits filled with detritus from what are assumed to be mortuary offerings that may relate to feasting or post-interment offerings. The graves were dug into the subsurface clay beds and were then covered with 1.5 – 2 metres of slope-wash material from the higher elevation limestone plateau at some point after the cemetery fell out of use (Sertok and Ergeç 1999). These wash deposits protected the graves against discovery until the clay was needed for the construction of the Birecik Dam as part of the GAP project and the cemetery was partially destroyed by bulldozing.

[84] See Engin (2004) for a history of settlement in this region.

Subsequent rescue excavations in 1997 and 1998 uncovered 312 burials dating to the first few centuries of the third millennium, though it is thought that the most populated portion of the cemetery was destroyed by the clay mining prior to the official excavations of a 300 x 200 m area (Sertok and Ergeç 1999, 2000).

The burials that were excavated consisted predominantly of cist graves, though there were also a small number of cooking pot and storage jar burials. These thirteen jar burials were primarily used for children and seem to have been randomly interspersed with the cist graves. In contrast, the cist graves were oriented with sunset and sunrise in mind and can be further separated into groups that had shared dimensions. It was not uncommon for the cist burials to have more than one body, though the leaching of salts into the burials destroyed a fair amount of the skeletal assemblage and rendered in-depth skeletal analysis difficult (Sertok and Ergeç 1999).

The goods found in the burials consisted of ceramics, metal objects, frit and talc beads, isolated examples of terracotta figurines, two cylinder seals made of limestone and carnelian, a flint blade and fifteen painted cups in the Ninevite 5 style[85] (Sertok and Ergeç 1999, 2000; Squadrone 2000a, 2007). Ceramics were by far the most frequently item found in these burials[86]; over 5,000 vessels were found between the 312 excavated burials, with individual tombs having up to 150 vessels apiece (Sertok and Ergeç 1999). ‘Amuq F and G reserved- slip and plain simple wares were the most commonly represented ceramic types in the total assemblage, corresponding to the pottery in the contemporary Arslantepe VI B, Carchemish, Hacınebi and Hassek Höyük burials (Sertok 2007; Squadrone 2000, 2007). Noticeably absent from the noted ceramic types were the burnished wares that were present in the cist graves at nearby Tilbeş Höyük.

After ceramics, the next most frequent grave good were the approximately 410 metal objects (a list of the published metal artefacts is listed in Appendix II). These objects are predominantly ornaments (83% of the total), with the vast majority of these ornaments represented by pins (72%) and the remaining ornaments (11%) comprised of pendants of various types, beads, bracelets, torques and objects that are

[85] These fifteen Ninevite 5 cups are unique in that, “…few sites outside the cultural domain of Nineveh V have produced such distinct pottery types, and those types found at sites other than Nineveh do not exceed a few painted examples” (Sertok and Ergeç 1999: 92).
[86] Altogether, the items that were found tended to be made of materials which were better able to survive the effects of five thousand years of leach water and plant growth.

thought to be seals (see Plate 3) which have parallels to examples from Hassek Höyük (Squadrone 2007). The pins can be further broken down into types: conical-headed pins constitute the majority (60%) of the pin repertoire though there are also round-headed, spiral-headed, zoomorphic-headed, disc-headed pins, bow-shaped perforated pins and a small number of toggle pins (see Plate 4 for examples) (Squadrone 2000b, 2007). There were several types of pendants that were found including one double spiral pendant, two incised crescent shaped[87] pendants and one leaf shaped pendant, while the bracelets and torques are all fairly simple examples made of curved metal (Squadrone 2007).

The remaining 17% of the total metal finds were divided between weapons and tools, including spearheads, daggers, chisels, axes and mace heads (see Plate 3) (Squadrone 2000a, 2007). The majority of the weapons were bipartite poker butt or tripartite leaf- shaped spearheads[88], with flat axes the next numerous tool/weapon found in the cemetery (Squadrone 2007; Sertok and Ergeç 1999). Daggers and mace heads, on the other hand, were fairly rare. The spearheads were deliberately placed parallel to the north and south sides of the cist burial with the pins and other small ornaments placed alongside the deceased or attached to their clothing (Sertok and Ergeç 1999).

4.1.2 Carchemish Sector Analysis

For a better idea in terms of the probability involved in finding a pin in a Near Eastern tell, the number of objects found at these sites can be compared to the total amount of area excavated at these sites (see Figure 27 below). The extensive excavation of the Birecik Dam cemetery (ca. 60,000 m²) is the largest excavated site included in this thesis, with the next largest exposure represented by the Korucutepe excavations which had ca. 12,725 m² of excavated area. Therefore, while the Birecik Dam cemetery had an exponentially larger quantity of metal objects when compared to contemporary sites in the Carchemish sector, the objects per excavated square metre is quite low.

[87] Parallel examples from the mid-late EBA have been found at Jerablus Tahtani, Ayyıldız and Shiukh Fawqani

[88] The tripartite spearheads are similar to those found at Arslantepe VI A and VI B contexts, Tulintepe, the Hassek Höyük burials, Kara Hasan and the Carchemish burials (Sertok and Ergeç 1999)

Site	Site Size (ha)	Total Excavated Area (m²)	Number of Objects in Mortuary Contexts	Number of Objects in Non-Mortuary Contexts	Total Number of Metal Objects	Objects/ Excavated m²
Qara Quzaq	0.8	*ca.* 1000	34		34	0.034
Shiukh Tahtani	1.2	*ca*. 800	≥ 2		≥ 2	0.0025
Carchemish[89]	4	*ca*. 5000	≥ 67		≥ 67	0.0134
Zeytinli Bahçe	2.6	*ca*. 800		2	2	0.0025
Hacınebi	3.3	*ca.* 1300	7?		7?	0.005
Tilbeş Höyük	1.1	*ca*. 250[90]	7		7	0.028
Birecik Dam cemetery	3	*ca.* 60,000	410		410	0.007
Total	16	*ca.* 69,150	≥ 527	2	≥ 529	0.007

Figure 27 Sites in the Carchemish sector with metal artefacts

As the figure above shows, the number of objects per excavated square metre varies greatly between sites, from 0.0025 at Shiukh Tahtani and Zeytinli Bahçe to 0.034 at Qara Quzaq. One observation from this calculation is that the number of metal objects present at a given site does not necessarily reflect site size as large sites with relatively small exposures can have a higher incidence of metal than larger sites with a greater excavated area and a greater number of metal items overall. A comparison of the number of metal artefacts per site to excavated area shows a grouping of sites with fewer than fifty artefacts towards the smaller excavated area end of the axis (see Figure 28 below).

[89] Bunnens (2007) suggestion of *c.* 4 hectares for Carchemish is used here
[90] The extent of excavation at this site is not published, though Fuensanta (2007) and Rothman and Fuensanta (forthcoming) mention at least 250 square metres of EBA excavated area.

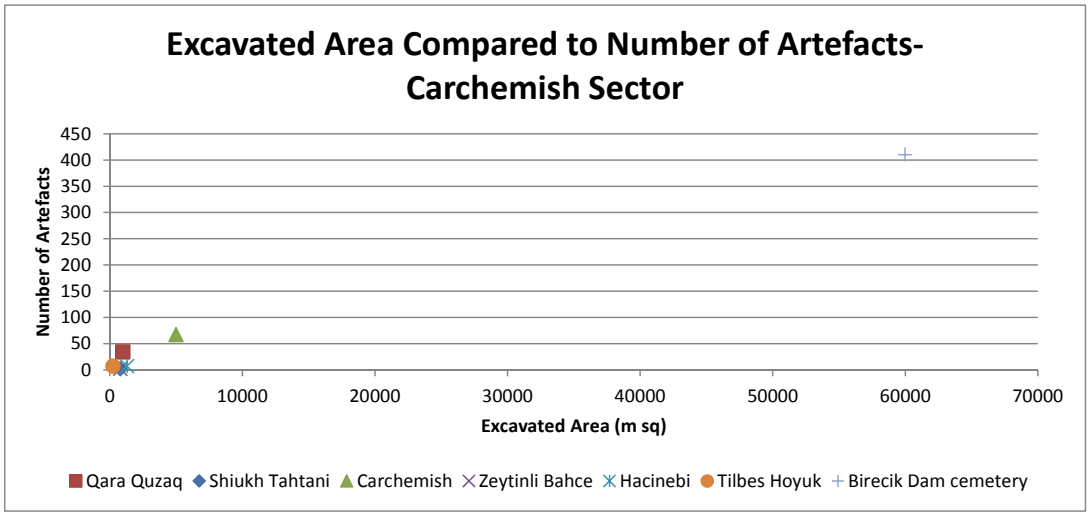

Figure 28 Distribution of metal artefacts between sites in the Carchemish Sector

Of the sites shown in the figure above, Zeytinli Bahçe is the only site in this sector that had published metal artefacts found in non-mortuary contexts[91]. The remaining 527 objects were all items that had been found in burials at the six other sites (see Figure 29 below), meaning that the metal grave goods represented 99.6% of the total metal assemblage from the Carchemish sector.

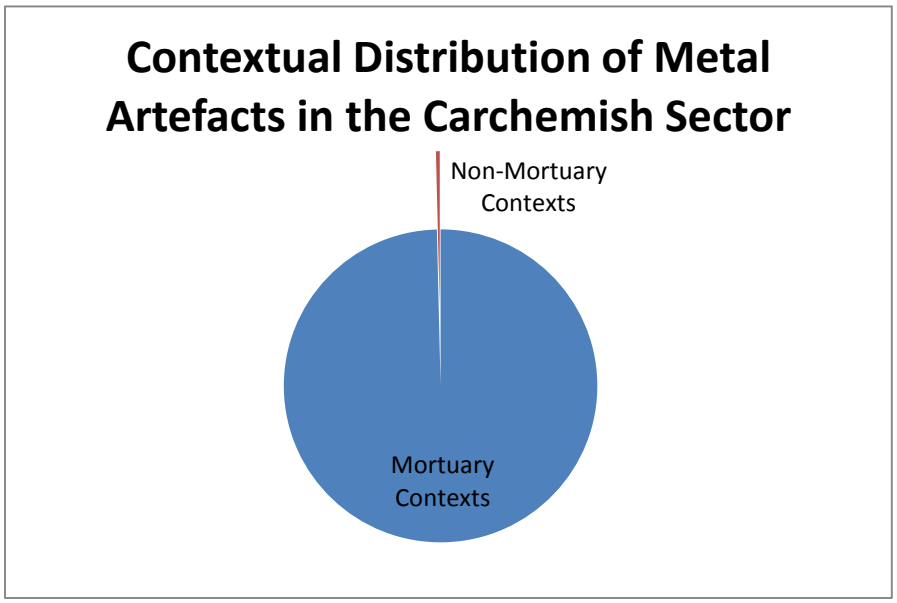

Figure 29 Distribution of metal objects by context in the Carchemish Sector in the EB I-II

[91] Palmieri and di Nocera (2004) mention that there were a total of 19 metal objects found at Zeytinli Bahçe, but they give no mention as to what contexts these objects were found in, and so they are not included in the total count of objects. Palmieri and di Nocera (*ibid.*) also mention a database with over 3500 metal artefacts from the Near East at < http://www.itabc.cnr.it/f_tutto.htm>, though from 2004 through the publication of this thesis this database has still not been made available online.

When the objects are divided between contexts and thence into categories and compared across the sites (see Figures 30 and 31 below), the emphasis on pins in the metal repertoire from mortuary contexts is very apparent. A visual division of these objects shows more clearly just how unevenly the types of objects are distributed (see Figure 32).

Site	Pins	Pendants & 'Seals'	Torques, Rings, Bracelets	Chisels & Awls	Flat Axes	Mace Heads	Spear-heads	Knives & Daggers	Misc.
Zeytinli Bahçe	1			1					

Figure 30 Distribution of object types throughout the Carchemish sector non-mortuary contexts

Site	Pins	Pendants, 'Seals' & Figurines	Torques, Rings & Bracelets	Chisels & Awls	Flat Axes	Mace Heads	Spear-heads	Knives, Daggers & Swords	Misc
Qara Quzaq	25						7		2[92]
Shiukh Tahtani	≥ 2								
Carchemish	≥ 26		15	2		9	6	6	3
Hacınebi	5								2
Tilbeş Höyük	6								1
Birecik[93] Dam cemetery	295[94]	13	9	15[95]	15		34	6	23[96]
Total	≥359	13	≥ 24	17	15	9	47	12	31

Figure 31 Distribution of object types throughout the Carchemish sector mortuary contexts

[92] These were labeled as 'cuentas' by Montero Fenollos (2004) which translates into English as 'accounts'. Perhaps these copper/bronze items were beads?

[93] It should be mentioned here that the precise number of specific artefact types from the Birecik Dam cemetery is unknown due to difficulties in obtaining the unpublished information. The numbers shown here are a combination of the percentages of the total number of artefacts given by Squadrone (2007: 202) and the 115 or so published objects (Sertok and Ergeç 1999, 2000; Squadrone 2000a, 2000b, 2007).

[94] This figure is based on Squadrone's (2007) estimate that pins were 72% of the total metal assemblage

[95] Squadrone (2000b, 2007) does not quantify or discuss chisels or awls specifically in either of her publications on the Birecik metals, and so this number is drawn from the remaining items in her 'Weapons and Tools' total percentage of 17% once the other known items were accounted for (Squadrone 2007:198).

[96] These items are ornaments, though Squadrone (2007) does not specify what type of ornaments they are.

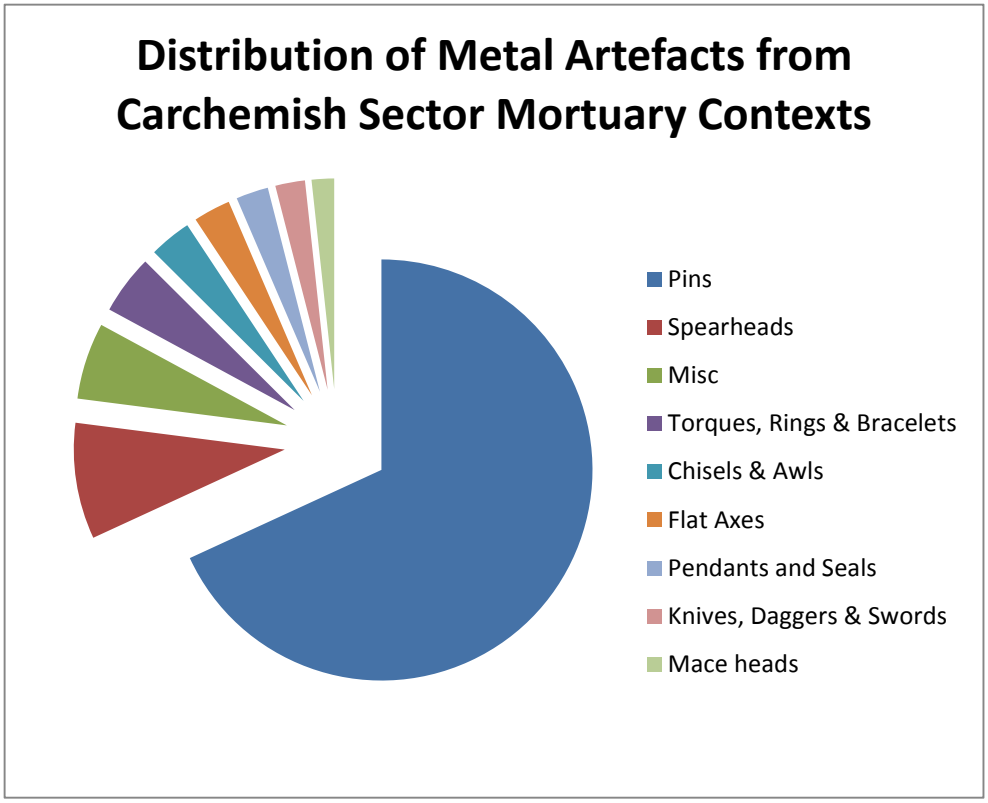

Figure 32: Distribution of metal artefacts by type in Carchemish sector mortuary contexts

The Carchemish and the Birecik Dam cemeteries display a greater diversity of metal object types than the other sites in the Carchemish sector, a trend that is possibly the result of to the greater number of undisturbed graves that were excavated at these sites than at the other sites mentioned. As there are only two metal artefacts reported from non-mortuary contexts in the Carchemish sector, this sample is too statistically insignificant to determine if they represent an accurate picture of the quantity and types of metal objects used in everyday life. However, based on the items found in the Late Chalcolithic, the pin and chisel found in the Zeytinli sounding represent the general types of metal objects used by the Euphrateans in day-to-day life.

If it is the case that metal use in the Carchemish sector was primarily associated with mortuary ritual and behaviour in the EB I-II, then the high number of metal objects found in EB I and II burials at sites of varying sizes suggests that metal was not reserved solely for the use of the 'elite', but instead was widely accessible to multiple members of a population. The use of metal by the inhabitants of the Carchemish sector is summarised by Philip in a few key points:

1) the range of material present at sites in the Carchemish region was distinct from that appearing in contemporary graves in Mesopotamia;
2) the pattern of metal artefact use documented in the Carchemish region represents a genuine local development, which draws upon forms present in the area in the late 4th millennium; and
3) the equation between the conspicuous consumption of metalwork in graves and the marking of status had become accepted in the Carchemish region and areas further to the north by *c*. 3000 BC and so, on present evidence at least, rather earlier than was to be the case in Southern Mesopotamia (Philip 2007: 190).

As Philip noted above, it seems to be the case that in the EB I and II that there was a burgeoning need to display status, and it may be that pins were the easiest and least costly items to produce because their manufacture was fairly straightforward which would explain why these items comprised 68% of the total mortuary metal assemblage.

An analysis of the larger categories of objects in both mortuary and non-mortuary contexts shows that ornaments (comprised of pins, seals, pendants, figurines, bracelets, torques and all types of rings) make up the largest category of objects followed by weapons (knives, daggers, mace heads and spearheads) and last by tools (comprised of chisels, awls and flat axes) (see Figure 33 below).

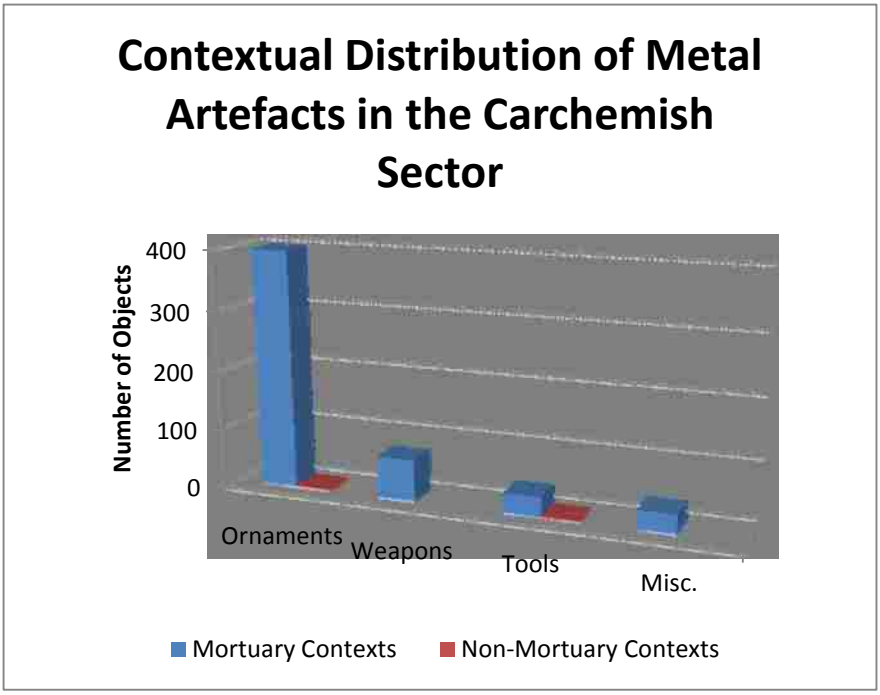

Figure 33: Distribution of artefacts found in the Carchemish sector by category

While fewer in number than the other categories of artefacts, the number of tools (32) found in the Carchemish sector burials is notable for the fact that these utilitarian items were deliberately chosen to be disposed of in mortuary contexts rather than being kept by the living and used for utilitarian purposes. Included in the tools that were deposited as grave goods are the several flat axes from the Birecik Dam cemetery which had proto-cuneiform signs incised into them that may indicate their economic value. This suggests that in at least some instances it was the quantity or value of metal being deposited that was the important aspect of social display rather than the types of objects being deposited with the dead. This will be further explored in Chapters 5 and 6 below.

4.2 The Samsat-Lidar Sector

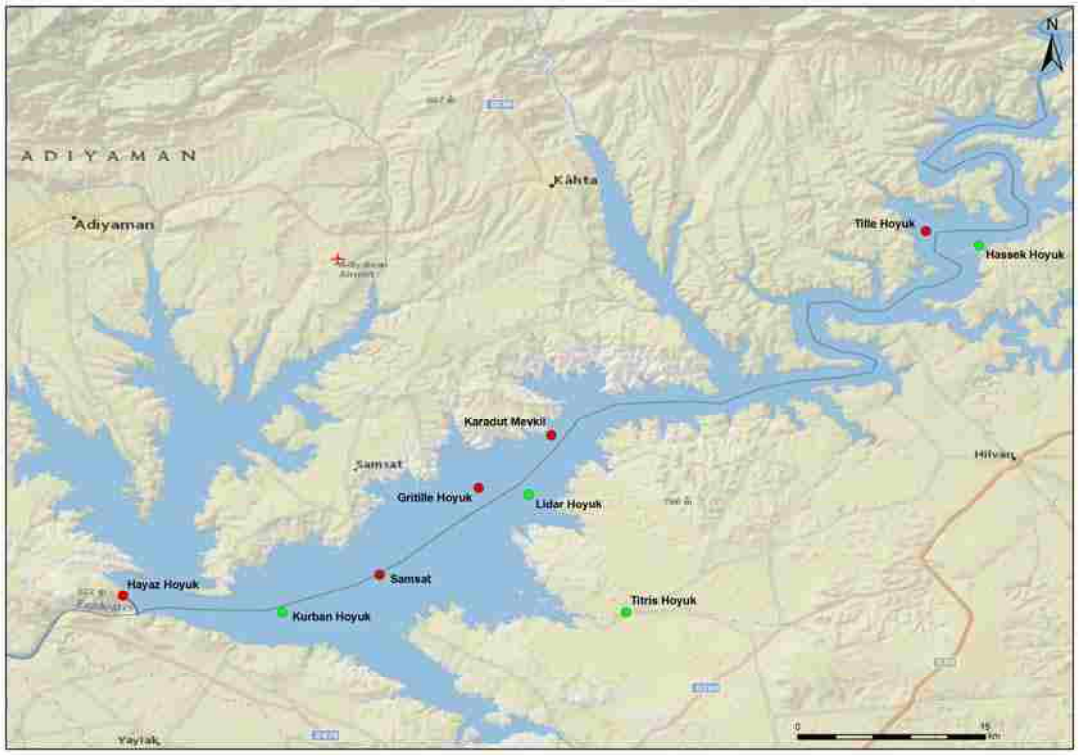

Figure 34 EB I-II sites in the Samsat-Lidar sector mentioned below. Sites with metal objects and/ or metalworking detritus are marked with green

4.2.1 The Sites

† Kurban Höyük

Large areas of Kurban were abandoned, including the entire southern mound, in the phases following the Late Chalcolithic occupation. This abandonment does not seem to have been caused by a violent incident since there was no evidence of a destruction level. Instead, it seems that there was a down-sizing of the population[97] during the EB I (Period V) when the settlement architecture shows a completely different alignment from the previous phase of building. A break with the Late Chalcolithic occupation can also be seen in the ceramic repertoire which shows a near absence of Amuq F chaff wares and Uruk wares and instead features a large number of *cyma recta* cups and other typical EBA types (Algaze 1986, 1990).

Two copper pins were found in domestic contexts, one of which was found inside of a hearth (Algaze 1990), though according to Yakar (2011), there were 14 metal objects between the LC and EBA in addition to a clay crucible. Apart from the two pins dating to the EB I and several pins from the Late Chalcolithic already mentioned in the previous chapter, these other items that Yakar (*ibid*.) referred to were from the late third millennium when Kurban was at its peak following an occupation hiatus after the period V settlement level. In terms of metalworking evidence, Period V featured an outdoor work area with ashy debris, though there is no conclusive evidence for metalworking in this context (Wattenmaker 1994, 1998b).

† Titris Höyük

Very little of the early EBA remains were excavated as the majority of archaeological work at this site was focused on the extensive EB III-IV settlement and its associated burials (Algaze and Mısır 1995; Algaze and Poumelle 2003; Algaze *et al*. 1995; Laneri 1999, 2007; Matney 2000, Matney and Algaze 1995).

[97] A survey of the area showed that there were a larger number of small sites at the beginning of the third millennium in the Karababa basin, which meshes well with the decrease in population size at Kurban (Algaze 1986, 1989a, 1990, 1999; Algaze *et al*. 1991). The Karababa basin is described as a, "…natural roadway towards the Taurus piedmont and highlands, the sources of essential commodities such as timber and silver" (Algaze 1986: 287) and it seems that its favourable location in an alluvial basin as well as close to trade and communication routes made it a desirable place to settle regardless of any interruption caused by the Uruk withdrawal.

However, early third millennium remains consisting of stone wall foundations and a cobble pavement were found directly over sterile soil in the outer town area in Trench 69-54. The ceramics that were found on top of the pavement are typical of the early third millennium regional assemblage and the lack of any other ceramics or architecture suggests that this area was abandoned until the EB III-IV expansion of the site (Algaze and Mısır 1995; Algaze *et al*. 1995).

Other early third millennium remains were found in the lowermost levels in Trench 40-34 in the Lower Town. Here, a fragment of a pedestal bowl with diagonal bands was found, a type of banded pedestal bowl that was also found in the Carchemish burials. Like the Carchemish examples, this bowl was associated with a stone cist burial in the lowest two levels of the trench. The rectangular cist (locus 79) was made of limestone slabs and contained the well preserved remains of an adult female in a flexed position facing south. Near the head were six whole vessels including three open bowls/cyma recta cups and three small rounded jars. At the female's shoulder was a bronze pin, and a bronze nail was found further away from the skeleton (Algaze and Mısır 1995; Algaze *et al*. 1995).

† Lidar Höyük

The oldest Early Bronze Age settlement[98] at Lidar featured a 1.2 – 2 metre wide mud brick fortification wall preserved up to 15 courses high that was located immediately above the drop at the end of the site's slope (Hauptmann 1983a; 1984). Abutting the interior side of this wall were three rooms that contained EB I-II plain simple wares that were used to date the wall's construction and use (Hauptmann 1983a, 1983b). Further excavations in this part of the site revealed 'deep layers of ash, clay, slag and potsherds' (Hauptmann 1985: 205) suggesting that this was the location of an industrial area (Hauptmann 1985, 1987). Another EBA industrial area was found on the west terrace, though this can be more conclusively described as a substantial potters' area based on the large ovens and quantity of wasters, broken vessels and figurines that were found in the associated deposits.

[98] While the EB I remains at Lidar were found on top of a natural gravel bed, Halaf, Ubaid and Late Chalcolithic sherds and artefacts have also been found at the site suggesting that there was an earlier occupation at the site or in its immediate vicinity (Hauptmann 1984, 1985).

In addition to the fortifications and industrial areas, an extensive EBA necropolis that encompasses approximately 715 square metres was also excavated in the east area of the site. Between two cemeteries, there were 205 EBA graves with the older burials (192 of them) packed closely together in the northern portion of the necropolis (Hauptmann 1982a, 1983b, 1984, 1985, 1987, 1997). Hauptmann (*ibid*.), like Stein's[99] interpretation of the EB I cemetery at Hacınebi, interprets these two cemeteries as representing spatially differentiated socio-economic classes based upon the differences in grave goods between the two cemeteries. The more 'elite' cemetery contained two chamber tombs similar to those found in the middle Euphrates Valley in the EB III-IV, with both of these graves containing multiple interments of individuals and their associated grave goods that included: bronze pins and toggle pins, a 'grey spiral ring burnished' ware, reserved slip ware, and black-burnished vessels with white paste filled incised markings similar to those north of the Taurus and at Jerablus Tahtani (Hauptmann 1984; Peltenburg *et al*. 1995).

Of the approximately 192 burials in the northern area, five of them were larger than the EB I-II stone cists; one had 38 vessels and 5 'knob-headed' pins; however it appears that these graves are more likely to be from the EB III- IV phases rather than the early third millennium use of the cemetery (Hauptmann 1984, 1985, 1987). In contrast to these rich burials, the remaining earlier burials in the northern cemetery were more restrictive in terms of grave wealth. According to Hauptmann (1983a, 1987), while pottery vessels[100] were common grave goods:

> Gifts like bronze arm-rings, pins, limestone or mussel pendants, are rare (Hauptmann 1982a: 18).

It can be suggested that rather than being contemporaneous and divided by socio-economic class as Hauptmann originally thought, the interments are separated by chronological divisions. Therefore, the differences in degrees of grave wealth and mortuary architecture can be explained as representing the changing trends in mortuary behaviour over time rather than representing social hierarchy within a population.

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[99] <http://faculty-web.at.northwestern.edu/anthropology/stein/HNexcavationsEB-I.html >

[100] The pottery from these burials mainly consisted of hand-made pedestal vessels, and many of the pots found in the necropolis burials could be linked to the potters' area based on the comparison of potters' marks (Hauptmann 1984).

† Hassek Höyük

Despite suggestions of a collapse at Hassek at the end of the Late Chalcolithic, excavation has shown that the settlement continued to be occupied into the Early Bronze Age (Levels 4-1), with settlement disruption only occurring at the end of the EB I-II when the site was abandoned. Before this abandonment, the EBA village was slightly larger than the previous Late Chalcolithic village and featured a relatively substantial fortification wall, cobbled streets, intramural graves and an extramural cemetery approximately 500 metres to the west of the mound (Behm-Blancke 1981, 1987, 1992).

The intramural burials included both pithos and cist burials, with the pithos burials deliberately oriented east-west (opening to the east). Each burial contained varying amounts of grave wealth; one pithos burial of an infant had a copper pin and a quantity of beads while other pithos burials were without grave goods (Behm-Blancke 1981). The stone cist graves tended to be richer in terms of grave goods, and several of these burials contained an impressive array of objects, especially cist grave number five which was the grave of a 35-40 year old male. Metal artefacts were also found in non-mortuary contexts, though the finds from this cache or hoard of items from a Level 2 building may have been part of the grave good repertoire for a burial located beneath this house. This cache consisted of reserved slip ceramics and several metal objects (Behm-Blancke 1987).

The extramural cemetery to the west of the settlement had 97 pithos burials oriented east/southeast – west/southwest with the openings facing eastward (Behm-Blancke 1984, 1985, 2003). The majority of grave goods associated with these burials were ceramics, including Ninevite 5 types, though metal items such as knives, chisels, flat axes, pins, bracelets, rings and beads were also found in smaller quantities (Behm-Blancke 1992). The total Hassek metal assemblage for the EB I-II consists of approximately 100 objects, as can be seen in the list of published objects in Appendix II. The metal repertoire consists of: pins, spearheads, knives, daggers, chisels, flat axes and two examples of mace heads (one in lead and one in arsenical copper), and a zoomorphic metal[101] cylinder seal (Behm-Blancke 2003). Other small

[101] The metal that the seal was made of was 70% copper and 27.5% lead (Palmieri and Di Nocera 2000). The closest parallels for the zoomorphic seal are the examples from the Birecik Dam Cemetery and a similar pin to the bird-headed pin from the infant pithos burial 16 was found in the late fourth

finds from the EB occupation included: cylinder seals, seal impressions[102], figurines, beads and obsidian tools (Behm-Blancke 1984, 1987, 1988a, 1988b, 1992). The ceramic evidence from the EB I-II levels include large quantities of grit tempered reserve slip ware and plain simple ware, a similar profile to the ceramic assemblages of Arslantepe VI B and Norşuntepe XXVI-XXV (Behm-Blancke 2003; Helwing 1999, 2002).

4.2.2 Samsat-Lidar Sector Analysis

When the Samsat-Lidar data is compiled, the number of sites with metal objects is half that of the Carchemish sector, a pattern that is likely due to differences in the degree of modern excavation and survey carried out between the two sectors. Despite the possibly artificial differences, excavation area does not seem to be an influencing factor on the distribution of metal artefacts in this sector as three of the four sites with reported metal artefacts in the Samsat-Lidar sector had fairly low numbers of metal objects when compared to excavated area (see Figure 35 below).

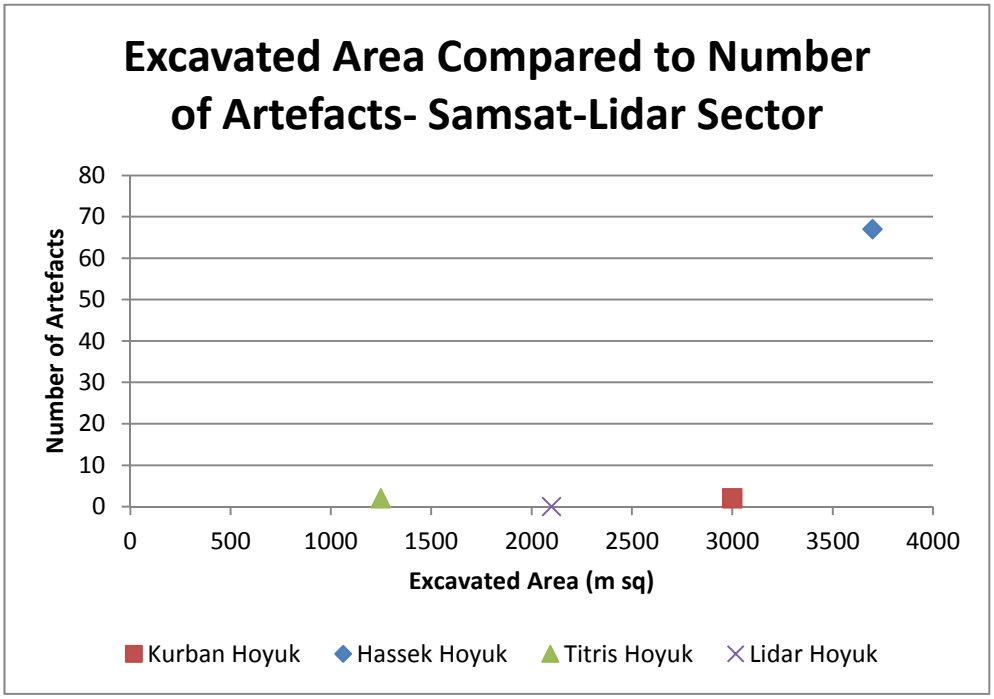

Figure 35 Distribution of metal artefacts compared to site size in the Samsat-Lidar sector

millennium at Kurban Höyük Level VI A, which Algaze *et al*. (1986) noted had parallel examples at Chagar Bazar 5 and Iran.

[102] One cylinder seal impression showed an agricultural scene of a person holding onto a plough and a draft animal, possibly supporting the notion that Hassek was agriculturally oriented (Behm-Blancke 1980). Parallels to this image can be seen at Arslantepe VI A in the public building complex (Frangipane 1996).

Lidar Höyük is not given a numerical value here because none of the interim site reports enumerate the total number of metal objects found in the settlement or associated burials, and the most comprehensive publications of the site are on the Middle Bronze Age pottery (Kaschau 1999) and a mineralogical and geological analysis of the Early Bronze Age pottery (Klenk 1987). Any mention of the metal artefacts found at Lidar is quite vague, especially in the case of the grave goods from the northern area of the necropolis. The direct references to the objects only note their presence:

> Gifts like bronze arm-rings, pins, limestone or mussel pendants, are rare (Hauptmann 1982a: 18);
>
> …beads and rings of limestone, bronze pins and two stone axes (Hauptmann 1983a: 255);

A few bronze pins and bracelets were preserved (Hauptman 1987: 206). Because of the ambiguity regarding the metal artefacts and their contexts at this site, these items are not included in the dataset and analyses below, though they will be discussed within the larger use of metal in the Samsat-Lidar sector.

Site	Site Size (ha)	Total Excavated Area (m^2)	Number of Objects in Mortuary Contexts	Number of Objects in Non-Mortuary Contexts	Total Number of Metal Objects	Objects/ Excavated m^2
Kurban Höyük	1	*ca.* 3000		2	2	0.0007
Titris Höyük	≥ 1.5?	*ca.* 1250	2		2	0.0016
Lidar Höyük	3	*ca.* 3100	unknown	unknown	unknown	unknown
Hassek Höyük	1	*ca.* 3700	47	22	67	0.018
Total	≥ 6.5?	*ca.* 11,050	≥ 49	24	≥ 73	0.0066?

Figure 36 Sites in the Samsat-Lidar sector with metal artefacts

As the figures above and below show, metal objects were most frequently found in mortuary contexts in the Samsat-Lidar sector like the Carchemish sector distribution of metal artefacts. Unlike the other sites in this sector, there is a fairly significant quantity of metal artefacts that were found in the domestic and industrial contexts at Hassek Höyük (see Appendix II). Of the known objects from this sector, 67% were excavated from burials while the remaining 33% came from domestic and

industrial contexts (see Figure 37), a lesser disparity than the gap that is seen in the EBA contexts in the Carchemish sector.

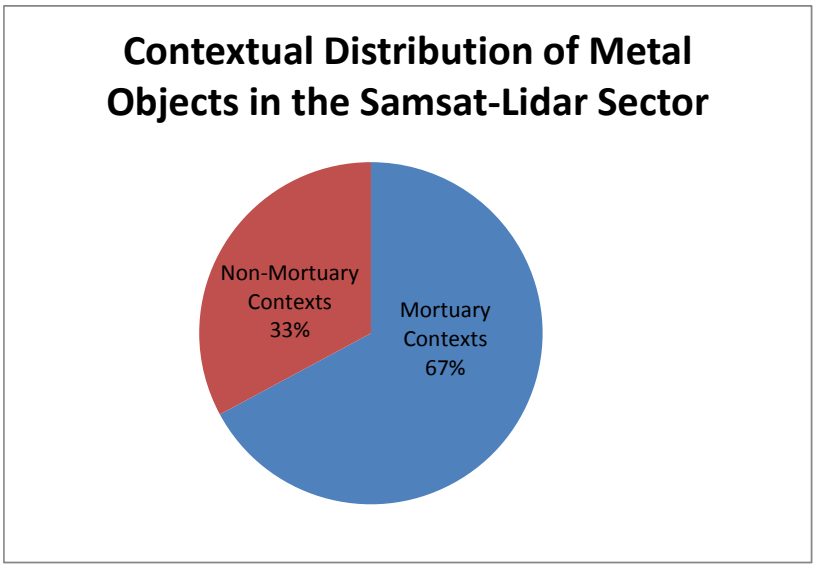

Figure 37 Distribution of metal artefacts found in the Samsat-Lidar sector by context

Just as the trend towards mortuary contexts is similar to the Carchemish sector, the distribution of metal object types also resembles that of the more southern sites. When the objects found in mortuary contexts are divided from the total assemblage, it can be seen that pins compose over 60% of the total metal repertoire from mortuary contexts. The next most frequently found type of object is almost evenly divided between tools and weapons (see Figures 38 and 39 below).

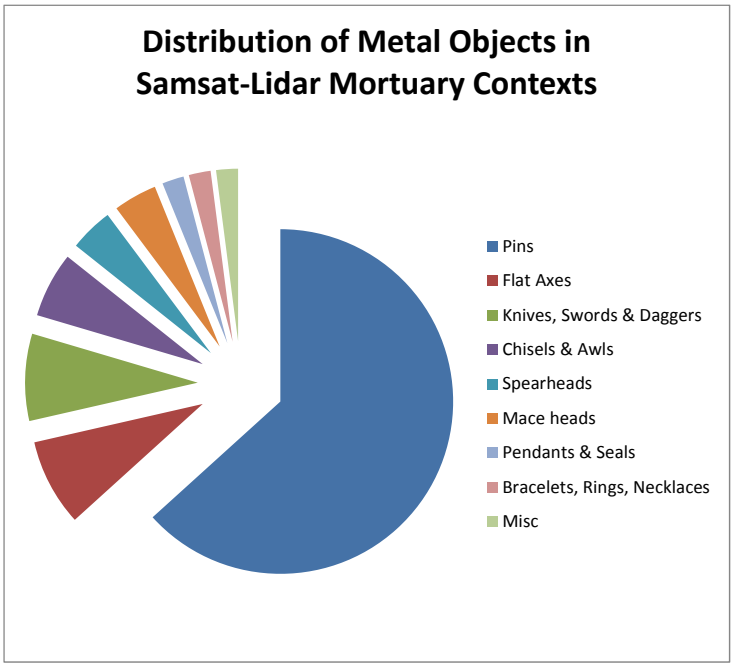

Figure 38 Distribution of metal objects by type within mortuary contexts

Site	Pins	Pendants & 'Seals'	Torques, Rings & Bracelets	Chisels & Awls	Flat Axes	Knives, Daggers & Swords	Mace Heads	Spear-heads	Misc.
Titris Höyük	1								1[103]
Lidar Höyük	?	?	?	?	?	?	?	?	?
Hassek Höyük	30	1	1	3	4	4	2	2	
Total	≥ 31	≥ 1	≥ 1	≥ 3	≥ 4	≥ 4	≥ 2	≥ 2	≥ 1

Figure 39 Distribution of object types throughout the Samsat-Lidar sector mortuary contexts

A look at the items from non-mortuary contexts also shows that the items consumed by the sector's living inhabitants were fairly diverse, though there is less variety in terms of the specific types of objects that were found in the domestic, industrial and public contexts than in mortuary contexts (compare Figures 39 and 40).

Site	Pins	Pendants & 'Seals'	Torques, Rings, Bracelets	Chisels & Awls	Flat Axes	Knives & Daggers	Mace Heads	Spear-heads	Misc.
Kurban Höyük	2								
Hassek Höyük	11	1		4	1	2			3[104]
Total	13	1		4	1	2			3

Figure 40 Distribution of object types throughout the Samsat-Lidar sector non-mortuary contexts

Ornaments such as pins and pendants make up the greatest number of metal objects found in non-mortuary contexts, just as they did for the metal grave good repertoire. Tools such as chisels, awls and flat axes make up approximately 21% of the non-mortuary metal repertoire, with weapons and miscellaneous items in the minority (see Figure 41 below).

[103] This item was a 'bronze nail' (See Appendix II)
[104] These objects included: a copper spatula, a copper tube and a piece of lead wire

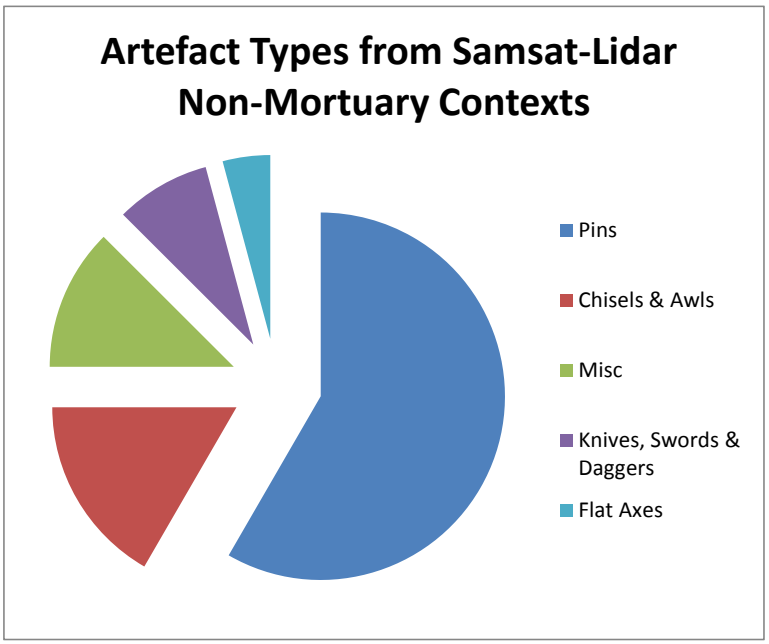

Figure 41 Distribution of metal objects by type in non-mortuary contexts in the Samsat-Lidar sector

Comparing the broad categories of objects between mortuary and non-mortuary contexts, there is not a strong trend in object distribution (see Figure 42 below), though in both contexts ornaments make up the bulk of the total metal assemblage. The distribution of tools is also fairly similar between contexts, though weapons were more frequently found in mortuary contexts.

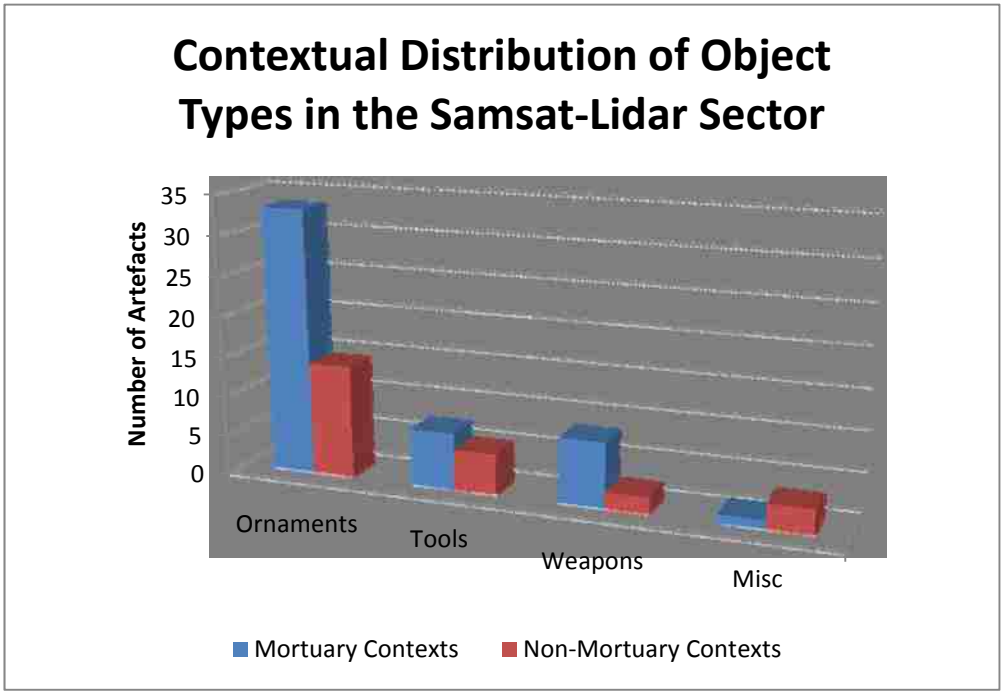

Figure 42: Comparison of artefact categories between contexts in the Samsat-Lidar sector

While the Carchemish sector does not have enough metal objects from domestic or industrial contexts to accurately compare the two, the distribution of objects across categories in the Carchemish and Samsat-Lidar sectors is roughly similar and suggests that there was a regional trend towards the increased consumption of metal personal ornaments in the early third millennium.

4.3 The Malatya Sector

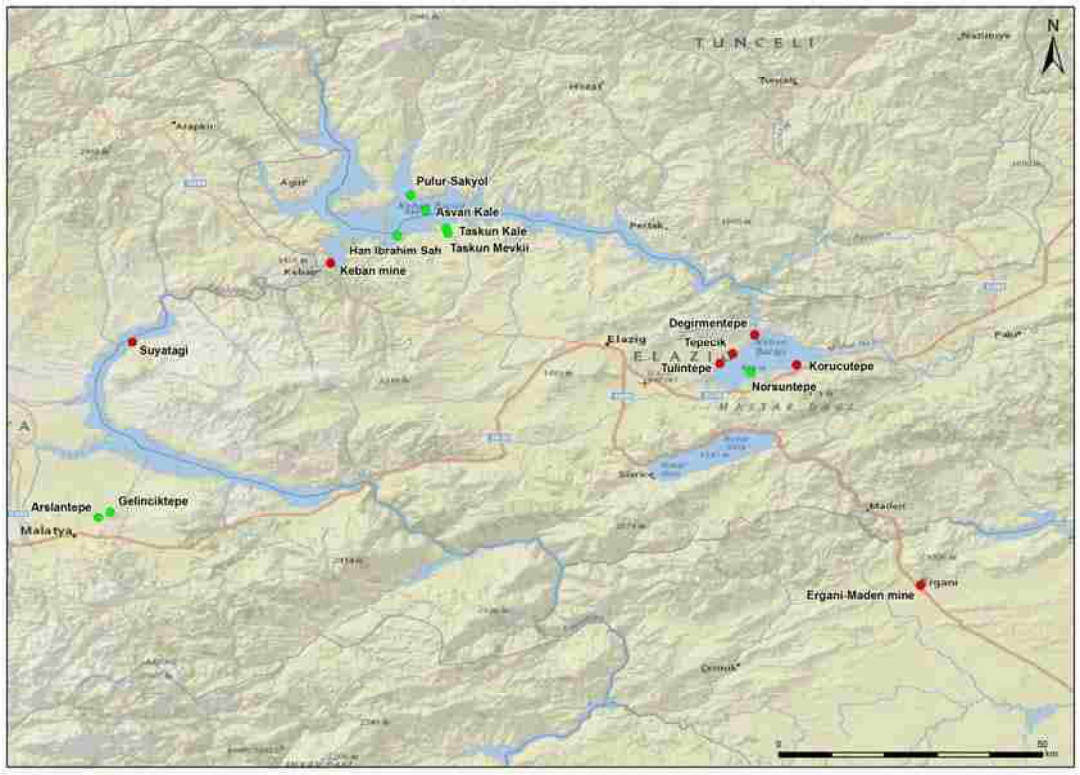

Figure 43 Malatya sector sites mentioned below. Sites with metal objects and/or metalworking evidence marked with green

4.3.1 The Sites

† Arslantepe

The VI B1 and VI B2 phases at Arslantepe are the earliest Early Bronze Age levels at this site and show a clear break with the preceding VI A terminal Late Chalcolithic level that is marked by the destruction of the temple/palace complex. The VI B1 settlement shows an apparent orientation towards Transcaucasian material

culture while the VI B2 phases is best known for its more substantial settlement and the 'royal' tomb which was constructed during this time[105]. This burial[106] is most frequently interpreted as representing a unique picture of changing socio-political ideology (Frangipane 1997c, 1998b, 2001b, 2004; Frangipane *et al*. 2001; Frangipane and Palmieri 1983b; Palumbi 2008b), though Porter's (2012) interpretation gives it less socio-political and more ritual significance in her interpretation of this ornate burial being part of a ritual involving ancestors and higher cosmological elements.

The tomb can be divided into two different burial contexts; the 'chief's' or 'lord's' burial in T1, and the two groups of adolescents in S150 (see Plate 5). The T1 burial had the bulk of the grave goods, though two individuals (H223 and H224) in S150 had items as well. The other two individuals (H221 and H222) interred in the S150 burial had no mortuary items, giving rise to the interpretation that H223 and H224 were directly related to the 'chief' while individuals H221 and H222 were concubines or slaves[107] (Palumbi 2008b).

The grave goods interred with the deceased contain both Syro-Mesopotamian and Transcaucasian elements as part of what can best be described as 'mortuary performance art' that was aimed at influencing public ideology not only through an elaborate mortuary practice, but also through the conspicuous disposal of 75 metal objects (See Appendix II) that included weapons, ornaments, tools and vessels (Frangipane 1997c, 1998b, 2001b, 2004; Frangipane *et al*. 2001). Geographically, the 'royal' tomb is isolated on the western slope of the site and was even more delineated from the settlement after a fortification wall was constructed that effectively excluded the tomb from the settlement.

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[105] The AMS dates for the tomb range from 3081 – 2897 BC and 3308 – 2879 BC (Palumbi 2008b; see also di Nocera 2000a), making the tomb contemporary to the terminal VI B1 phase or immediately following it, though the fit of the burial within the site and local chronology is still being debated.

[106] The 'royal' tomb was not the only EB I burial found at the site though this grand burial is the most published and differs significantly from the few other published EB I burials, one of which was found in one of the refuse pits that litter the site's lower slope. This burial was of a young adult in a contracted position and contained large fragments of red-black burnished ware (Frangipane 1994).

[107] The contrast between the manner of interment between the 'chief' and the four adolescents is striking both in terms of grave wealth, but also in the basic treatment of the individuals; the four adolescents all had signs of pre-mortem injuries, in some cases quite severe, and there was a degree of differentiation between their interments. Like the 'chief', the 16 – 18 year old possible male (H223) and the 12 -14 year old female (H224) also wore diadems that were similar in style to the male interred in the cist grave T1, while the other two young women (H221 and H222) had no accompanying personal grave goods (Palumbi 2008b)

Also outside of the fortification wall were architectural remains dating to the VI B2 (EB I) phase in the southwest area of the site. These structures were multi-room wattle and daub houses built on perpendicular streets that ran NE-SW, though the village organisation was not as orderly as the later EBA phases (di Nocera 2005; Frangipane 1993b; Palumbi 2008b). The street paving material had a large amount of slag mixed in with it in addition to sherds and rocks, and it is thought that the slag may have come from the open work area[108] ten metres south of the fortification wall at the northern extent of the EB I settlement. A pit in this metalworking area contained a crucible fragment along with other metalworking paraphernalia scattered around it including stone pestles and two fragments of copper ore. The metalworking equipment found here strongly suggests that raw ore was being processed and smelted in this open-air industrial area, and the use of slag in street paving material may have been one method of waste management (Caneva and Giardino 1996; Frangipane 1993b; Palmieri *et al*. 1996).

To the east of this open-air work area were more domestic structures that all had a large quantity of ceramics on the floors. Many of the ceramics were wheel-made plain simple wares- some of which were reserved slip. Several of these houses also contained metal objects including one ornament made of four rings of thin metal wire with the ends intertwined and curled up to make transversal spiral coils (Frangipane 1994b: 214), other 'various small metal objects' and a large piece of 'altered' copper ore (Palmieri and Frangipane 1990).

All of the houses in this area dating to the VI C (EB II) occupation phase had evidence of charred grains[109] indicating that agricultural storage, at least for an immediate household, was likely by domestic unit rather than being communal (Sadori *et al*. 2006). The presence of charred cereals and the quantity of material left *in situ* on the floors of these houses suggests that the early third millennium settlement was destroyed by a massive fire, and it is estimated that the vast quantity of charred grain that was found represents the unfortunate burning of a large portion of a harvest soon after it was stored in the houses (Conti and Persiani 1993;

[108] There was also a slaughter yard in the vicinity of the metallurgical area based on the large number of articulated animal remains (Frangipane 1993b), though the EB I metalworking area extended north of the slaughter yard.

[109] Other food remains from the houses included legumes and grapes and one house even had five small charred loaves of bread (Palmieri and Frangipane 1990).

Frangipane 1994b). One scenario to explain this conflagration is that a house or the highly flammable dried cereals caught fire accidentally and destroyed the village[110], leaving a large quantity of materials left *in situ* as the inhabitants fled.

After this conflagration, the Arslantepe material culture shows a decidedly local 'Malatyan' orientation that had eastern Anatolian influence in addition to the residual southern influence (Frangipane and Palumbi 2007; Palumbi 2008a). The quantity of burnished wares and the wattle and daub architecture are more conclusive evidence of the role that external influence played on the local material culture rather than the 'royal' burial as these elements represent the larger proportion of the population. Any change in cultural affiliations was likely predicated upon shifting trade routes rather than conquest, and there is no reason not to assume that the population of the site was comprised of both local and Transcaucasian populations at this time.

† Gelinciktepe

Gelinciktepe is a small site built into the basalt outcrops of a volcanic hill 2 km east of Arslantepe. Rather than being a permanent settlement, Gelinciktepe appears to have been a seasonal settlement that was used from the end of the EB I into the EB II period (Marcolongo and Palmieri 1983; Palmieri 1967). The proximity of Gelinciktepe to Arslantepe and its contemporaneity with the VI B2 and early VI C phases at Arslantepe suggest that this site was used for seasonal pasturage, perhaps by groups associated with Arslantepe. The painted pottery found at Gelinciktepe was a typical local feature of the Malatya sector ceramics in the EB II and may suggest that there was a degree of population and/or cultural mixing at this site. Because this site seems to have been a temporary encampment, it may be that the site was used by two different pastoral groups with different cultural affiliations, which could account for the mixed material culture (Marcolongo and Palmieri 1983; Palmieri 1967, 1968; Palumbi 2008b). Other published artefacts from this site are fairly scarce, but both

[110] Mayer-Opificus (2006) describes prehistoric conflict as being a seasonally dictated event that took place after the harvest and before the following sowing season. Following this logic, it could be interpreted that the Arslantepe VI B2 conflagration was not accidental but instead was the result of local conflict.

Palmieri (1967) and Squadrone (2000b) noted that an oval-headed pin with incised grooves on the shaft was found in area C, 11.

† Taşkun Mevkii

As one of three sites excavated by a British Institute At Ankara project (see French 1970, 1971, 1979; French *et al*. 1972, 1974; French and Mitchell 1976; Mitchell 1998; Sagona 1994), Taşkun Mevkii was only briefly excavated in a restricted area of the northern side of the site. Despite the limited amount of work done at the site, four phases of EB I occupation were identified, which was surprising given that Whallon's (1979) survey reported that only Early Chalcolithic and Hittite periods were represented in the ceramic evidence. Further excavation confirmed the EB I date of these four phases, with the first two phases primarily characterised by pits, two pit burials in phase 1 and the remnants of stone footed buildings (Sagona 1994). It was not until phase 3 was reached that more information regarding the inhabitants of the site was found. Phase 3 is a mixed horizon of local and Transcaucasian material culture and architecture that features both wattle and daub and mud brick buildings. The coexistence of these two very different types of architecture speaks of close cultural interaction, though the massive conflagration in the early third millennium put an end to the settlement while at the same time preserving four of these buildings- only one of which was fully excavated (Sagona 1994). The following Phase 4 was not as thoroughly explored as Phase 3 due to time constraints, but the architectural layout was similar to the later Phase 3.

Overall, there were two main groups of ceramics found in all four phases of the site with handmade Red-Black burnished ware comprising 87% of the total repertoire and Plain Simple Ware comprising the remaining 13% (Sagona 1994). Small finds included 2 clay cylinder seals[111] and 1 incised stamp seal along with several metal objects including a double spiralled ornament (possibly part of an earring) from square K 10 and a ribbon of copper shaped like a snake and several pins in square K 11 (see Plate 6 for examples) (Helms 1971, 1972, 1973; Sagona 1994).

[111] One of the cylinder seals features a geometric design similar to those found at Norşuntepe and Arslantepe during their EB I phases

† Taşkun Kale

This was the second site that was part of the BIAA excavation mentioned above and is slightly larger than its closest neighbours with its 20 metre high flat top mound that extends 150 metres in diameter (Sagona 1994). Like Taşkun Mevkii, this site had a very small excavated area due to time constraints; however, from the available ceramic and architectural evidence, the site is more similar to Aşvan Kale than Taşkun Mevkii. Finds were mainly limited to ceramics, with most of the sherds consisting of Red-black burnished wares from the EB II – III period. The only metal object at the site was a chisel found in trench S9 in a building with an interior hearth and bench. The chisel had a square haft, octagonal shaft and a flattened, flaring edge (Sagona 1994).

† Aşvan Kale

The third site excavated as part of the BIAA Aşvan excavations, Aşvan Kale overlooked the floodplain on the south side of the Murat River from a shelf of conglomerate (Sagona 1994). This site had a relatively extensive EBA occupation[112] that was covered first by a Roman settlement and later by a medieval settlement. The EBA deposits were excavated in a step trench that was located on the northern slope of the site. Based on the excavated material it is thought that Aşvan Kale was more likely an EB II – III settlement rather than being EB I in date (Sagona 1994). The excavated material consisted overwhelmingly of sherds from large black burnished jars with a squared rail rim (which were not found at the nearby Taşkun Mevkii), handmade cream wares and small amounts of Syro-Mesopotamian wheel-made wares, all of which paralleled the ceramics found at Korucutepe, Norşuntepe and Değirmentepe and point to an affiliation with sites located northeast (Sagona 1994). Small finds consisted of two clay stamp seals roughly 6 centimetres in diameter that depicted a radiating sun disc design which is thought to have been used to print textiles rather than being used as sealing devices. A limited quantity of metal dating to the EB levels was also found, but is limited to a ring, an earring and a pin (see Plate 6) that were found in the G2b area of the step trench.

[112] Aşvan reached a total height of 29 metres with an area of 1.25 ha (Sagona 1994).

† Pulur Sakyol

Located near the confluence of the Euphrates and Murat Rivers, the early EB II occupation (phases XI and X) at Pulur Sakyol is intriguing for several reasons. The site was re-built at this time after an earlier abandonment phase, and the inhabitants took the topography and shape of the mound into consideration when laying out the site. The new settlement was constructed radially with the outer walls of the nearly identical buildings serving as a solid outer wall with a defensive purpose. Following the first two phases of EB II occupation at Pulur, in period IX there was a massive conflagration, though the site was quickly reoccupied and settlement continued through the end of the third millennium (Koşay 1976).

Though built to nearly identical plans for the fortification of the site, the interior features of the domestic structures were also remarkably similar with many of the structures featuring horseshoe shaped hearths that had been decorated with anthropomorphic motifs (Koşay 1976; Palumbi 2008b). These hearths have been interpreted as household shrines that can possibly be linked to ancestor veneration. Similar types of hearths with both zoomorphic and anthropomorphic decorations can also be found in the Transcaucasian region at this time, suggesting close contact between the populations of the Malatya sector and the southern Caucasus (Burney and Lang 1971; Koşay 1976; Kushnareva 1997; Palumbi 2008b; Sagona 1998, 2004a). Often associated with these hearths were jars that were also decorated with human features in relief which are thought to have been linked any rituals enacted at these hearths if they did have some sort of religious use (Palumbi 2008b).

The ceramic evidence from this site is overwhelmingly comprised of burnished wares and parallels examples that were found at Arslantepe VI B2 (Kavataradze 2004), though the settlement is overall more closely associated with Amiranus Gora in the Southern Caucasus (Kavataradze 1999; Kushnareva 1997). Metal finds from the EB II settlement include a chisel, several spearheads and pins in level XI, while an ingot and slags were found in a metalworking area in level X (Koşay 1976).

† Han Ibrahim Şah

Situated on a flat rock platform, Han Ibrahim Şah is a small site (0.75 ha and 12 metres high) that is part of a line of seven mound sites that may indicate an ancient route or road that ran north to south and connected all of these sites (Ertem 1982b). Ten Early Bronze Age levels divided into three phases were recorded in the excavations, and based on the ceramics and other remains, the phase 1 occupation of Han Ibrahim Şah seems to fit well with the Arslantepe VI B 2 phase and the earliest Gelinciktepe occupation (Palumbi 2008b). No architecture from the earliest EBA levels (Phase 1 level XII) was found in the small soundings, though burnished and imported southern Mesopotamian wares and the odd obsidian blade were found. The amount of these imported wares increased in the following level XI, which also marks the first evidence of architecture[113] at the site.

The next level (X) had more substantial architectural remains, one of which was a stone building that had five jars lined up along the wall. These jars contained carbonised wheat, barley and chickpeas, and in a slightly strange twist of preservation fate, a carbonised honeycomb was also found among the food remains (Ertem 1982b). Other finds from inside of the building included a multitude of chipped stone blades, bone awls, a bone pin, a baked clay figurine, a bone spindle whorl, an obsidian arrowhead and a bronze dagger (359) with two holes that were used to affix a handle (Ertem 1982b).

The Phase 2, post-conflagration level IX had a 2-3 roomed structure of somewhat odd construction; half of the walls were mud brick while the other half of the walls were all stone with the walls of both types plastered. Like the level X building, this structure had a fairly robust domestic goods repertoire including: pottery[114], bone tools, baked clay lids with handles, figurines, spindle whorls, sherds

[113] This building was a two roomed structure with stone foundations, plastered mud brick walls and pits inside of the rooms. A burial was found in each room with a single skeleton in each burial. One was in a pithos while the other was buried between floor surfaces. No grave goods were listed for either burial.

[114] The ceramics of this post-conflagration level included new brown/purple painted decorations on beige wares as well as the typical burnished wares (Ertem 1982b; Palumbi 2008b).

with cylinder seal impressions[115], a mussel shell 'button', baked clay 'hoops' and an obsidian arrowhead (Ertem 1982b).

The following period VIII in the Phase 2 occupation showed that the stone structure first found in level X continued to this level; however, in this phase there was a low mud brick wall or platform built in front of the structure and an adjoining area with a hearth and a trash pit. Finds from this context included: bone tools, baked clay animal figurines, and baked clay stamp seals with a radiating sun design (similar to others found at Norşuntepe and Tepecik) and another that had concentric circles as the decorative motif. A cylinder seal impressed jar fragment was also associated with this structure. The seal impression is of a bird-like animal in the Jemdet Nasr style though the jar is thought to have been made and sealed locally based on the size and type of sherd which suggests that the jar was likely too large to be transported (Ertem 1982b). Another notable find from this level was a curved metal object (267) of unknown use, though it may be a pendant or pin based on Ertem's (1982b) description of it being 'sword-like'. Unfortunately, the context does not shed much information on its use as the only two examples of metal objects dating to the EB II both came from the same stone building, albeit in different occupation levels.

The end of the EB II occupation at Han Ibrahim Şah is very visible in level VII when almost everything at the site was carbonised from a thoroughly comprehensive conflagration[116].

† Tepecik

The EB I and II settlement of Tepecik had an impressive stone footed fortification wall that ran parallel to the circular periphery of the mound. The first phase of the wall (Level 8) had three buttresses on the exterior face of the southern wall and were similar in design to those at Norşuntepe (Hauptmann 1972), while on the north side it was found that a second wall ran parallel to the original wall (Esin

[115] The first cylinder seal impression was fairly simply decorated with lozenges and impressed on the sherd of local pottery three times while the second seal type was of an indistinguishable design (Ertem 1982b).

[116] After this level's destruction a new ceramic type of black painted ware was introduced that was distinct from the ever-present burnished ware and the newer brown/purple painted ware (Ertem 1982b; Palumbi 2008b). It is tempting to associate the introduction of new ceramic types that coincide with destruction layers as evidence of a new population at the site, though the continuity of some of the structures and artefacts suggests that this may not actually be the case.

1982a). There was evidence of multiple renovations to this wall as the stone foundations from the Level 8 defensive wall were used in the construction of the new fortification walls in Levels 7 and 6. The Level 7 wall construction also involved the levelling of the soil of the southern slope of the site during terracing activities (Esin 1982a), implying that the fortification of the site in the EB I-II was a major pre-planned undertaking. Outside of the fortification wall, large pits between 1.5 and 2 metres in diameter had been dug into the area around the LC 5 tripartite building and its courtyard, likely because the building had fallen out of use after the conflagration that caused its destruction (Esin 1976a). Based on the finds from the courtyard which include a hearth and approximately forty intact or whole smashed pots, grinding stones and bone artefacts and the evidence from the second pit which had evidence of smelting and casting, the area around the tripartite building continued to be used as a craft production area despite the fact that the building had long since fallen out of use by this time (Esin 1976a).

Ceramics found in the early EB I (Layer 8) settlement included plain simple ware, reserved slip, and local wares at a proportion of 2:1 when compared to the amount of burnished wares present while the ceramics associated with the Layer 7 walls showed a decrease in the amount of burnished ware and a corresponding increase in the typical EB I regional types (Esin 1982a). Altogether, the EB I-II occupants of the site favoured local and Mesopotamian ceramics over the burnished wares, and the ceramics from levels 7 and 8 show a large percentage of Plain Simple Ware that fits within the Upper Euphrates Late Reserved-Slip Horizon (Palumbi 2008b). The red-black and black burnished wares found at the site correspond to examples found at Norşuntepe, Taşkun Mevkii and Arslantepe VI B2, and further EB I external contacts are evidenced by a seal impressed sherd in the Jemdet Nasr/Early Dynastic I style of a scorpion head in relief (Esin 1976a).

† Norşuntepe

After a hiatus in the second half of the fourth millennium, Norşuntepe was once again occupied at the beginning of the third millennium, and based on the survey evidence, Cevik (2007) reports that Norşuntepe was one of the largest sites in the Elazığ region in the EB I and II periods at 3.2 hectares. The 3.5 metre deep EB I

occupation deposits found in squares J-K/ 18-19 on the western slope of the mound were delineated into six levels (XXX – XXV) and the EB II into 10 levels (XXIV – XV) (Hauptmann 2000).

The EB I domestic architecture at Norşuntepe was a mixture of local and Transcaucasian features; internal benches and circular hearths are elements of the local traditions while the flimsier wattle and daub structures and leaf-shaped hearths are interpreted as architectural styles from further east. Similar wattle and daub architecture and occupation deposits were found at the contemporaneous Arslantepe VI B2 village (Palmieri and Frangipane 1990) and other sites north of the Keban dam. In addition to the new architectural styles, one of the major architectural features at Norşuntepe from the early EB occupation was the initial construction and four episodes of refurbishment of a massive fortification wall and rampart that were found in the excavations on the western slope of the mound (Hauptmann 1972).

Following a destruction episode, this part of the mound was quickly reoccupied in level XXV, an occupation level characterised by a series of pits. One of these pits had copper slags[117] and crucible fragments associated with it, suggesting a possible metalworking area (Hauptmann 1982b, 2000; Müller-Karpe 1994; Schmidt 2002). This reoccupation marked the beginning of the transition between the EB I and EB II levels (Levels XXIV – XV) at Norşuntepe, which is most apparent in the architectural remains from level XXIV. The EB II architecture is even more closely aligned with the eastern styles based upon the temporary wattle and daub structures, leaf-shaped hearths, andirons and distinct mud brick architecture, all of which more closely resemble domestic structures from Shengavit, Elar and Garni in Armenia[118] than the previous architectural styles (Sagona 1984).

The numerous pits and wattle and daub structures hint at multiple temporary structures being erected alongside of the more permanent mud brick domestic structures in levels XXII and XXI of the EB II occupation. These mud brick structures had internal ovens and Transcaucasian three-leaf shaped hearths that may

[117] Analysis conducted by Zwicker (1980) showed that the ores used in the EB I and II had different amounts of copper and sulphide, which indicates that the EB I and II smiths were using different ores than their mid-late fourth millennium predecessors. This parallels the findings from Tepecik. Zwicker (1980) also suggests that there may have been votive smelting for deities because of small slag heaps found at the site, though there is no evidence that supports this conclusion.

[118] These mud brick buildings have a circular room and a rectangular annex- which is only seen in eastern Anatolian/southern Caucasian mud brick architecture.

have been used for metallurgy. One of the wattle and daub structures from Level XIX had more convincing evidence for domestic metallurgy as the associated remains included: a hearth, two andirons, grinding stones, axes, a stone hammer, slags, obsidian tools, polished pebbles, moulds and clay cylinders that are likely tuyeres (Hauptmann 1982b; Müller-Karpe 1994).

Only two burials were found in the EB I-II levels; Grave 63 was an infant burial found east of Room V in Level 26 and did not have any grave goods. The second burial (Grave 62) was found in Level 23 south of a destroyed house in context L 19 b/d. The individual interred in this grave was a male who had been wrapped in a textile when buried and had two vessels and clay beads as grave goods (Schmidt 2002).

4.3.2 Malatya Sector Analysis

Like the Carchemish and Samsat-Lidar sectors downriver, there are more metal objects from mortuary contexts than non-mortuary contexts in the Malatya sector during the EB I-II; however, this is solely due to the metal-rich 'royal' tomb at Arslantepe as none of the other published burials from this sector mention metal objects included as grave goods. Most notable about the distribution of metal artefacts in this sector is that in terms of frequency, metal is much more likely to be found in domestic contexts than in mortuary contexts, though not in any great quantity. Apart from Arslantepe and Norşuntepe, the remaining sites with metal objects found during the course of excavation were small to very small in size and all had less than ten metal objects reported. While Arslantepe did not have the greatest reported excavated area, it did have the greatest number of recovered artefacts because of the 'royal' tomb (see Figure 44 below).

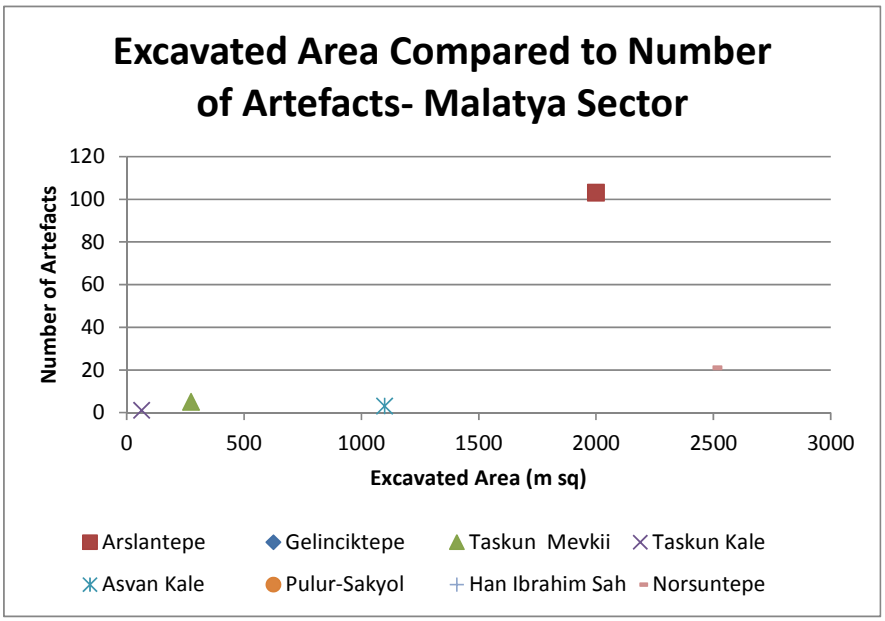

Figure 44 Comparison of metal artefacts to excavated area in the Malatya sector. Sites with an unknown excavation area are not graphed

More so than the other two sectors, the disparity in the quantity of metal artefacts between the sites is quite noticeable in the Malatya sector due to the significantly larger amount of metal found at Arslantepe than the other sites in the sector. Comparing the ratio of metal objects in mortuary contexts to the total number of metal objects from non-mortuary contexts (see Figure 45 below), the metal objects from the Arslantepe burial still outnumber the objects from domestic and industrial contexts, though the margin of difference is not as great as it is in the Carchemish and Samsat-Lidar sectors.

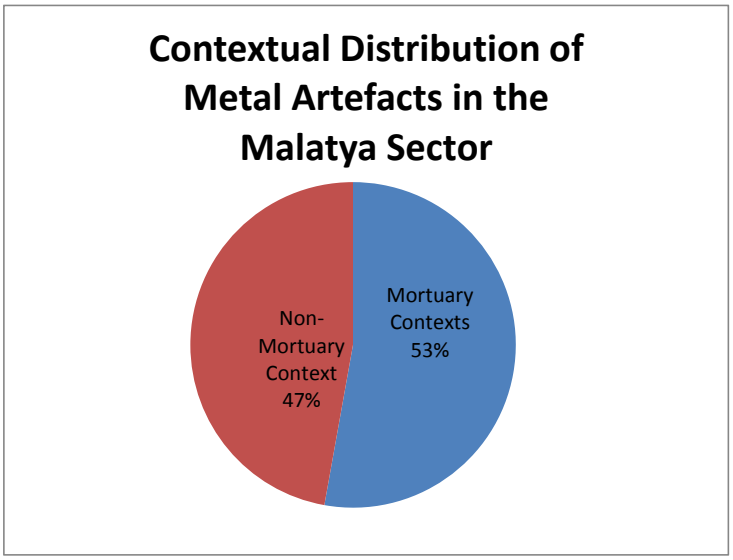

Figure 45 Distribution of metal artefacts by context in the Malatya sector

A comparison of the excavated area to the total estimated site area shows that despite the relatively small excavated area at several of these sites, there was still a respectable amount of metal found at them (see Figure 46). More so than the other two sectors, this points towards metal being an affordable commodity that was used to make items for the living to utilise rather than metal being used primarily for grave goods.

Site	Site Size (ha)	Total Excavated Area (m²)	Number of Objects in Mortuary Contexts	Number of Objects in Non-Mortuary Contexts	Total Number of Metal Objects	Objects/ Excavated m²
Arslantepe	2	*ca.* 2000	75	≥ 28	≥ 103	0.051
Gelinciktepe	1?	unknown		1	1	Unknown
Taşkun Mevkii	1	*ca.* 275		5	5	0.018
Taşkun Kale	1.5	*ca.* 65		1	1	0.015
Aşvan Kale	1.25	*ca.* 1100		3	3	0.003
Pulur-Sakyol	1	Unknown		≥ 6	≥ 6	Unknown
Han Ibrahim Şah	0.75	Unknown		2	2	Unknown
Norşuntepe	3.2	*ca.* 2500		21	21	0.07
Total	11.7?	>5940	75	≥ 67	≥ 142	0.022

Figure 46 Sites in the Malatya sector with metal artefacts

Like the two other sectors in the Upper Euphrates Valley being looked at here, in the Early Bronze I-II there is a trend towards the consumption of personal ornaments in mortuary contexts, though in this sector it is necklaces, rings and bracelets that make up a larger percentage of the personal ornaments than in the other two sectors where pins were the most popular object. Looking specifically at the distribution of metal artefacts in the one burial context (the Arslantepe 'royal' tomb) that had metal grave goods, pins make up only 8% of the total compared to the nearly 50% of necklaces, rings and bracelets. The remaining items are fairly evenly distributed across object types, though there is a fairly high incidence of weapons associated with the individual interred in the T1 burial (see Figure 47). A more visual

representation of this division in artefact types can be seen below in Figure 48, which shows just how great the disparity between personal ornaments and the other objects is.

Site	Pins	Pendants & 'Seals'	Necklaces Rings Bracelets & Diadems	Chisels & Awls	Flat Axes	Knives, Daggers & Swords	Mace Heads	Spear-heads	Misc
Arslantepe	6		37	6	4	9		9	4[119]

Figure 47 Distribution of metal object types throughout the Malatya sector mortuary contexts

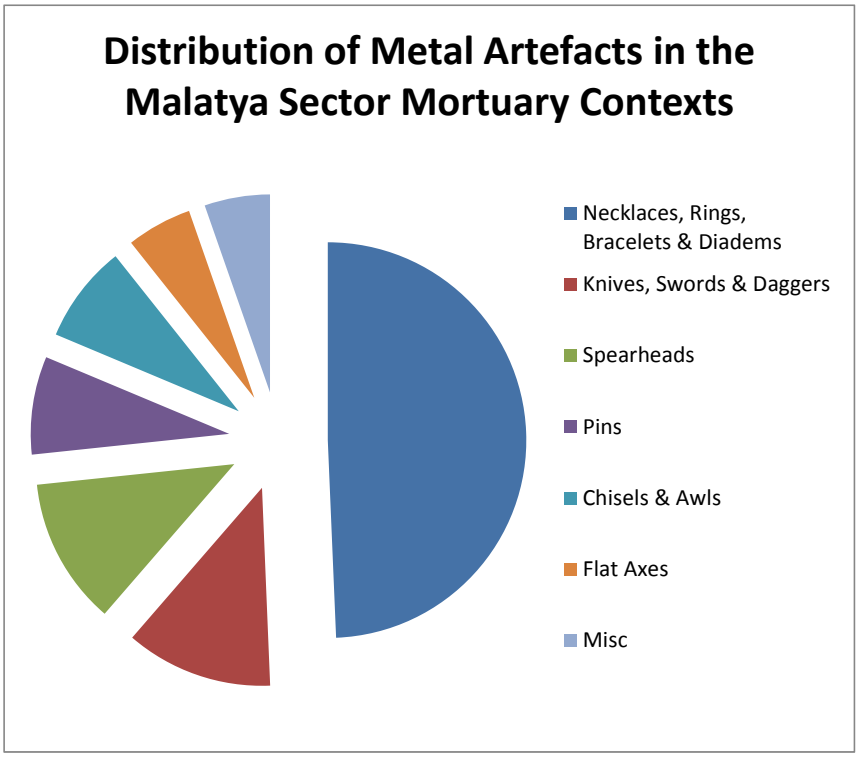

Figure 48 Distribution of metal objects by type in the Malatya mortuary contexts

In contrast to the 'royal' tomb metal assemblage, pins represent the vast majority of objects that were found in the domestic and industrial contexts in this sector. After ornaments, tools are a distinct minority, as are weapons (see Figures 49 and 50). While the miscellaneous category seemingly has a high number of objects in it, these objects tend to be individual items that cannot easily be placed into any other category or they were too fragmentary to identify.

[119] These items include two metal vessels and two other unspecified objects based on the differing descriptions of the objects between Frangipane *et al*. (2001) and Palumbi (2008b).

Site	Pins	Pendants & 'Seals'	Necklaces Rings & Bracelets	Chisels & Awls	Flat Axes	Knives, Daggers & Swords	Mace Heads	Spear-heads	Misc
Arslantepe	14	2	1	10		1			
Gelinciktepe	1								
Taşkun Mevkii	3	1							1[120]
Taşkun Kale				1					
Aşvan Kale	1		2						
Pulur-Sakyol	≥ 2			1				≥ 2	1[121]
Han Ibrahim Şah	1					1			
Norşuntepe	12		3	2		1		1	2[122]
Total	≥ 34	3	6	14		3		≥ 3	4

Figure 49 Distribution of object types throughout the Malatya sector non-mortuary contexts

This distribution strongly contrasts with the metal found in the Malatya sector burials and can be thought of as a more accurate representation of how 'real' Euphrateans utilised metal objects in everyday life, especially since several of these artefacts came from destruction levels. The excavations on the western slope of Norşuntepe also revealed a quantity of personal ornaments from domestic and industrial contexts, further supporting the idea that the inhabitants of these sites used metal more for the living than the dead, similar to the Late Chalcolithic distribution of metal artefacts in this region.

[120] This is the ribbon of copper shaped like a snake
[121] This is an ingot
[122] This includes a lead 'shell/sleeve', and a bent lead wire

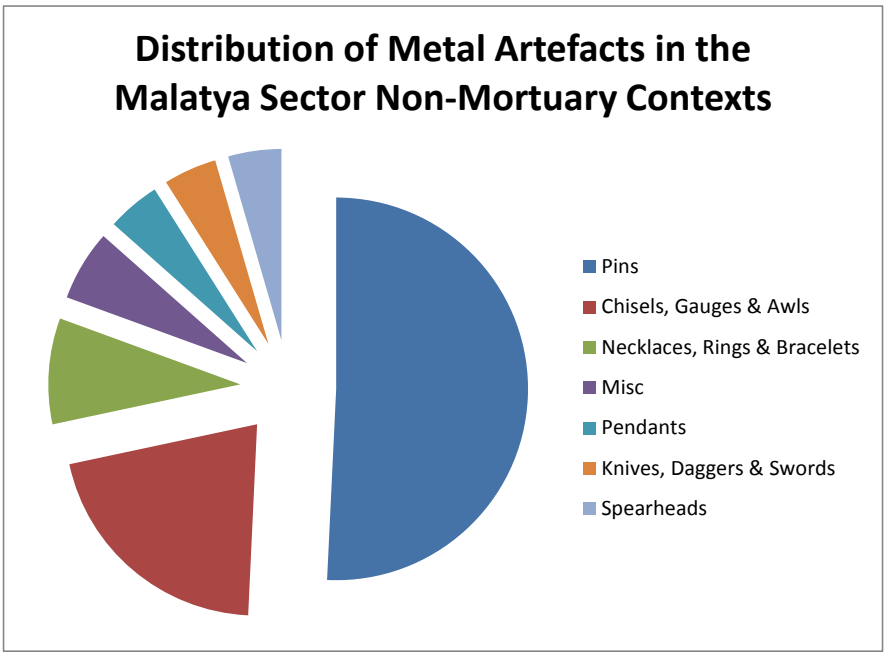

Figure 50: Distribution of metal objects by type in non-mortuary contexts in the Malatya sector

A comparison of the metal assemblage from mortuary and non-mortuary contexts (see Figure 51 below) shows that the pattern of distribution of metal artefacts by category is similar in both contexts; ornaments make up the majority of the total assemblage followed by weapons and then tools. This is similar to the distribution of artefacts in the Carchemish and Samsat-Lidar mortuary contexts.

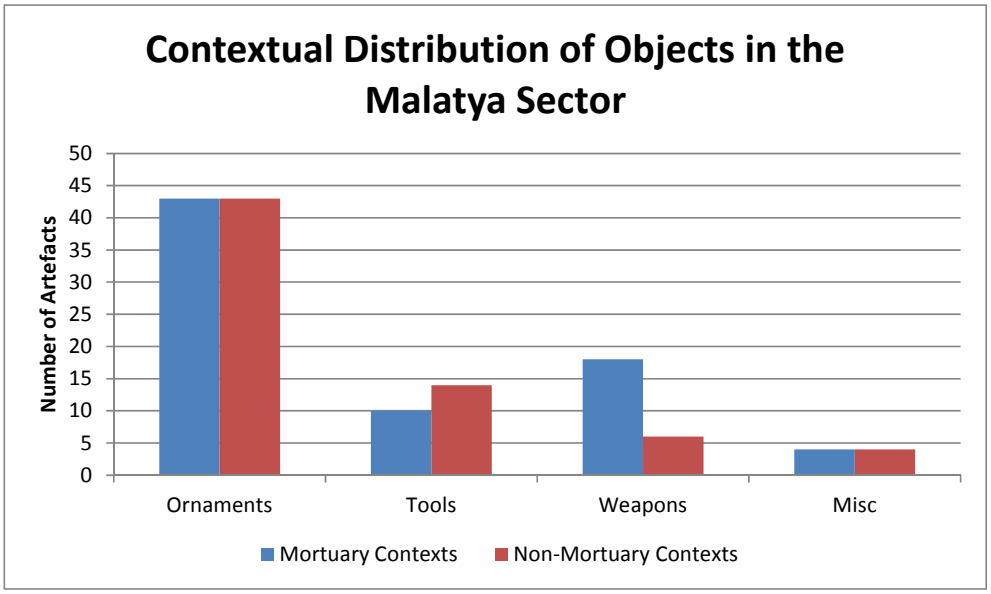

Figure 51 Distribution of metal artefacts by categories and contexts in the Malatya sector

Of the Malatya sector sites, Arslantepe and Norşuntepe were the main contributors to the total amount of metal in this sector. They differ from each other in

that a significant proportion of the metal objects from Arslantepe came from the 'royal' tomb complex whereas all of the objects from Norşuntepe came from non-mortuary contexts, specifically from the proposed metalworking area. The finding of a large quantity of metal in domestic and industrial contexts is a trend specific to this sector, and the fact that six of seven sites only had metal objects found in non-mortuary contexts strongly suggests that metal was utilised and perhaps perceived differently in this sector than in the Carchemish and Samsat-Lidar sectors. The reasons for this difference will be discussed in the following two chapters in further detail in order to fully explore the causes that contributed to this trend.

4.4 Chapter Overview and Discussion

Of the estimated 56 sites in the Upper Euphrates Valley that were occupied during the EB I-II periods, 20 of them had published metal objects or metalworking detritus- roughly 1/3 of the total number of identified sites. The amount of metal items found at these 20 sites varies significantly, though the number of sites with evidence of metalworking is fairly evenly distributed between the sectors as can be seen in the figures below.

Sector	Number of Sites with Metalworking Evidence	Number of Objects in Mortuary Contexts	Number of Objects in Non-Mortuary Contexts	Total Number of Objects
Carchemish Between 7 sites	4	≥ 527	2	≥ 529
Samsat-Lidar Between 4 sites	2	≥ 49	≥ 24	≥ 73
Malatya Between 9 sites	4	≥ 75	≥ 67	≥ 142
Between 20 sites	10	≥ 651	≥ 93	≥ 744

Figure 52 Breakdown of metal artefacts in the Upper Euphrates Valley dating to the EB I-II

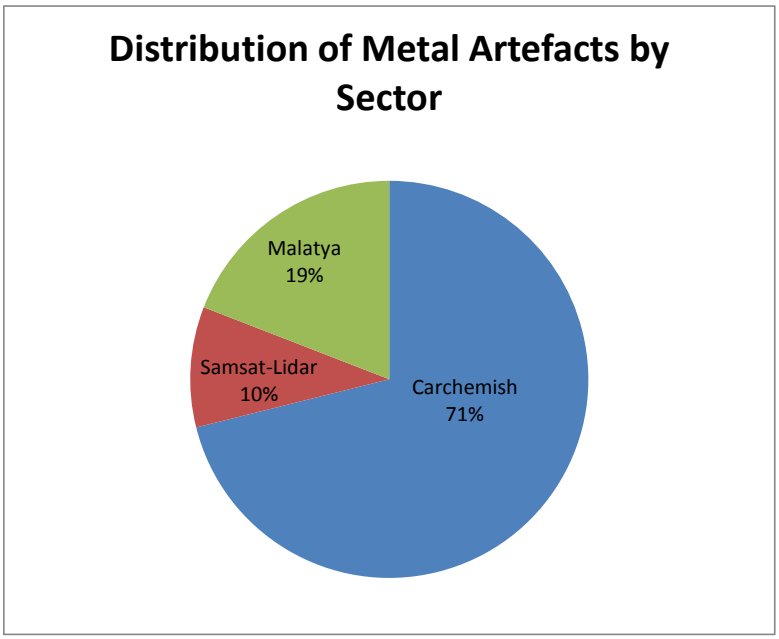

Figure 53 Distribution of metal objects by sector in the Euphrates Valley in the EB I-II

Based on the accumulated data, metal can very broadly be associated with mortuary contexts[123] in the early third millennium of the Upper Euphrates Valley (see Figure 54 below), especially in the Carchemish sector where there were only two metal items reported from non-mortuary contexts despite this sector having the highest number of metal objects overall and the largest total excavated area.

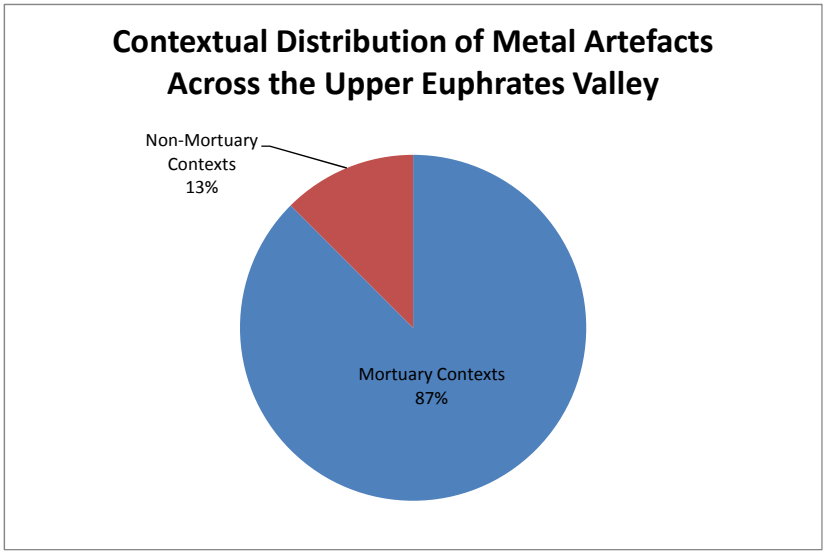

Figure 54 Distribution of metal objects in the Euphrates Valley in the EB I-II by context

[123] The metal objects from mortuary contexts depicted in Figure 54 were found in 121 of the 237 individually reported EB I-II burials in the Carchemish, Samsat-Lidar and Malatya sectors. Further information comes from Squadrone's (2007) Birecik Dam cemetery analysis, though she does not give a list of burials with metal objects. See the Appendices for more complete information regarding the context for the objects excavated.

Of the sites in the Carchemish sector that had metal objects, the majority of the finds came from the Birecik Dam cemetery, which had 410 metal items, while the bulk of the objects from the Samsat-Lidar sector came from Hassek Höyük (67 objects), and in the Malatya sector it was Arslantepe that contributed the most items (103 objects). However, the number of objects per site or the number of sites in a given sector with metal objects does not seem to follow a particular pattern, a situation made even more ambiguous by the differential degrees of reporting between sectors.

There is a steady increase in the number of objects found in domestic and industrial contexts further north- to the point where metal items found in non-mortuary contexts make up nearly half of the total metal assemblage in the Malatya sector (see Figure 55).

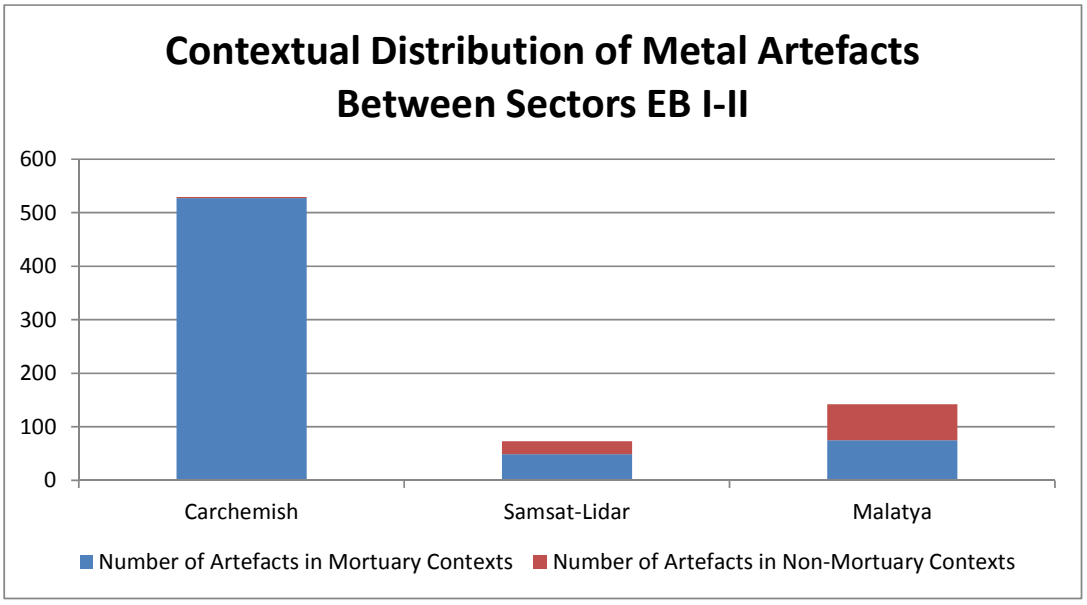

Figure 55 Distribution of metal objects in the Upper Euphrates Valley by sector and context

Given the quantity of metal dating to the EB I-II, a discussion of how the inhabitants of the Upper Euphrates Valley obtained their metal resources and finished objects should also be raised. In order to answer this, a look at the ratio of sites with finished metal artefacts to sites with metalworking detritus is in order (see Figure 56 below).

Site	Metalworking Evidence	Metal in Mortuary Contexts	Metal in Non-Mortuary Contexts
Qara Quzaq		X	
Shiukh Tahtani		X	
Shiukh Fawqani	x		
Carchemish		X	
Zeytinli Bahçe	x		x
Hacınebi[124]		X	
Tilbeş Höyük	x	X	
Birecik Dam cemetery		X	
Kurban Höyük			x
Titris Höyük		X	
Lidar Höyük	x	X	
Hassek Höyük	x	X	x
Arslantepe	x	X	x
Gelinciktepe			x
Taşkun Mevkii			x
Taşkun Kale			x
Aşvan Kale			x
Pulur-Sakyol	x		x
Han Ibrahim Şah			x
Tepecik	x		
Norşuntepe	x		x

Figure 56 Distribution of metalworking evidence and metal objects in the Upper Euphrates Valley

As the figure above shows, there were only two sites in the Carchemish sector that had both metal objects and metalworking evidence, and neither of the other two sites with evidence of metalworking had any metal items that could be securely dated to the EB I-II. This is an intriguing scenario given that there are so many objects from the EB I and II cemeteries in this area, especially at the Birecik Dam cemetery. To explain this phenomenon, it may be worth considering the nearby site of Tilbeş Höyük as the most likely place of production for the Birecik Dam metals. The majority of the artefacts from this cemetery fit well within the regional style of metalworking (Squadrone 2007), though at least some of the Birecik Dam metals may have come from further afield if the meanings associated with the proto-cuneiform signs etched into the axes and spearheads are indicative of their trade value. Similarly, the profusion of metal items found in the Carchemish burials were also items that were likely produced locally based on the site's size and regional

[124] While no evidence of metalworking was found at Hacınebi in the EB I for the first time in at least half a millennium of occupation, it is thought that the EB I population moved off of the original tell to a new location which is now under the modern village of Uğurcuk. The use of Hacınebi as a cemetery and the move to a new site likely explains why no metalworking evidence was found at Hacınebi (Stein 1998b).

importance during the EB I and II, though until further excavations are carried out by the Italian-Turkish team this remains an assumption.

The Samsat-Lidar sector evidence shows a slightly different trend than the Carchemish sector's production of metal artefacts; here two of the four sites had evidence of a metal industry along with finished metal objects. Though Lidar has metalworking evidence, metal artefacts are only reported from mortuary contexts. Hassek, on the other hand, has metalworking detritus, metal in mortuary contexts and metal in non-mortuary contexts. The Hassek metal objects from mortuary contexts came in a variety of forms as did the metal finds from non-mortuary contexts, suggesting that a wide range of objects were manufactured on site rather than multiple types of objects being imported.

While the number of metal objects found in the Malatya sector is only about one quarter of the total number of metal objects found in the Carchemish sector, half of the sites in this sector had evidence of intramural metalworking. Like Hassek in the Samsat-Lidar sector, Arslantepe also had metal objects from both mortuary and non-mortuary contexts in addition to having debris associated with metalworking. This site also contributed the greatest number of metal objects to the total Malatya sector metal assemblage, a situation that would be expected if this centre had a thriving metal industry. Apart from Norşuntepe and Pulur-Sakyol, none of the other sites that also had metal in non-mortuary contexts had any metalworking detritus. While one explanation would be that the metallurgical activity areas were not found at these sites before they were flooded, it is also possible that these sites were primarily subsistence based or pastoral sites (either temporary or permanent) and therefore any metal artefacts that were utilised by the population were carefully curated rather than conspicuously disposed of as part of a region-wide mortuary ritual. What objects that were found at these sites may have come from the nearby regional centres in exchange for subsistence surplus or textiles (see Crawford 1973).

One general trend that can be seen throughout the Upper Euphrates Valley is that the frequency of metalworking associated materials increase with site size, especially at the sites that were 2 hectares or larger and located north of the Taurus. These sites were much closer to the ore sources than the sites in the Carchemish and Samsat-Lidar sector sites, though as noted this does not guarantee the universal use

of metal objects. Altogether, Tilbeş, Arslantepe and Norşuntepe provide some of the most comprehensive evidence for metalworking in the EB I and II in the Upper Euphrates Valley, with supporting evidence from Lidar, Hassek, Tepecik and Pulur-Sakyol. Shiukh Fawqani provides a rather unique instance of metalworking evidence, and it may be that the crucible in Phase B of Building 3 is more symbolic than part of a local metal industry.

What is perhaps most impressive, though, is that despite nearly 90% of the total metal assemblage of the Upper Euphrates Valley in the EB I-II coming from mortuary contexts, there was still a fair number of sites that had metal in domestic and industrial contexts, particularly in the Malatya sector where a high number of sites had metal in non-mortuary contexts. Though the sample size is not as large as desired, from the information available, the Samsat-Lidar sector seems to be the intersection of two different views on the role of metal in EBA society in the Upper Euphrates Valley (see Figure 57).

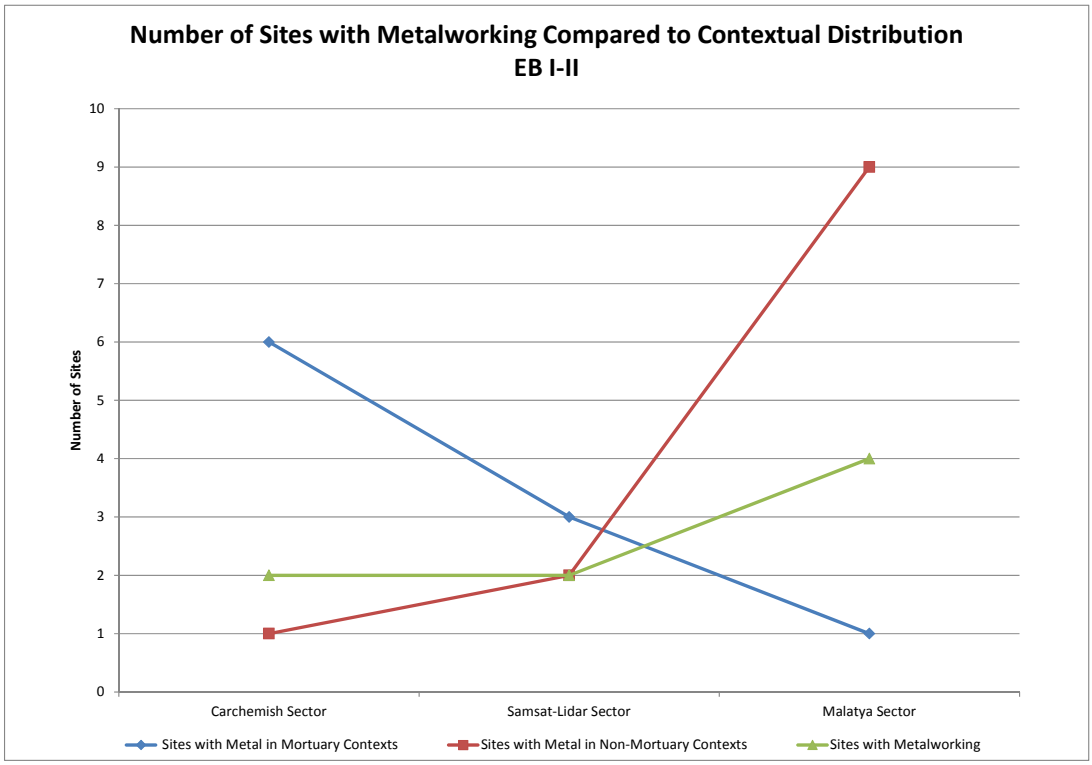

Figure 57 Metalworking and metal use trends in the Upper Euphrates Valley in the EB I-II

It is in this sector that the number of sites with metal in mortuary and non-mortuary contexts as well as the number of sites with metalworking is closest. It would seem that this sector served as a balancing point between the very different

uses of metal in the Carchemish and Malatya sectors; these two sites had the same number of sites with metal objects or metalworking evidence, and though the number of sites in both sectors that had evidence of metalworking is very similar, the contexts in which metal was excavated in are very different. The total number of burials with metal items decreases proportionally the further north the sites are located despite the proximity of the more northern sites to the Ergani-Maden copper complex (approximately 60 kilometres from the Malatya group) and other localised sources of copper ore (Palmieri *et al*. 1995, 1996b).

As can be seen in the evidence presented above, metal was found most frequently and abundantly in mortuary contexts during the Early Bronze I-II periods, with metal in other contexts only making up approximately 10% of the total metal assemblage in the Upper Euphrates Valley. Possible reasons for this massive disparity may be as simple as differential excavation between the two contexts; cemetery excavations tend to reveal richer archaeological finds and therefore lead to better funding and further excavation seasons that reveal more burials, and so on. The excavation of domestic contexts, however, are often hindered by these contexts being buried under tens of metres of overburden which make large-scale exposures at a site difficult and time consuming. While this difficulty may seem like an insurmountable obstacle to the recovery of metal artefacts (or in fact any artefacts), it is still fairly impressive that of the twenty sites with reported metal artefacts and metalworking evidence in the EB I-II, nine of them had metal objects found only in non-mortuary contexts meaning that finding metal in conical tells or large, flat sites is not as close to looking for a needle in a haystack as it would first appear.

When a generic comparison of excavated area to the number of artefacts found is graphed (see Figure 58 below), the data shows that total excavated area has some relation to the total number of metal artefacts found, but this is not an overwhelming factor in the recovery of metal objects in the archaeological record. While those sites with the most metal objects also had more than 1000 m² of excavated area, they were also the sites where cemeteries, rich burials or metalworking areas were comprehensively excavated.

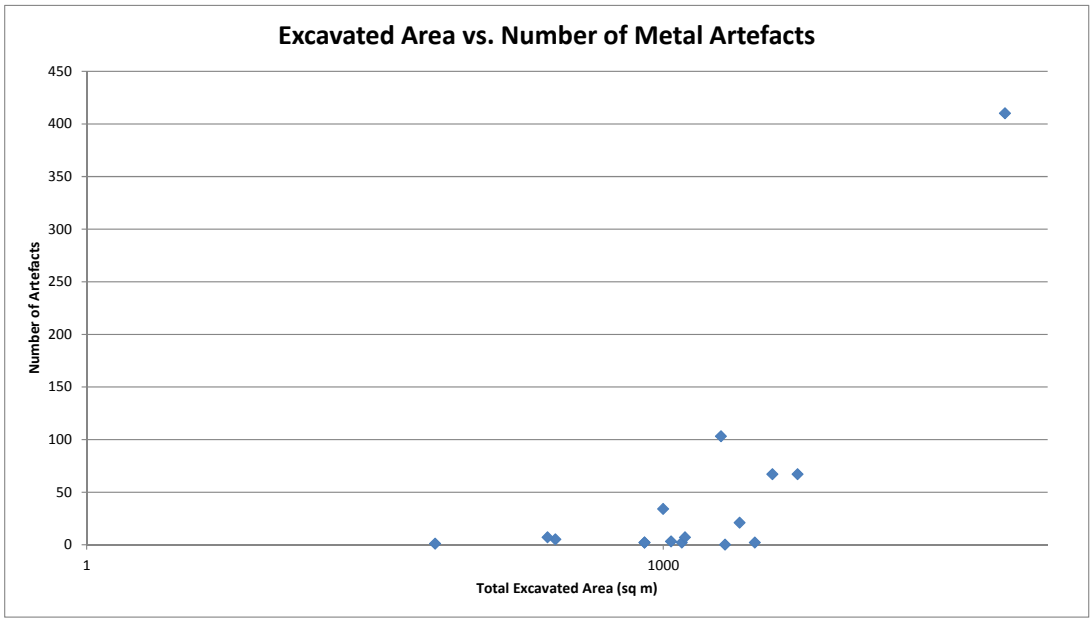

Figure 58 Distribution of metal objects in the Upper Euphrates Valley by excavated area (note that this is a log scale showing the Birecik Dam cemetery as the outlier)

If the figure above is modified to show site size rather than excavated area and if the sites are differentiated by sector, the most noticeable feature is that each of the three sectors had one site that stood out more than the others for the quantity of metal found (see Figure 59 below).

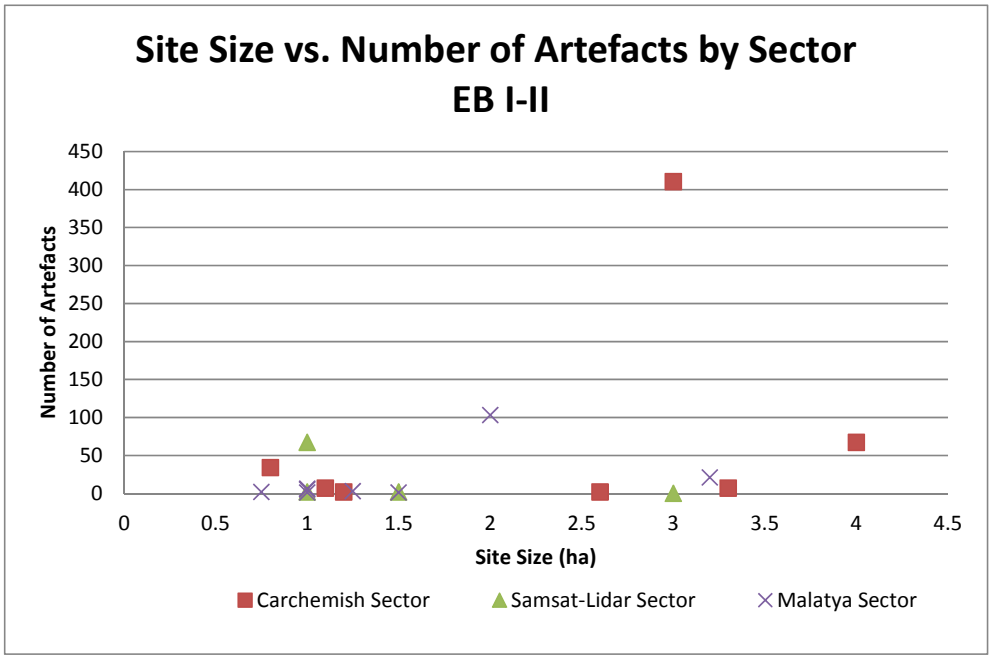

Figure 59 Comparison of site size to number of artefacts by sector

In fact, there are more metal objects reported at sites that were less than 1.5 hectares in area than in the top tier sites, which are considered to be those that are greater than

three hectares; sites that were less than 1.5 hectares in size had approximately 130 objects between them while the sites between 1.5 and 3 hectares had approximately 110 items and the sites that were 3 hectares and above had approximately 505 objects, which is skewed by the Birecik Dam cemetery metal objects.

As can be seen in the figure above, none of the three sites with the greatest quantity of metal were the largest reported or excavated sites for their sector. This is in contrast to Pernicka *et al*. (2003) who associate metal (specifically bronze) use with large, urban centres in top-down models:

> Considering the types of objects that were made of bronze it is evident that this material must have been quite expensive and was mainly used for prestige items. It is easily imagined that the social elites of the early urban centers used them to indicate their rank and status and it is also possible that such expensive items were exchanged as presents among them. …The urban organisation and its lifestyle, at least of the elites, seems to have been so attractive that it was quickly adopted in neighbouring areas that also adopted the prestige symbols (Pernicka *et al.* 2003: 169).

If this was the case, the proliferation of metal objects over time should be closely associated with site size with the largest sites having the most metal objects earlier than other, smaller sites because these urban centres had the elite population to support the demand for bronze objects that Pernicka *et al*. (2003) associate with indicators of rank and status.

The association of metal objects with sites at the top of the settlement hierarchy may only hold true in the first half of the fourth millennium when metal was still quite rare in the region and only found at very few sites. Compared to the fourth millennium, the number of instances in which metal is found in seemingly non-elite mortuary contexts in the early third millennium strongly suggests that metal was not as tightly restricted as would be expected if these items were centrally controlled prestige objects. In fact, the point at which graves are labelled as ‘elite’ is fairly hazy at the sites where the cemeteries contained multiple burials with an array of metal grave goods. There are limited examples of ‘obvious’ elite burials such as the ‘Princess’ of Qara Quzaq and the Arslantepe ‘royal’ burial, which are the most blatant examples of the conspicuous disposal of metal in elite mortuary contexts. In these seemingly clear-cut examples, the labelling of these objects as ‘prestige’ items would appear to be obvious, however, there are multiple examples in other mortuary

contexts in which the association of metal objects with 'prestige' items is ambiguous. In cases such as the Carchemish sector where metal in burials is almost *de rigueur*, can it really be said that these objects were elite goods whose primary purpose was to display rank and status?

Though the information detailed above is oriented towards describing the contexts and the objects found in them, this brief summary of sites clearly shows that there was very definitely an exponential increase in metal use in the first half of the third millennium. What is unclear, though, is what caused this transformation in metal consumption, especially in mortuary contexts. One hypothesis for the increased use of metal objects in mortuary contexts in the Upper Euphrates Valley in the early third millennium is that the population groups from eastern Anatolia and the southern Caucasus who had long been in contact with the Upper Euphrates Valley influenced the local mortuary customs of the Euphrateans (Frangipane 2001b; Palumbi 2007-2008; 2008b).

Alternatively, the high incidence of metal objects and metalworking equipment in the early third millennium may simply be a product of the increased availability of ore, finished metal objects, spread of technology and a larger audience of consumers who could afford and then conspicuously dispose of these items. The Euphrates Valley sites were well connected with each other and with sites outside of the immediate area through a variety of trade routes and so it should not automatically be assumed that the influence of a foreign population was directly responsible for this change in consumption patterns. But how and why did the social use of metal change, then? What made metal such a desirable commodity to the inhabitants of the Euphrates Valley? These topics will be further discussed in the following chapters where a synthesis of the evidence from both the fourth and third millennia will be related to the Euphrates Valley socio-political and economic systems in order to create a model which might explain the changing attitudes towards metal by the inhabitants of the Upper Euphrates Valley.

Chapter 5: Life and Death, a Comparison of Contexts

5.1 Metal for the Living

5.1.1 A Summary of the Upper Euphrates Valley Data

5.1.2 Regional Comparisons

5.1.3 Discussion

5.2 Metal Objects as Grave Goods

5.2.1 A Summary of the Upper Euphrates Valley Data

5.2.2 Regional Comparisons

5.2.3 Discussion

5.3 Chapter Overview

When attempting to understand how objects were used and viewed by past societies, it should be kept in mind that the meaning of an object is shaped by multiple factors that include individual and group strategies and that these meanings shift over time. Shifts in how metal objects were perceived and used can be linked to changes in the socio-political and economic systems that occurred in the Euphrates Valley, and as the previous two chapters have outlined, there is a very definite change in the patterns of consumption and disposal of metal objects by the Euphrateans from the Late Chalcolithic to the Early Bronze Age.

In order to evaluate the degree of metal use by the Euphrateans within a larger research framework, the data from the Upper Euphrates Valley will be compared to sites from neighbouring geographical regions in the Near East. Tepe Gawra in northern Iraq will be compared to the fourth millennium data to assess the degree of 'local' development in the early Euphrates Valley metal industry, while a brief survey of the Habuba Kabira and Godin Tepe data will be used as a comparison of how metal was used by those who inhabited other Uruk 'outposts' and 'colonies' in the second half of the fourth millennium. For early third millennium comparisons, several cemeteries and the limited settlement data from the southern Caucasus will be looked at, as will the Ninevite V occupation at Tell Brak in northern Syria and Tell Karrana 3 in Iraq. Additionally, data from Ur will also be discussed to highlight the differences in the use of metal in mortuary contexts between regions of Mesopotamia. The settlement history of these extra-regional sites are mentioned only as needed within the larger discussion as space does not allow an exhaustive site

summary for each of these sites within this thesis, though background data and further references are noted in the Gazetteer and the data from these sites can be found in Appendix III.

5.1 Metal for the Living

An analysis of the metal objects and metalworking evidence found in non-mortuary contexts provides a more accurate picture of the degree with which metal was utilised in everyday situations by the inhabitants of the Upper Euphrates Valley settlements and how this changed over time. In sharp contrast with the total amount of metal found in mortuary contexts from the Late Chalcolithic 2 through the Early Bronze II, the total metal assemblage found in domestic, public and industrial contexts is much more limited, but no less valuable, to the larger interpretation of the role that metal played in Euphratean society. While this discrepancy can be attributed to differential rates of preservation, there is also the high probability that metal items used for everyday tasks were frequently melted down and recycled when their usefulness had ended, which is well documented in later texts (Moorey 1985, 1988a; Postgate 1992). Furthermore, items that had been used by the living could also be removed from circulation and deposited as grave goods following a death, thereby transferring their designation from 'practical' to 'prestige' goods (Hayden 1998). However, there is still ample information available, especially in the Late Chalcolithic, to gauge the changing attitudes towards metal use in day to day life as well as the changing social and economic value placed on these items in the Upper Euphrates Valley compared to contemporaneous sites in other regions of the Near East.

5.1.1 A Summary of the Upper Euphrates Valley Data

From the early fourth millennium, the types of objects found in domestic, industrial and public contexts in the Upper Euphrates Valley sites are fairly diverse and consist of personal ornaments, tools, weapons and miscellaneous objects that cannot be easily classified in the other three categories. As the figure below and the

information presented in Chapter 3 illustrates, tools are the most frequent type of metal object found in the first half of the fourth millennium (the pre-contact phases).

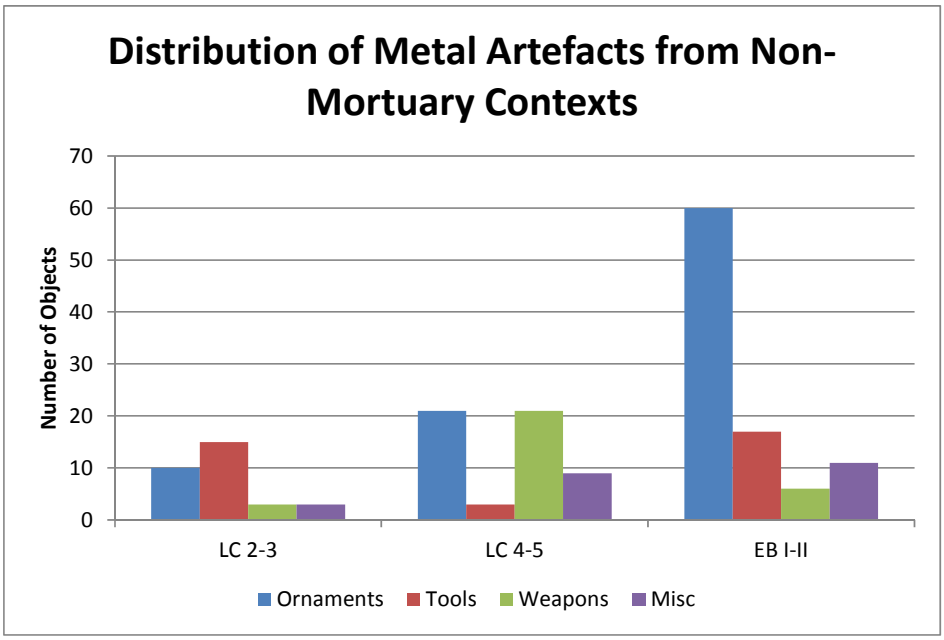

Figure 60 Distribution of objects by category over time in non-mortuary contexts

The tools found in these early domestic contexts were almost entirely composed of chisels, with the only example of an awl was found at Arslantepe in A350 (Caneva and Palmieri 1983). Following Derevenski and Sørensen (2002), the early appearance of tools in the metal repertoire is part of the introductory phases of metal use by a society, and these items would have been adopted by a population quite quickly because of the pre-existing familiarity with these objects even if they were not economically or technologically better (Adams 1997, 2000; Foster 1973).

Personal ornaments were the next most frequently found metal object and were all of fairly simple design without a great deal of diversity, a situation similar to the variety and technological skill involved in making the tools that were found in the Upper Euphrates domestic contexts in the LC 2-3. The personal ornament repertoire consists of several pins (loop-headed and conical headed) in addition to the copper beads and two spiral pendants from Norşuntepe. Also like the distribution of tools, personal ornaments were found at all three of the sites with metal artefacts at this time. In fact, the only difference in the metal repertoire between these three sites is that Norşuntepe had weapons found in the Late Chalcolithic 2-3 occupation

levels[125] and the other sites did not. Despite the three examples of weapons from Norşuntepe, metal weapons[126] were quite rare in the Upper Euphrates Valley until the end of the Late Chalcolithic and were limited to sites in the Malatya sector during the entire fourth millennium, possibly because of different game hunting strategies or different expressions of public display.

With the exception of one pendant made of lead from Norşuntepe, all of the metal objects found in the Late Chalcolithic 2-3 domestic contexts were made of copper or copper alloys, contrasting sharply with the silver rings found in the Hacınebi jar burial from this time. From the metalworking data presented in Chapter 3, there is convincing evidence to support the assumption that many of these copper items were being made at the same sites at which they were found; an open-faced mould found at Phase A Hacınebi in Area C still had droplets of copper adhering to it, and as discussed in Chapter 3, both Arslantepe and Norşuntepe also had evidence of metalworking taking place on site. Furthermore, the quantity of square tip chisels from the early levels at Norşuntepe and the chisel and fragments of a very similar chisel mould found at Hacınebi from the pre-contact phase of occupation (Özbal *et al*. 2000; Stein 1999b) strongly point to these sites producing their own metal objects. This order of events fits into the 'Innovation Phase' described by Strahm and Hauptmann (2009), where the earliest types of metal tools being manufactured were fairly simple items that were relatively standardised without being mass produced.

There is an increase in the quantity of metal found in non-mortuary contexts in the Late Chalcolithic 4-5, which is partly due to the cache of weapons found at Arslantepe. Because of this cache of 21 swords and spearheads, weapons very slightly outnumber personal ornaments while only three tools (one awl from Jerablus Tahtani and two chisels from Arslantepe) were found in the LC 4-5 occupation remains in the entire Upper Euphrates Valley (refer to Figure 60 above). The awl from Jerablus Tahtani further stands out as this awl has a spirally twisted shank (Peltenburg *et al*. 2000), a feature that is not replicated on any other tools from this

[125] One example of a projectile point or spearhead was found in Level 35, Level 34/33 and Level 31.
[126] Objects that are included in the 'weapons' category in this thesis are knives, daggers, swords, spearheads and mace heads. Knives and daggers are counted in this category in light of their potential for violence, which Derevenski and Sørensen (2002) view as the distinction between interpreting objects as tools or as weapons. However, it is acknowledged that this does not mean that these items were necessarily used in this manner as knives may have been limited to butchering animals and other tasks requiring a sharp blade.

period. As the figure below shows, this is a sharp drop in the number of metal tools from the first half of the fourth millennium, which may be related to the hiatus at Norşuntepe which had previously been a major producer of metal objects in the Upper Euphrates Valley. Or perhaps this trend relates to what objects were in demand by the Uruk population; if they used stone versions of metal tools, then production may have been naturally focused on personal ornaments.

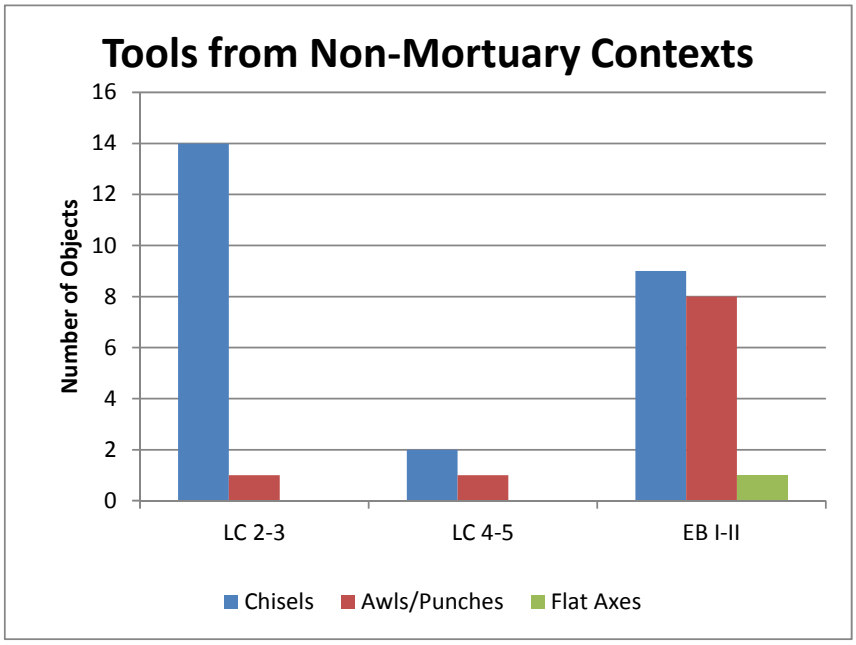

Figure 61 Distribution of tool types over time in non-mortuary contexts

Several of the proposed Uruk sites grew to be quite large in the Late Chalcolithic 4-5 (such as Samsat and Tiladır Tepe) and it would be expected that regional centres would have had a representative number of metal objects if they were exporting finished objects or metal ore to southern Mesopotamia. However, none of the sites that are thought to be Uruk colonies had significantly large quantities of raw ore or finished metal objects found *in situ* apart from Hacınebi. This dearth of metal can be connected to external factors beyond explanations that use the limited excavation of these two sites as a reason for the lack of metal; it may be that the use of metal was viewed differently by these transplanted southern Mesopotamians or perhaps they exported any metal objects they acquired to southern Mesopotamia and kept very few or no objects for themselves.

Attention can be drawn to the small Uruk outpost of Hassek Höyük (Algaze 1993b, but see Helwing 2000 and Nissen 2001) whose total metal assemblage for the

second half of the fourth millennium is limited to the four copper pins that were found in the domestic structures of level 5 as a result of a sudden conflagration. The large-scale excavation of this level (*ca*. 3700 m² of a 1 ha site) suggests that these four pins are a fairly accurate representation of the degree with which metal was present at this site during the late fourth millennium. This observation is further supported by the lack of metalworking detritus at Hassek, which may indicate that these personal ornaments were brought to the site as finished objects rather than being manufactured there. Hacınebi also had an Uruk population at this time and shows a similar lack of finished metal objects, though there was an abundance of metalworking detritus that was found in both the Uruk and local areas of the site. This discrepancy of metalworking to finished objects could be interpreted as evidence of the population at Hacınebi producing and then trading the finished objects to the southern Mesopotamians living in the Upper Euphrates Valley or perhaps directly exporting these items to Mesopotamia themselves.

Of all of the personal ornaments found in domestic, industrial and public contexts from the LC 4-5, pins were the most frequently found type of ornament (see Figure 62 below) with a variety of pin types represented. Of note is the animal-headed pin made of almost pure copper that was found at Kurban Höyük (Algaze 1990; Algaze *et al.* 1986) and a double spiral-headed pin found in Phase 3c of the tripartite building at Tepecik (Esin 1976a), though the earlier types such as conical-headed and loop-headed pins were also still found in the LC 4-5 levels. Among the remaining types of personal ornaments is the quadruple spiral plaque of uncertain use from Arslantepe A113 and the copper-lead-arsenic alloy melted spoon/ spatula shaped pendant from a pit at Arslantepe (Palmieri *et al*. 1999).

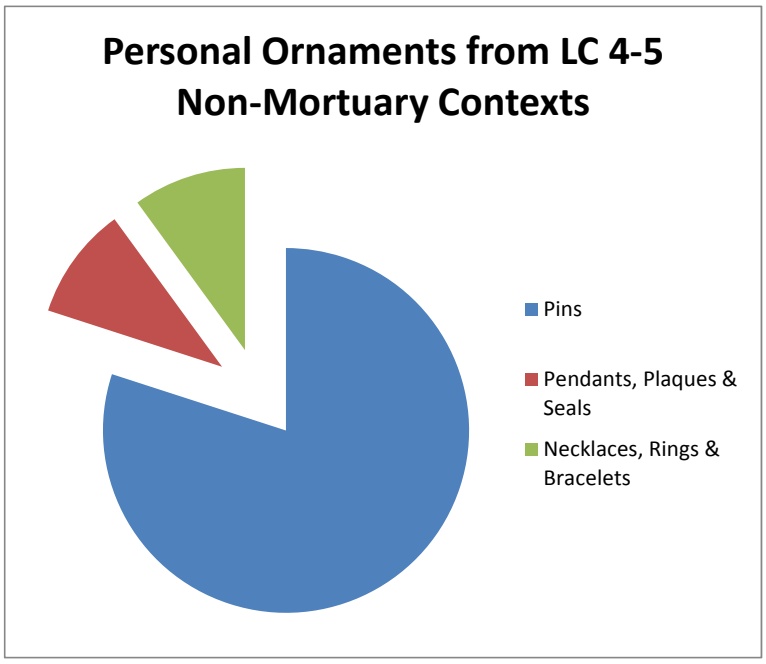

Figure 62: Types of personal ornaments found in non-mortuary contexts in the LC 4-5

As was noted above, the weapons cache that was found in the Arslantepe public building complex represents the largest collection of fourth millennium metal weapons found in the Upper Euphrates Valley to date. The context of these weapons suggests that they were used as part of a public display rather than being part of a private collection or for personal use. Thus far the Arslantepe swords are the only provenanced swords dating to the Late Chalcolithic in Anatolia, though another sword thought to be from the same time period and general region (but of uncertain provenance) is reported to be in the collections at the Tokat Museum in Turkey (Zimmermann *et al*. 2011). The geographical concentration of these swords would seem to suggest that the region west of Arslantepe was likely the place of their origin, though this cannot be confirmed because the exact find spot of the Tokat sword cannot be confirmed. Unlike the Arslantepe swords, the Tokat sword appears to have been used in combat, so it may be that at least one of these early swords had a practical use rather than being objects used for display purposes only. As impressive as the Arslantepe weapons are, the swords are quite rare in terms of the types of weapons being produced and used at this time in the Euphrates Valley. Instead, the most frequently occurring weapons in the late fourth and early third

millennia were spearheads, a type of weapon that could be found throughout the Near East[127] by the Early Bronze Age (Hamblin 2006).

Apart from the silver pin from Arslantepe A113 and the lead bead from Arslantepe A77, the metal objects found in LC 4-5 domestic, public or industrial contexts were all made of copper or a copper alloy (see Figure 63 below), not including the silver inlay from three of the Arslantepe swords which were made of copper alloy. Like the LC 2-3, this trend is again in stark contrast to the amount of silver used in the Korucutepe burials and the silver ring interred with the individual in Arslantepe A206, which will be further described below.

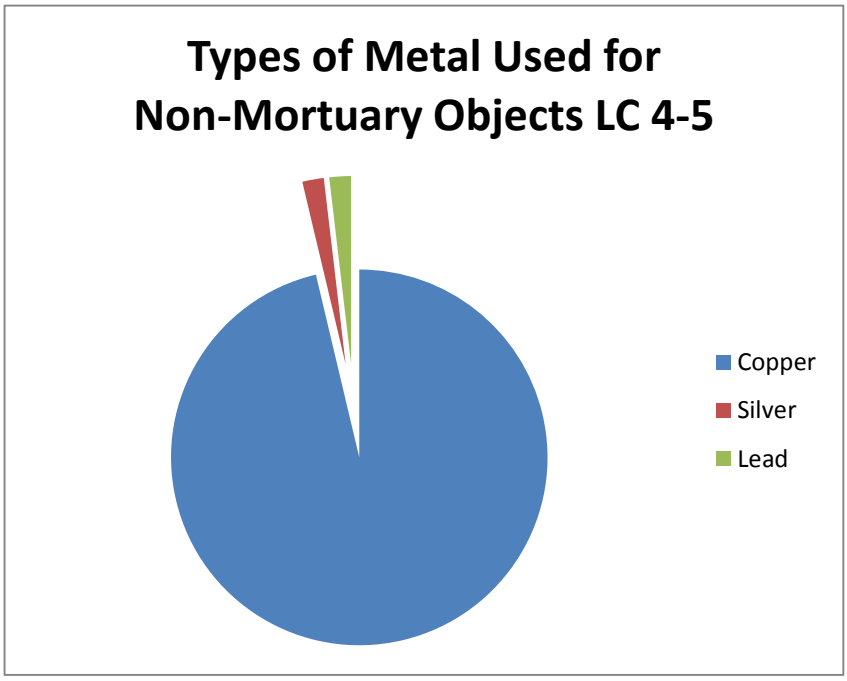

Figure 63 Types of metal used to make the items found in LC 4-5 non-mortuary contexts

At the beginning of the third millennium, the main difference between the use of metal in the LC 4-5 and the EB I-II non-mortuary contexts is that the number of tools increased to a level more in keeping with the other types of objects that were found in these contexts. The types of tools that were being utilised in the early third millennium include the standard types that were present in the Upper Euphrates Valley since the early fourth millennium (including chisels and awls), though it is at this point that flat axes first enter the archaeological record. The material used to

[127] "The presence of the spear at Arslantepe in such an early period reminds us of Mesopotamia, where it already seems to be the distinctive feature of war-equipment in proto urban contexts and with metallurgy in its initial phase of development" (Frangipane 1985: 220).

make these tools is almost universally copper or copper alloys with the only exception to this trend being the A226 copper-silver alloy chisel found at Arslantepe in the VI B phase (Caneva and Palmieri 1983) which is the only mention of this chisel being made of this alloy.

As Figure 60 (above) showed, ornaments were the most frequently found metal object in the EB I-II, followed by tools and then weapons. The low number of weapons can be attributed to their more frequent deposition in mortuary contexts rather than these items being kept in domestic or public contexts. While many of the sites at this time were fortified, it can be questioned to what extent the Euphrateans engaged in offensive conflict because of the relatively low number of metal weapons (or any other types of weapons for that matter) that have been found outside of burials. Instead, it may be the case that the production of metal weapons at this time was primarily used in expressions of identity and public display that went hand in hand with the construction of fortification walls and gates.

Of the personal weapons that were found in public, industrial or domestic contexts in the EB I-II levels of the Upper Euphrates Valley sites, pins were overwhelmingly the most popularly consumed item followed by rings, bracelets and then pendants (see Figure 64 below). Apart from a lead 'whorl' ornament from Hassek Höyük, all of these objects were made of copper or a copper alloy.

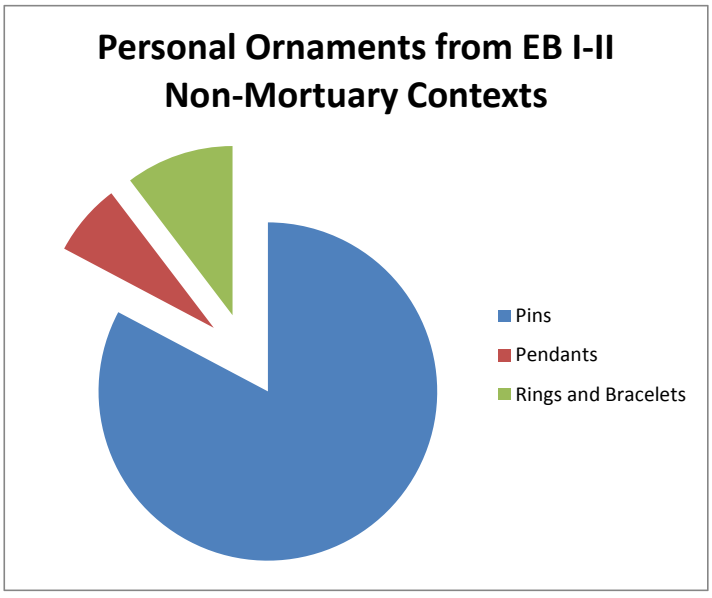

Figure 64 Personal ornaments found in non-mortuary contexts in the EB I-II

When comparing the amount of metal used in domestic, industrial and public contexts over time in the Upper Euphrates Valley, what is noticeable is that the Malatya sector sites initially led the way in terms of metal use and production. It was only in the early third millennium that the sites located further downriver in the Euphrates Valley finally caught up and then surpassed the Malatya sector sites in terms of metal use, especially in mortuary contexts. While this is only a brief compilation and summary of the data presented in Chapters 3 and 4, several conclusions can be drawn regarding the use of metal in non-mortuary contexts in the Upper Euphrates Valley. The first is that copper was the preferred metal used to make items that were utilised in the day-to-day lives of the Euphrateans, a finding that is not too surprising given its availability, durability and recyclability. Another conclusion is that ornaments became increasingly more important to the Euphrateans, especially pins, a situation that can potentially be related to the change in socio-economic systems and the greater need for overt social symbols.

5.1.2 Regional Comparisons

Following the summary of trends of metal use in non-mortuary contexts, a comparison with other sites in the Near East highlights how metal was viewed and valued by different populations and cultural areas in both the Late Chalcolithic and Early Bronze Age. As was noted above, this comparison is not meant to be an exhaustive description of metal use throughout the diverse geographical regions of the Near East over time, but rather it is meant to highlight both the similarities and differences in how metal was used by the populations of the Upper Euphrates Valley and other geographical regions in the Near East (see Figure 66 below) to place this thesis within a wider regional context.

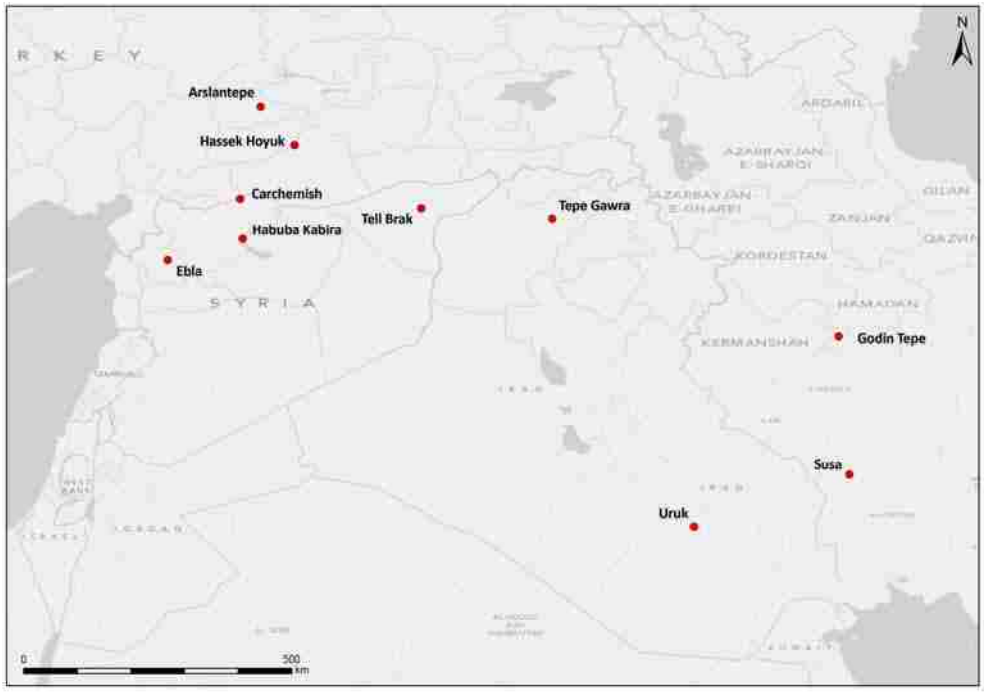

Figure 65 Map of selected Near Eastern sites

Looking first at the Late Chalcolithic use of metal, the site of Tepe Gawra is worth considering as it bears similarities to the Late Chalcolithic Upper Euphrates Valley regional centres of Arslantepe and Norşuntepe. After Gawra was destroyed in period XII (LC 1), a new settlement was built over the ruins of the old after a short period of hiatus (XIA/B). The new XI/XA settlement (LC 2) was built on an entirely new orientation and lacked the defensive features of the preceding settlement. Despite this re-orientation the ceramics, architecture and glyptic all show continuity with the previous levels suggesting that the Gawrans or another local population moved back to the site after its destruction rather than an intrusive population group re-occupying the site. The XI/XA period settlement is characterised by the number of craft related artefacts found throughout the excavated buildings of the site which includes a textile workshop, a ceramic workshop and woodworking areas. The craft items produced in these workshops seem to have been oriented for more local markets and trade based on the local clay that was used in the vast majority of the sealings recovered from this period (Rothman 1994b, 2002a). However, exotic trade goods such as gold, lapis lazuli and obsidian continued to be used at the site, albeit in lesser quantities by the XA phase.

Metal use during the Late Chalcolithic 2 at Tepe Gawra was on par with the Upper Euphrates Valley, both in terms of quantity of objects and the general types of objects being made. Also like the Upper Euphrates Valley, there is a decrease in the number of metal artefacts found in non-mortuary contexts at Tepe Gawra following an initial floruit of metal items (see Figure 66 below). Rothman (2002a) notes that the following X-IX phase is one of increased centralisation at Gawra, so that there was a greater emphasis on the administrative control of metal artefacts that was not present in the earlier XI/XA phase. This also coincides with a shift to new forms of social display in mortuary contexts; the type of mortuary architecture used in the Gawra burials was no longer enough to signal social status as it is at this time that the number of metal grave goods nearly triples in Gawra X and continues to increase through Gawra VIII. Altogether, these changes can be related to the initial stages of centralisation that can be seen at Arslantepe (Frangipane 2000, 2003, 2008) prior to the end of the fourth millennium.

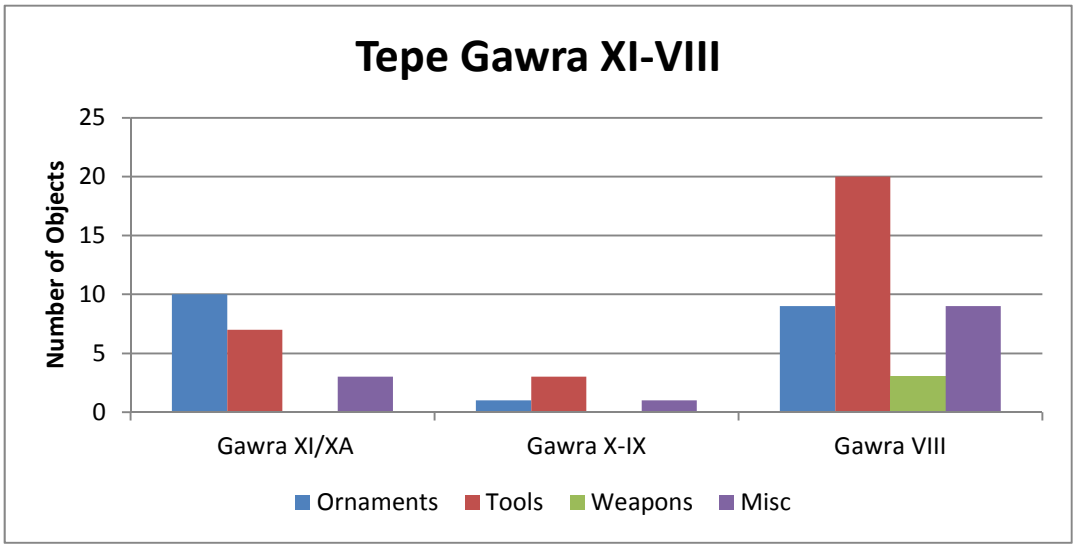

Figure 66 Distribution of metal objects over time at Tepe Gawra in non-mortuary contexts

The amount of metal being consumed in non-mortuary contexts increased once again at Tepe Gawra in the following VIII phase where 41 objects (see Plate 7 for examples) were reported from the various domestic, industrial and public contexts that were excavated. The vast majority of the metal items found were tools used in woodworking, textile production and agriculture while personal ornaments (mainly rings) and the miscellaneous objects make up the next largest categories of objects, as can be seen in the figure above.

In contrast to the types of objects found in LC 2-3 contexts at Tepe Gawra and the Upper Euphrates Valley sites mentioned above, the metal artefacts that comprise the Nahal Mishmar hoard are completely anachronistic. This hoard was found in a cave in the wadi Nahal Mishmar in modern Israel and was dated to approximately 3750 – 3500 BC when the reed matting the objects were wrapped in was radiocarbon dated. The spectacular group of objects is composed of 429 items, 416[128] of which were made of ternary copper alloys using open casting and lost-wax methods (Gonen 1992; Moorey 1988b). The copper ores used to make the objects in this hoard are thought to have originated in Anatolia, which opens up the possibility that the objects were made in Anatolia in the LC 2-3 rather than closer to their find spot at Nahal Mishmar.

Current interpretation of the reasons for this concentration of metal artefacts is that these precious items were hastily hidden in the cave in order to protect them (Moorey 1988b), or perhaps they were placed as part of a ritual deposit. Both scenarios work with Usishkin's (1971) association of this hoard with the nearby Ein Gedi temple and by association the 'Ghassulian' culture, which he described as being a new population who migrated into Palestine in the fourth millennium and:

> …introduced to the country crystallized architectural and artistic concepts and traditions, developed due to an evidence aesthetic flair, unusual gifts, technical knowledge and experience in working with various raw materials (Usishkin 1971: 23-4).

Whilst sounding much like the Chalcolithic version of *deus ex machina,* it is equally likely that the hoard or its maker(s) were part of the long tradition of advanced metalworking in Anatolia based on the proposed source of the ores. At the very least, the presence of this hoard in the Judean desert attests to the skill of ancient metalworkers in the supposed hinterlands of Mesopotamia as well as suggesting that either the trade in ornate finished metal objects was thriving in the early half of the Late Chalcolithic or that the trade in metal ores or processed metal alloys was much more prolific and widespread than previous thought. This hoard is especially impressive given the quantity and quality of finished artefacts and their significantly

[128] Of these 416 objects, Moorey (1988b) specifies that there were: 16 flat axes or adzes, more than 240 mace heads, 90 'sceptres/standards' which are very similar to later Anatolian examples and from Tepe Hissar in Iran, 10 rings or 'crowns', and 8 vessels. However, Moorey's numbers only add up to 364 rather than 416.

different uses and context of finds than contemporary objects from the Upper Euphrates Valley and other parts of Upper Mesopotamia.

Moving to the second half of the Late Chalcolithic, there is more limited evidence of metal use at the Uruk outposts and colonies dating the Late Chalcolithic 4-5 to compare to the Upper Euphrates Valley. However, this lack of metal use is in keeping with what is seen at the 'Uruk' sites in the Upper Euphrates Valley and supports the conclusion that the limited use of metal at the Upper Euphrates Valley Uruk sites is not an anomaly but rather is part of a larger geographical and cultural trend that can be seen at other contemporaneous Uruk Expansion sites with a large southern Mesopotamian population.

Located on the west bank of the Euphrates River in Syria, Habuba Kabira Süd had a very limited occupation during the Uruk expansion (120-150 years) in spite of the great deal of effort that was put into the construction of the well-planned settlement layout and fortification of the 18 hectare site. The limited occupation of the site and the lack of overburden meant that over 20,000 square metres of the site were exposed, giving a fairly complete view of what types of materials the southern Mesopotamians would have been using, importing and exporting. Because Habuba Kabira is often described as the model Uruk colony, this site was chosen to compare to the level of metal use in the Upper Euphrates Valley.

The metal assemblage from this site includes two copper fishhooks (see Plate 7), copper pins, beads and a cosmetic spatula as well as one gold crescent-shaped pendant (Strommenger 1980). There are also a number of lead objects including: a lump of lead adhering to a group of copper pins, a coiled lead wire, two rod fragments, a pendant fragment, a cramp used to repair a broken vessel, a possible nozzle, a small tile, a small square piece of lead, and various unidentifiable fragments and melted lumps of lead (Kohlmeyer 1994; Pernicka *et al*. 1998). The number of lead objects in conjunction with the finding of six lead-rich fragments[129] has led Pernicka *et al*. (1998) to the conclusion that silver cupellation was being carried out at Habuba Kabira by experienced metal workers rather than the finished

[129] These six lead-rich fragments are by-products of the cupellation process and represent litharge cakes. All of the analysed lead samples appear to have come from the same ore source in the Bolkardağ area of the Taurus Mountains while the litharge samples are consistent with lead sources north of Bolkardağ (Pernicka *et al*. 1998; Yener *et al*. 1991).

lead objects being imported to the site. However, the short length of occupation and the limited quantities of other metal objects at Habuba Kabira led Pernicka *et al*. (1998) to the conclusion that this site was not a metal production centre as:

> It is unlikely that in such an environment much metallurgical experimentation was practised, suggesting that the knowledge of the cupellation process is still earlier and was brought to Habuba Kabira as conventional procedure (Pernicka *et al*. 1998: 132).

This seems entirely likely given the much earlier Late Chalcolithic knowledge of silver cupellation at Fatmalı-Kalecik which was mentioned in Chapter 3. Given that no silver objects were reported from the site, it can be hypothesised that the finished silver objects were exported to southern Mesopotamia while the lead objects were utilised by the inhabitants of Habuba Kabira, though this is a very tenuous interpretation of the data.

Looking at another Uruk outpost or colony to add to the limited *corpus* of Late Chalcolithic 4-5 comparative data, the excavation at Godin Tepe in northern Iran can also be used for comparative purposes. The majority of the fourth millennium information from the site comes from Period VI: 1-3 which equates to the LC 2-5 or 3800 – 3000 BC. Period VI: 3 is the pre-contact phase of the site while VI: 1 (previously labelled as V by Young) is when the Oval was constructed and used (Badler 2002; Gopnik and Rothman 2011; Young 1969, 1986, 2004; Young and Levine 1974). Altogether, approximately 10,000 square metres of the site were excavated, though the speed with which the site was excavated meant that much of the information was under-reported and unpublished despite there being several preliminary publications (Gopnik and Rothman 2011). The site is hypothesised to have been an Uruk outpost or colony during the period VI 1-2 occupation levels based on the quantity of Uruk ceramics and other cultural material associated with the southern Mesopotamians. The expansion of the site at this time is thought to relate to the trade route that went from the central-western Zagros past Godin Tepe and then south towards Susa (Gopnik and Rothman 2011). Copper, obsidian and ceramics were just a few of the commodities that were traded along this route, and the corresponding centralisation of craft industries and storage at Godin Tepe can be related to the increased centralisation at Tepe Gawra (located approximately 500 kilometres to the northwest).

Period VI also marks the appearance of metallurgy at Godin Tepe, with the earliest find represented by a single copper awl or needle that was found in stratum 22 of Operation B (Young 1969). Gopnik and Rothman (2011) also report that there were 11 further metal objects in addition to a crucible fragment, a furnace fragment and small pieces of ore fragments from the period VI occupation of the site, most of which were found in and around the oval compound. These consist of one spear point, two fragmentary objects, one metal figurine fragment, a metal chisel and a further six objects that are not described in publication. As the Oval was the focus of excavation in the Late Chalcolithic levels, it is difficult to assess to what degree metal was used by the 'normal' inhabitants of the site who were not associated with the Oval complex.

The slightly later evidence from Tell Brak in northeastern Syria also shows a more restricted utilisation of metal at the very beginning of the third millennium. The early third millennium occupation at Brak is part of the Ninevite V period in Upper Mesopotamia, which is chronologically between the heavily Uruk influenced occupation of the site in the fourth millennium and the large-scale expansion of the city-state of Nagar that occurred in the second half of the third millennium (Matthews 2003b). Brak was chosen for comparison with the use of metal in the Upper Euphrates Valley during the EB I-II because of the degree of excavation and the quality of published material for this site.

In the areas that were focused on exploring the Ninevite V settlement at Tell Brak, sealings with Ninevite V cylinder seal impressions, metal items and metalworking materials and a large quantity of ceramics were found in pits and ash layers in these trenches, with the majority of this metal and associated detritus found in trench HS2. The evidence for metal use included a piece of copper alloy that was found in the courtyard adjacent to room 1 in Level 9, with several copper-alloy fragments, lithics and animal bones found in the following phase (Level 8) of the courtyard. The quantity of sealings found in the pits in the HS2 trench is interpreted as representing cleaning events associated with a monitored storeroom and can potentially be related to the tightly controlled storage and distribution of expensive commodities, which could also explain the copper fragments found in the courtyard associated with this room (Matthews 2003b).

More complete metal objects were found in Level 8 of trench HS4 (dated to approximately 2800 – 2600 BC) where the main architectural feature was a deliberately backfilled building (possibly a shrine or temple) and an open area that was defined by a wall in the northwest corner of the trench. This open area seems to have been used as a place in which to carry-out dirty activities or as a dumping area for the refuse from these activities. Included in the finds from this level were wall cone fragments, stone tools, sealings, beads, a seal impressed sherd, a clay tally or counting instrument[130], a copper alloy hook and the end of a copper alloy blade (Matthews 2003b). Later use of this area can be more conclusively assigned to religious activities based on the interior features that are associated with other single room temples from this period (see Cooper 2006a, 2010). There were a great many sealings found in and around the temple indicating that the commodities stored there were being carefully monitored throughout the duration of this building's use. Bits of metal were again found in the courtyard associated with this structure, though these were limited to a fragment of a copper alloy 'tool' and a copper alloy pin missing its head (Matthews 2003b). The temple in Level 5 was deliberately backfilled like the earlier temple that was excavated in this trench, and a new structure was built on top of it in Level 4 that was, again like the previous temples, also deliberately backfilled and then truncated by much later building events after a century of disuse. The remaining Ninevite V evidence for metal use comes from Level 3 of HF3, a 4 x 4 metre exploratory trench. The end of a copper alloy metal tool (possibly a pair of tweezers) was found in an ashy/rubble level in addition to numerous ceramics. A similar, near surface deposit in trench HF4 also contained similar material and a bent copper alloy pin.

Matthews (2003b) links the similarity in ceramics between forms found in the Samsat-Lidar and Malatya sectors and the early Ninevite V types found at Tell Brak with the copper trade in southeastern Anatolia; by the VI B2 period at Arslantepe, connections with Ninevite V material culture can be seen, specifically in the carinated fruit stands and footed bowls, types which are not found in the sites further upriver. Further evidence of a connection between the Upper Euphrates Valley and

[130] Matthews (2003b) notes that the counting device might parallel an example from Arslantepe (see Liverani 1983).

the Ninevite V region comes from the seals and seal impressions found at Hassek Höyük that resemble examples found in HS2 at Tell Brak (Matthews 2003b: 130).

Moving to sites outside of Upper Mesopotamia, a comparison of the quantity and types of items found in the domestic contexts from the Early Transcaucasian sites in the southern Caucasus would be ideal to determine if there are any parallels between this region and the Upper Euphrates Valley; however, because of language barriers and the limited publication of site reports from excavations carried out in the 1950s and 1960s AD, there is not a great deal of specific published settlement data from these sites. Several scholars have been trying to bridge this gap (see Kavataradze 2004; Kohl 2007; Kushnareva 1997; Palumbi 2007-2008, 2008a, 2008b; Sagona 1984, 2004a; Smith and Rubinson 2003), but in many cases it is the mortuary data that is focused on and the settlement data is given short shrift in comparison, mainly because the focus and quality of the original excavation precludes detailed discussions of the settlement data.

Among the limited published information of Kura-Araxes settlements, the Kvatskhelebi settlement is one of the few extensively excavated Kura-Araxes settlements (750 m² of the settlement was excavated) and is also the best published. Kvatskhelebi is located on a high bank on the left side of the Kura River two kilometres from the contemporary site of Khizanaant-Gora and reached four hectares in size. Phases B and C date to the first half of the third millennium (phase C being the earlier of the two) and the last quarter of the fourth millennium (Glonti *et al*. 2008). It was found that 25 of the 35 houses from the earlier occupation at the site had been rebuilt following an extensive fire in C1 (the earlier part of phase C), and when they were rebuilt the houses[131] were oriented based on the direction of the prevailing winds and built in a pre-planned layout of rows either behind one another or facing one another based on the layout of passageways or small squares (Kushnareva 1997). In the central square in the village, there was a small round structure built on top of a raised platform that seems to have served as a temple or shrine (Sagona 1984). This round building featured a bench in the back that had originally been painted red and had quite a bit of material sitting on and around it including an anthropomorphic figurine and the skeleton of an animal with a copper

[131] The houses themselves were all constructed along the same square layout with a central post supporting a flat timber roof covered with turf (Sagona 1984).

arrowhead embedded in its pelvis (Sagona 1984). Several other metal artefacts made of copper or arsenical copper alloy were also found in the settlement remains, including a spearhead from phase C and a knife blade and several hair spirals from Phase B (Kushnareva 1997; Sagona 1984).

Apart from Kvatskhelebi and Samshvilde[132], none of the other sites that were researched for this thesis had enough relevant excavated settlement area or published material to draw comparisons with the use of metal in the Upper Euphrates Valley. The remaining sites were either cemeteries or were settlements that had extremely limited excavation carried out at them; for example, the only third millennium settlement architecture excavated at Horom in Armenia was a large stone wall (Palumbi 2008b).

5.1.3 Discussion

From the limited comparative data included here, the early use of metal in the Euphrates Valley best resembles that of Tepe Gawra, albeit with different types of metal objects being made and different materials used. At both Tepe Gawra and the Upper Euphrates Valley sites it was tools and personal ornaments that were the focus of metal consumption in non-mortuary contexts and it seems that practical utilitarian items were more common than ornate personal ornaments in the Late Chalcolithic levels. When purely decorative personal ornaments were present in domestic, public or industrial contexts at Gawra they were universally made of gold, a material too soft to be used for making tools, and were made into beads or small pendants (see Rothman 2002a catalogue). At both sites a progression between the shared use of tools to the more private ownership of metal items can be seen, which roughly corresponds with the trend towards the centralisation of craft production and resources, though this is best illustrated at Arslantepe in the Upper Euphrates Valley

[132] In comparison to the extensive Kvatskhelebi excavations, Samshvilde was not as thoroughly excavated because it was located in a heavily forested area, though it is thought that the settlement extended into the surrounding hills. Like Kvatskhelebi, Samshvilde was also divided into two settlement layers with the cemetery associated with the architectural remains from stratum II (Sagona 1984). The main architectural feature from this site in level II was the building complex that had been constructed on stone foundations with a plastered mud brick superstructure. This complex included numerous rectangular rooms leading off of an apsidal room, and it is has been proposed that this building may have been used to stable livestock (Palumbi 2008b). No metal items were reported for this site.

rather than being a visible trend at all of the Late Chalcolithic sites with evidence of metalworking in the Upper Euphrates Valley.

An examination of the use of metal at an Uruk colony in the Middle Euphrates Valley and an Uruk outpost at Godin Tepe in Iraq shows that the use of metal at these two sites is similar, though there is not as much evidence of the everyday use of metal at Godin Tepe as at Habuba Kabira. Instead, the use of metal at Godin can be compared to Hassek and the other sites in the Upper Euphrates Valley where metal use was limited to specific contexts. This may be due to Habuba Kabira being a designated trade centre (though this interpretation is increasingly questioned see Helwing 2000 and Nissen 2001) whereas the majority of the sites in the Upper Euphrates Valley were much smaller settlements that were not necessarily trade-oriented, despite early theories for trade being the motivating factor for the Uruk Expansion (Algaze 1989b, 1993b). Both Özbal (1997) and Pernicka *et al*. (1998) note that the Uruk settlements in Upper Mesopotamia do not have the levels of metalworking materials expected if the inhabitants were producing these objects on site, and it can be called into question to what degree the Upper Euphrates Valley Urukians were exporting finished metal objects south to Habuba Kabira and from there to Mesopotamia. Given that resource acquisition, particularly metals, is a key argument mentioned for the Uruk Expansion in the first place (Algaze 1993b; Oates 1993; van de Mieroop 2004), it is puzzling that there is not more metal reported in southern Mesopotamian sites for this period beyond the copper vessels and spearheads[133] found in the Riemchengebäude area in the western part of the Eanna temple precinct at Uruk and other scattered examples of metal use in the late fourth millennium (Moorey 1985; Pollock 2001).

As was noted in Chapter 3, the few metal artefacts found at the Uruk outposts and enclaves in the Upper Euphrates Valley are almost exclusively metal pins with the one exception being the awl from Jerablus Tahtani. These objects were all made of copper, which is in contrast to the objects from the Habuba Kabira assemblage which were made of copper, gold and lead. At Habuba Kabira, the personal ornaments were primarily made of copper or gold while lead was seemingly reserved for more utilitarian items based on the objects described by Kohlmeyer (1994) and

[133] According to Moorey, "The Uruk excavation reports rarely detail more mundane copper finds" (Moorey 1985: 25).

Pernicka *et al*. (1998). If argentiferous lead ore was being processed at Habuba Kabira to export to southern Mesopotamia in bulk it would be expected that a sister site would be established near to the proposed ore source at Bolkardağ in order to ensure a continuous supply of ore to Habuba Kabira. The long distance separating the ore source and the site of Habuba Kabira made this trade network extremely vulnerable, which is one possible reason for the short occupation of Habuba Kabira (Pernicka *et al*. 1998, but see Nissen 2001).

By the end of the Late Chalcolithic, however, there are more apparent differences in how metal was being used between the various regions of the Near East (see Figure 68 below) despite the increased contact between the Upper Euphrates Valley, Upper Mesopotamia and the Transcaucasian region.

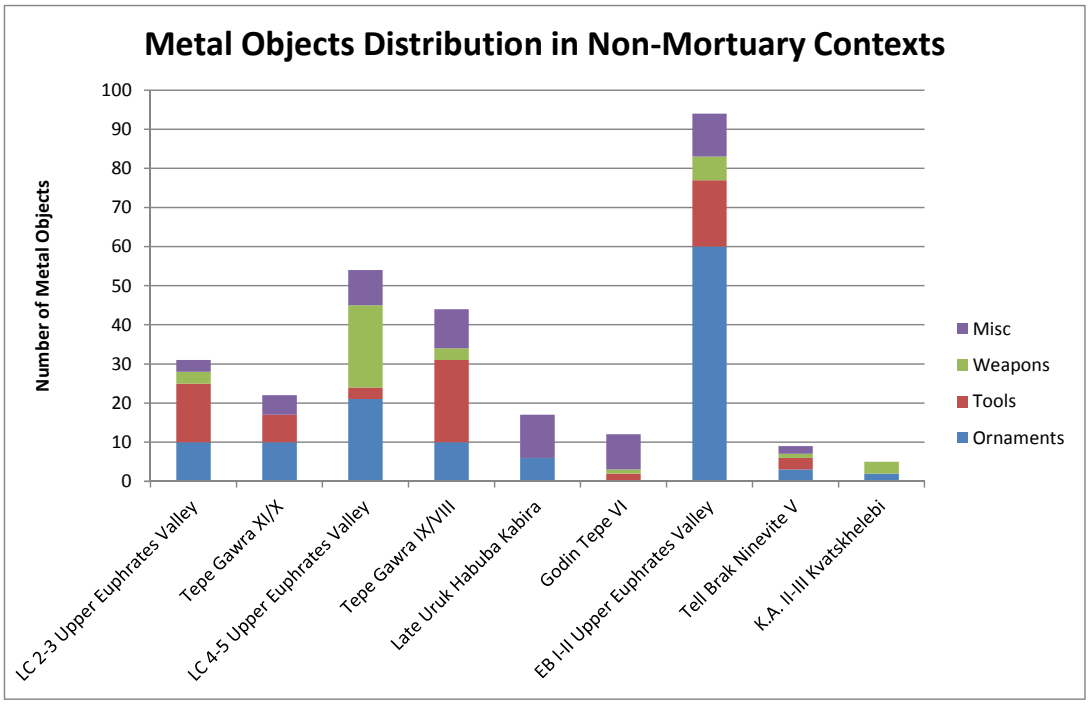

Figure 67 Distribution of object types found in domestic, public and industrial contexts

As was noted above and is shown in Figure 67, the Late Chalcolithic 2-3 use of metal between the Upper Euphrates Valley and Tepe Gawra is fairly similar. The main difference is that there were metal weapons in the Upper Euphrates LC 2-3 assemblage and not in the Tepe Gawra assemblage until the IX/VIII levels. This can be contrasted with the LC 4-5 when there were far more weapons present in the Upper Euphrates Valley than any of the comparative sites, a trend which continues into the Early Bronze Age.

Looking at the comparative sites in the LC 4-5 neither Habuba Kabira nor Godin Tepe have the quantity of metal objects found at Tepe Gawra or the Upper Euphrates Valley sites. Furthermore, the emphasis on craft production is evident in the Tepe Gawra metal assemblage based on the proportion of tools (see Appendix III for a list of objects) to the other types of objects. The assemblages at both Habuba Kabira and Godin Tepe show much more skewing towards the 'miscellaneous' category which includes those objects not easily placed within another category or objects that are too fragmentary or unspecified to label. The association of metal with central institutions can also be seen at Tell Brak where it seems that metal was a valuable commodity that was stored and worked in proximity to a specific building. At many Ninevite V sites the use of metal is extremely limited because of the reliance on agricultural surplus for staple finance socio-economic systems rather than on craft goods as part of the wealth finance system.

Echoes of this could be related to the limited Transcaucasian settlement data although the economy at these sites seems to be oriented more towards pastoralism rather than on the production of large amounts of agricultural surplus (Frangipane and Siracusano 1998; Kohl 2007; Kushnareva 1997; Sagona and Abramishvili 2008). Unlike the Ninevite V restricted use of metal objects, the use of metal at Kvatskhelebi was not restricted to the village temple but instead seems to have been accessible to multiple members of the settlement. Whether the use of metal in the southern Caucasus is more in keeping with the communal use of metal objects proposed for the early fourth millennium in the Upper Euphrates Valley rather than a staple finance system is difficult to determine based on the currently limited amount of data. If the Transcaucasian use of metal was communal, this would relate to Palumbi's (2007-2008, 2008b) proposed emphasis on horizontal social relations in Transcaucasian communities rather than on vertical stratification that the use of metal in other cultural regions would suggest.

Admittedly, such a brief comparison of metal use across regions over time is cursory at best, but this restricted survey highlights the key similarities and differences between the regions and cultures that are thought to have influenced how the Upper Euphrates Valley settlements developed and by extension how their use of metal developed. In order to fully grasp the differences in metal use between regions,

the other context in which metal objects were most often found also needs to be included in the analysis.

5.2 Metal Objects as Grave Goods

A closer look at the metal objects deposited in the Late Chalcolithic 2-5 and EB I-II burials is an important aspect in determining how the social use of metal changed over time in the Upper Euphrates Valley as this is one of the most frequent contexts in which metal was found in the EB I-II. Though as Peasnall points out, archaeologists should be careful in their analyses since:

> The one error that is most often made in the use of mortuary data to draw inferences about social processes is the primacy of burial goods as the primary indicator of status differences to the exclusion of most other aspects of mortuary practices (Peasnall 2002: 195).

Heeding Peasnall's (*ibid*) advice, any discussion of social differentiation will be reserved until a comparison of metal use by context has been more fully discussed. What follows, then, is a summary of the published data for mortuary contexts for the Upper Euphrates Valley sites and selected comparative sites. While it was noted in the introduction that this research is not intended to be a typological study of metal artefacts, it should also be noted here that neither is this thesis a complete catalogue of the mortuary architecture or all of the grave goods found in the burials that are mentioned below and in the Gazetteer as such an undertaking warrants its own study rather than being tacked onto a thesis which has different research aims.

Every effort was taken to be as comprehensive as possible in regards to collecting the mortuary data, though in many preliminary reports the information was too vague or was completely absent to allow the association of specific metal objects with specific burials. In these instances the burials were not included in the dataset[134], neither were burials that had obviously been looted in antiquity (or more recently) or metal objects that were listed as being 'bought' or handed in as stray

[134] This means that of the *ca*. 670 objects reported as being from EB I-II burials in the site reports, only about half of them are mentioned as belonging to specific burials. The majority of this discrepancy comes from the reporting of the Birecik Dam cemetery which only partially publishes the specific contexts in which the objects came from (see Sertok and Ergeç 1999) despite Squadrone (2007) publishing the total number and types of metal objects excavated in these burials. Similarly, the Lidar Höyük necropolis burials are excluded as there is no specific association of metal grave goods with burials that has been published as of yet.

finds from cemetery excavations. Because of the quantity of mortuary data for the region (especially in the EB I-II), some of the data referred to in the text below can be found in a pullout at the back of this volume to allow for easier viewing while the full listing of objects from the Upper Euphrates Valley and the comparative sites can be found in the appendices. As with Chapters 3 and 4, only the sites with reported metal artefacts are described in detail below, though other sites that are mentioned in the text and figures can be found in the Gazetteer.

5.2.1 A Summary of the Upper Euphrates Valley Data

Late Chalcolithic burials in the Upper Euphrates Valley are largely unknown or under-reported beyond brief mentions of child or infant jar burials that have been found underneath of or near domestic structures. These burials tend to receive little attention (but see the palaeopathological report of four child burials from Hacınebi by Grauer 1994) mainly because of their lack of grave goods. While the small sample size cautions against taking any conclusion drawn from this data too much to heart, it is entirely likely that the limited use of metal in burials in the Upper Euphrates Valley at this time is as accurately represented in the archaeological record as possible given that the presence of metal in burials is relatively rare throughout the entire region (see Figure 68 below) and would almost certainly be mentioned in the site reports if it was present.

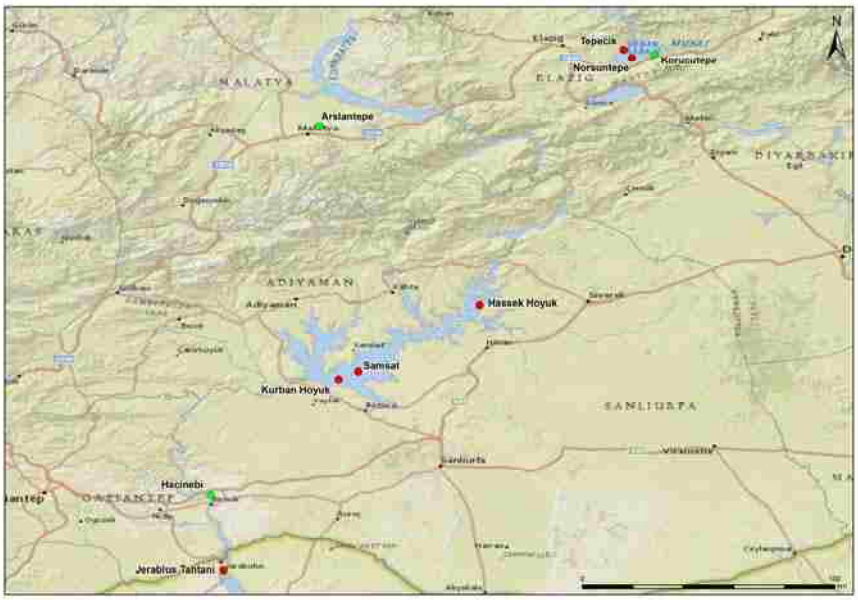

Figure 68 LC 2-5 sites with metal objects. Sites with metal found in burials are identified with green markers

Between three sites (Hacınebi, Arslantepe and Norşuntepe) that had published burials dating to the LC 2-3 (see Figure 69 below), nearly all of these 20 burials were infant or child jar or pithos burials. The pre-contact Phase A infant jar burial at Hacınebi was the only one of these that had metal grave goods, which Stein (1999b) interprets as proof that social hierarchy was present at Hacınebi prior to the arrival of the Uruk population. That two of these rings were made of silver is taken as further proof of social stratification by Stein (*ibid*.) because silver was a rarer resource than copper, despite the fact that all three of the rings would have been fairly easy to make once the ores had been refined as the rings essentially consist of a thick wire bent until the two ends meet (see Plate 1).

There is slightly more information regarding burial practices and the use of metal in mortuary contexts in the Upper Euphrates Valley in the LC 4-5. The 38[135] published burials were found at seven sites in the Upper Euphrates Valley in a variety of interment types including: a secondary burial of long bones at Jerablus Tahtani (Peltenburg *et al.* 2000), an adult who was buried in a pit lined with bricks (Burial 57) at Hacınebi[136], a pit burial at Kurban Höyük (Algaze 1990), two pit graves of 40-50 year old adult males and two infant cooking pot burials at Hassek Höyük (Behm-Blancke 1992), a burial underneath of room A206 at Arslantepe (Caneva and Palmieri 1983; Frangipane 1994b), the mud brick tombs and associated burials at Korucutepe (van Loon 1978) and numerous pot, pit and pithos burials from Samsat (Özgüç 1992).

[135] This number reflects the published burials that have been given individual numbers, but if divided by number of individual burial contexts there are only 37 as the Korucutepe double mud brick tomb included two individuals.
[136] See <http://faculty-web.at.northwestern.edu/anthropology/stein/HN95report.html>

Figure 69 Distribution of metal grave goods in the Upper Euphrates Valley from the LC 2-5

Only three of the 38 LC 4-5 burials contained metal objects (see Figure 70 above), all three of which were found at two sites in the Malatya sector. Personal ornaments made of metal were still present in the LC 4-5 graves, but new types of ornaments such as diadems and seals had been added to the repertoire. The one example of a diadem from the mid-late fourth millennium comes from the single mud brick tomb at Korucutepe where the female interred was wearing a silver headband or diadem that was decorated with disc-shaped beads[137]. The woman had been attired in a dress decorated with thousands of small limestone beads when she was buried, and along with the silver diadem her jewellery consisted of a silver crescent gorget, two pairs of silver earrings, two silver hair rings, a silver pin with a red bead attached by a silver thread, a silver thread bracelet and a bracelet with two silver lozenge shaped beads and bone beads.

In the double mud brick tomb at Korucutepe, the probable male (K 12 no. 5) had a tanged copper dagger, a silver bracelet described as a 'wrist guard' and a mace head made of iron or an iron-rich ore. The second (possibly female) individual in the double mud brick tomb (K 12 no. 4) had a solid silver stamp seal on a wrist band that depicted a horned animal, possibly a goat. Strong similarities exist between the motif of the seal at Korucutepe and examples from Tepe Gawra XI – IX[138]. The headband also has similarities to Tepe Gawra, though the headband from Tepe Gawra IX burial 047 is made of gold rather than silver (Peasnall 2002; Speiser 1935; Tobler 1950).

The only other example of a burial with metal in it comes from Arslantepe and is only briefly mentioned in Caneva and Palmieri's (1983) metal analysis. This was a burial beneath a floor of building IV (context D9 (2) A206, 15) that contained a silver ring. A206 is a long, narrow room that was used as a dumping area for clay sealings in Building IV (Frangipane and Palmieri 1983). Beyond mentioning the presence of this ring there is no other information regarding the burial in this room.

Though 38 burials is not a large enough sample size for statistical analyses, for the number and size of the sites that were occupied at this time this is still a respectable dataset with which to formulate at least a tentative description of the role

[137] The beads had been drilled off centre so that they would lay flat against the diadem (Brandt 1978)
[138] Only adults were buried with stamp seals at Tepe Gawra from the XI phase onwards. Unlike the Korucutepe seal, the Tepe Gawra seals found in the burials were all made of stone or paste (Peasnall 2002).

of metal in mortuary customs at this time. Based on the limited number of burials with metal objects and the restriction of these burials to 'local' sites, it can be assumed that the use of metal in burials was a local tradition dating back at least to the early part of the Late Chalcolithic, if not even earlier. This was not a common practice of the southern Mesopotamians living in the region, though the number of burials from Uruk sites is not large enough to categorically state this as fact especially as the 'Uruk' burials are primarily represented by infant and child pot burials which tend to have grave goods only in exceptional circumstances. There is still a great deal of speculation as to what the southern Mesopotamians did with their dead as there are not nearly enough graves for the period; however, in terms of generalities, the mortuary data from the LC 4-5 in the Upper Euphrates Valley can be used as an approximation of the social use of metal in mortuary contexts at this time. It is more than likely that if there were more graves with metal objects (or even graves without metal objects) in them they surely would have been found by now, not only by the archaeologists working in the region but also by looters and by farmers ploughing the fields and tells.

The relative dearth of mortuary data in the LC 2-5 completely changes at the beginning of the Early Bronze Age as the evidence from Chapter 4 illustrated. The majority of graves from this period came from the multiple cemeteries and rich intramural burials in the Carchemish sector in addition to the several cemeteries and metal-rich burials from the Samsat-Lidar and Malatya sectors. Cooper (2006a) ascribed the increasingly common third millennium trend of burying the dead in cemeteries as an expression of belonging to a particular tribe or corporate group that extended into death, a notion which may extend to the social use of metal at this time.

Woolley's (1952) excavation at Carchemish was perhaps the earliest indication of the richness of the Early Bronze Age mortuary assemblage for this region, both in terms of the quantity of burials and quantity of metal grave goods found interred with the dead (see Pullout Figure 1). One of the most comprehensively excavated cemeteries dating to the early centuries of the third millennium is the Birecik Dam cemetery which is thought to have been used by multiple settlements (*i.e.* the Tilbeş group of sites) and/or the nomadic groups who

moved through the region (Cooper 2006a; Fuensanta *et al*. 2007; Porter 2012; Sertok and Ergeç 1999, 2000). As of yet, no DNA tests have been done and only limited palaeopathological analyses were carried out by Sevim *et al.* (1999) who hinted at cannibalism being practiced as part of the burial ritual. This conclusion was reached based on the presence of possible knife marks on the bones and the presence of bones that may have been broken to get at the marrow, though there is absolutely no evidence at the site that would substantiate this claim, nor is there any other published evidence of cannibalism being practiced in the region during the EB I-II.

The much smaller cemetery at Hacınebi slightly downriver from the Birecik Dam cemetery also appears to have been an extramural cemetery; however, the individuals interred at this small cemetery are almost certainly from the relocated EBA settlement of Hacınebi under the modern village of Uğurcuk (Stein 1999b, 2004). Stein (*ibid*.) interprets this cemetery as being representative of social, political or economic distinctions within the site's inhabitants as the burials were in two discrete areas of the site and had differences in the degree of wealth deposited with the bodies. As many of the burials exhibit a degree of disturbance, whether through looting or other processes, the differences in wealth may be artificial rather than actual. That there were so few burials at a site which had close ties to the relocated population may indicate that the re-use of the former settlement as a cemetery could be related to Cooper's (2006a) association of cemeteries with belonging or affiliation with a particular location or population[139].

In the Samsat-Lidar sector, Lidar Höyük had a necropolis which was comprised of two distinct cemeteries that Hauptmann (1982a, 1983a) interpreted as being separated by socio-economic class, similar to the apparent division in the Hacınebi burials noted by Stein (1999b, 2004). The more 'elite' cemetery at Lidar had two chamber graves while the other cemetery had the graves of 45 adults, 16 of which were interred in stone cists (Hauptmann 1982a, 1983a). A further five graves in this cemetery were larger in size than the stone cists, though they are almost certainly from the EB III or IV period rather than being contemporary with the earlier EBA I-II stone cists. As was already noted, these graves are not included in

[139] See also McClellan and Porter (1999), Porter (1995, 1999, 2002) and Porter and McClellan (2003) for further elaboration on this practice in the EB III-IV and Jonker (1995) for Mesopotamia in general.

the dataset because of the lack of specific information regarding grave goods and their contexts.

The other EB I-II cemetery and intramural burials in the Samsat-Lidar sector were found at Hassek Höyük which had 97 pithos burials, of which 70 have been published in detail (see Parsche and Ziegelmayer 1992). The intramural burials contained a mix of weapons, tools and personal ornaments (see Plate 4) while the Hassek West cemetery burials contained mainly ornamental items such as pins, a cylinder seal and a bronze bracelet. The only other burial with published grave goods from this sector was found at Titris Höyük where a stone cist grave of an adult female included a pin and a nail (Algaze and Mısır 1995; Algaze *et al*. 1995) (see Figure 70 below).

Unlike the Carchemish and Samsat-Lidar sectors, the Malatya sector has very few reported intra- or extramural burials in the EB I-II apart from the seven found at Suyatağı (Darga 1989), the Arslantepe 'royal' and rubbish pit burials, and the two burials found at Norşuntepe (see Figure 71 below). Despite this apparent lack of burials, the Malatya sector still has more metal objects reported from mortuary contexts than the Samsat-Lidar sector because of the metal-rich 'royal' tomb. Of the five individuals interred as part of the Arslantepe 'royal' burial, only three had metal items directly associated with them. Two of them (H223 and H224) had five objects apiece while the individual in T1 was buried with the remaining 65 metal items. The remaining two individuals (H221 and H222) were without metal grave goods as was the slightly later VI C rubbish pit burial at Arslantepe. Neither the Norşuntepe graves nor the seven graves from Suyatağı had any metal grave goods.

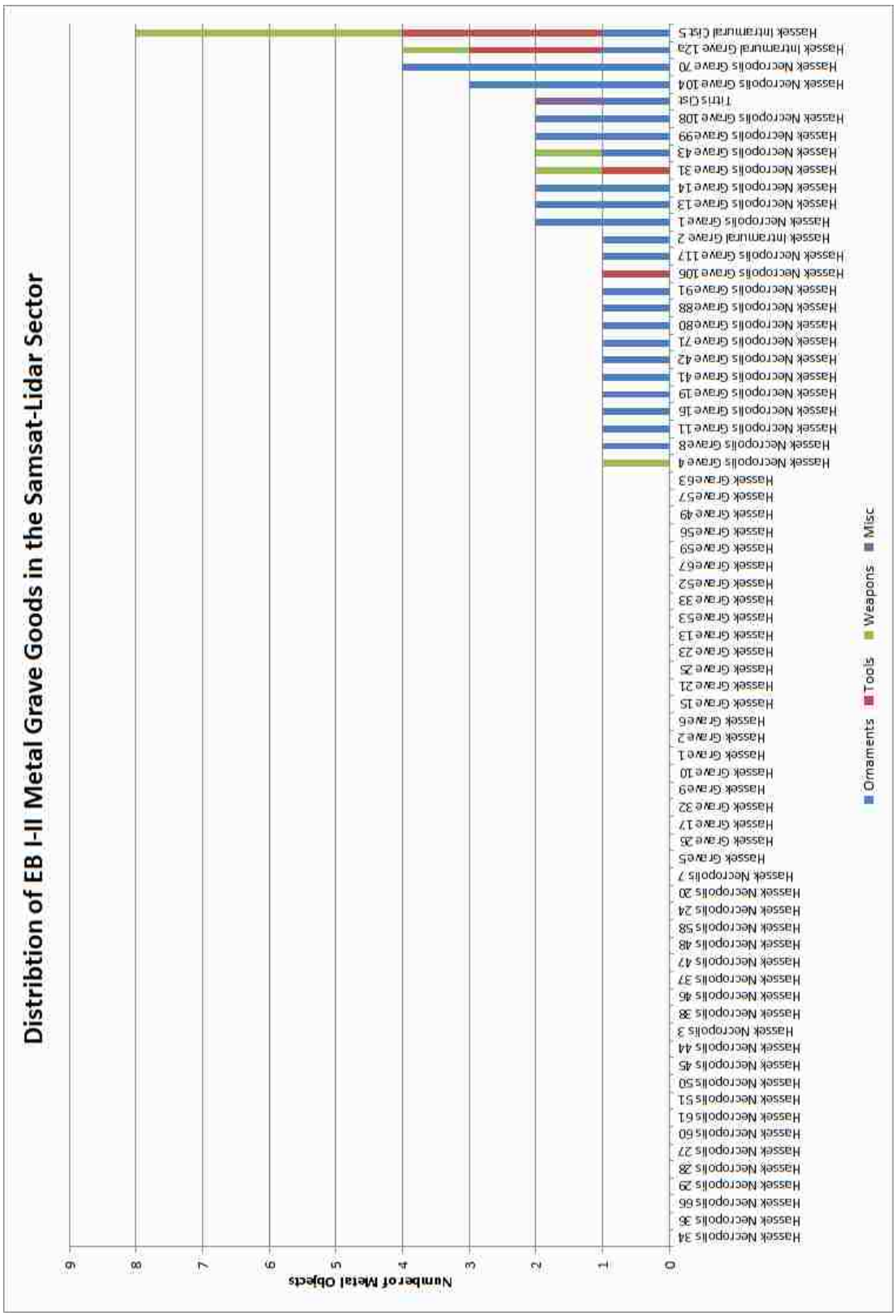

Figure 70 Distribution of metal grave goods in the Samsat-Lidar Sector

Figure 71 Distribution of metal grave goods in the Malatya sector in the EB I-II

The pattern of metal grave good distribution that is present in the Malatya sector (based on currently published evidence) is very much in contrast to the

Carchemish and Samsat-Lidar sectors where metal items were distributed across a number of graves whereas in the Malatya sector metal is so far *only* found with the three individuals in the Arslantepe 'royal' burial. This suggests that rather than the Arslantepe 'royal' burial setting a new trend in mortuary behaviour for the region, such an elaborate burial ritual as was performed for the T1 individual at Arslantepe was atypical for the region (and more specifically the Malatya sector) in the Early Bronze I-II periods and as a statistical outlier should not be used as a yardstick by which to measure the other burials in this area.

A comparison of the number of metal objects included in the EB I-II Upper Euphrates burials shows overwhelmingly that the Carchemish sector led the way in terms of using metal objects as grave goods while the inhabitants of the other two sectors were more reserved in their use of metal for the dead (see Figure 72 below).

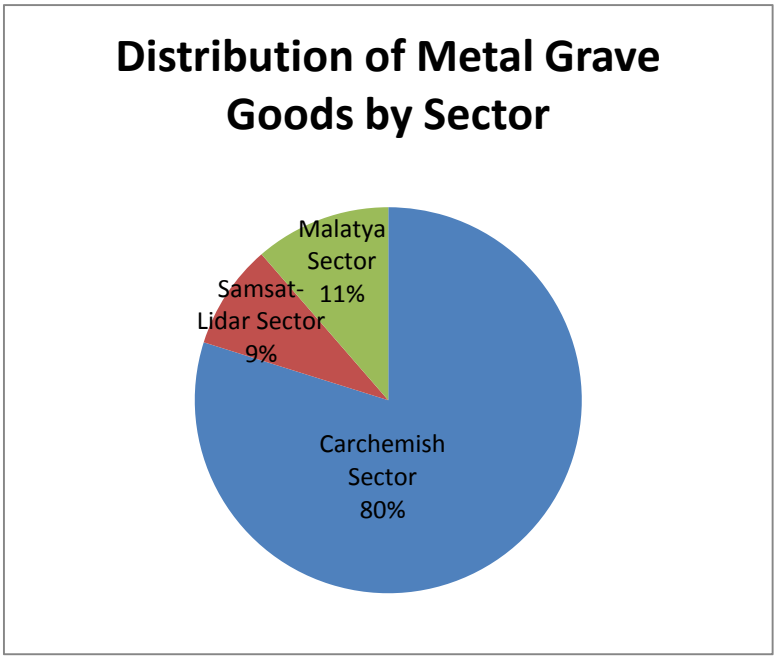

Figure 72 Distribution of metal in mortuary contexts by sector in the EB I-II

Looking at the distribution of metal grave goods more specifically, in the Samsat-Lidar sector the metal grave goods are from fewer, if richer, interments (see Figure 70 above). Metal is reported to have been a rare find[140] between the approximately 205 EB I-II burials from Lidar Höyük, (Hauptmann 1982a), while at Hassek Höyük metal is reported for 25 out of the 97 burials (Behm-Blancke 1992;

[140] Again, because there is no accurate enough reporting for these burials they are not included in the count here.

Parsche and Ziegelmayer 1992; Schmitt-Strecker *et al*. 1992). This is in contrast to the Carchemish sector mortuary contexts which included 312 burials excavated at the Birecik Dam cemetery, about half of which contained metal artefacts according to Squadrone (2007) and the Carchemish burials, of which 1 of 20 EB pot burials had at least one metal object while 12 of the 15 cist burials had metal objects. A comparison of reported graves to the number of metal grave goods reported for them for all of the sites in the Carchemish sector (see Pullout Figure 1 at the back of this volume) implies that there was a 'middle class' present in the Carchemish sector at this time, or at the very least that metal was more widely available to make simple ornaments that were then included with the deceased. However, given that these burials represent only a fraction of what the population would have been over this span of time, it is possibly the case that individuals of lower standing were buried off-site and without metal objects as grave goods thereby skewing the trends towards metal visibility in intramural burials. Furthermore, there are also far more adult burials reported for the EB I-II than for the LC 2-5 periods, which may also skew the data towards the recovery of grave goods in the Early Bronze Age burials. In the Late Chalcolithic there were far more infant and child burials found, with grave goods of any sort being quite rare in these burials (see Chapter 3 and the Appendices).

If the distribution of metal grave goods between all of the published EB I-II burials included in this thesis is compared, what is most surprising about this distribution is that there are quite a few members of this 'middle' class (see Figure 73 below), which is represented here by those individuals who had between one and three metal items included in their grave good assemblage. The more 'elite' individuals can then be assumed to be those individuals who expressed their rank in more visible displays of wealth and prestige by including more metal items in their grave good repertoire[141].

[141] If weights were available for all of the reported metal grave goods, it may be possible to refine the distribution of 'elite' to 'non-elite' burials even more by focusing on the total weight of the metal grave goods rather than the types and total number of metal grave goods.

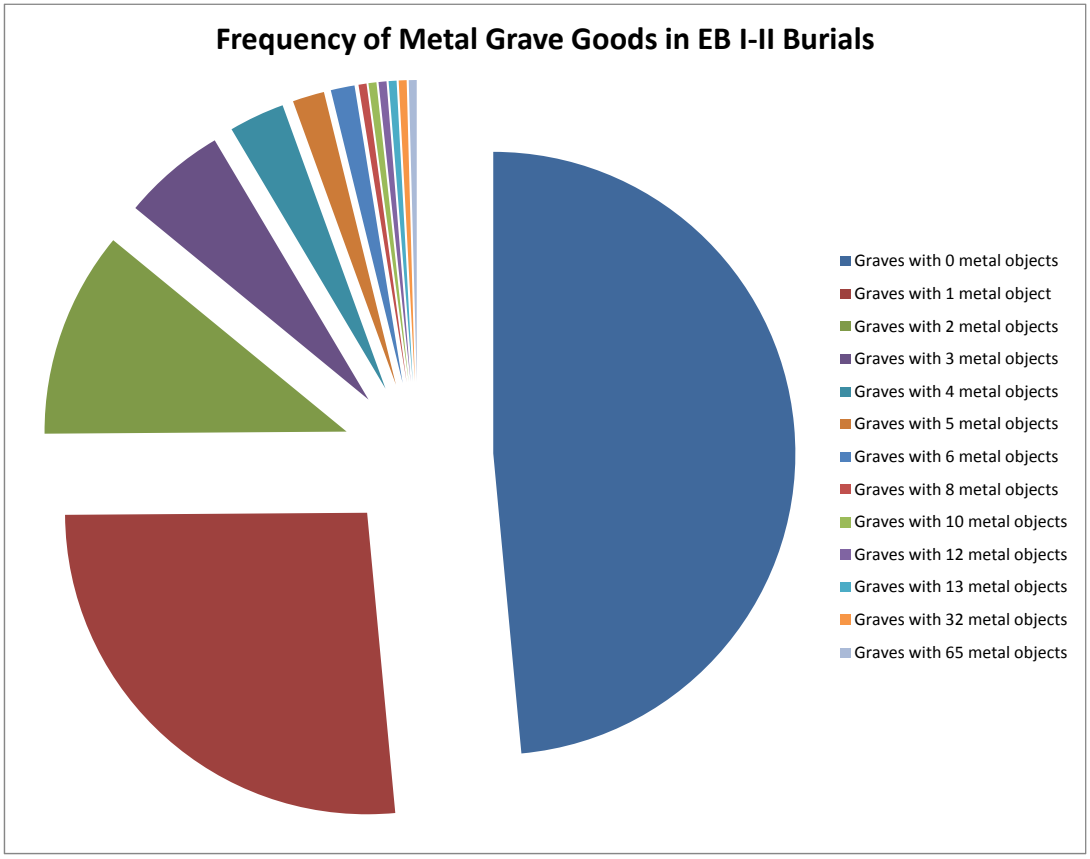

Figure 73 Distribution of metal grave goods across EB I and II graves with metal objects

Of the entire metal assemblage from the Upper Euphrates Valley mortuary contexts, pins were the most frequently deposited item (see Figure 74 below) and the same types of pins continue to be used throughout the Late Chalcolithic and Early Bronze Age, though there were greater numbers of both animal-headed and spiral-headed pins in the early third millennium[142] (see examples on Plate 3). This importance of this increase is two-fold; firstly it signifies that a larger proportion of the population had access to metal ores or finished metal objects. Secondly, this increase in pins can also be linked to the increased use of textiles as trade commodities throughout the Near East (see Archi 1996; Crawford 1973; McCorriston 1997; Oates 1993; Porter 2012), and the pins deposited in graves may have been used to secure bolts of imported or high-quality textiles rather than burial shrouds.

[142] The variety of pins being made and utilised in the Upper Euphrates Valley and any stylistic changes are thoroughly discussed by Egeli (1995), Klein (1992) and Squadrone (2000b, 2007) and so will not be revisited here.

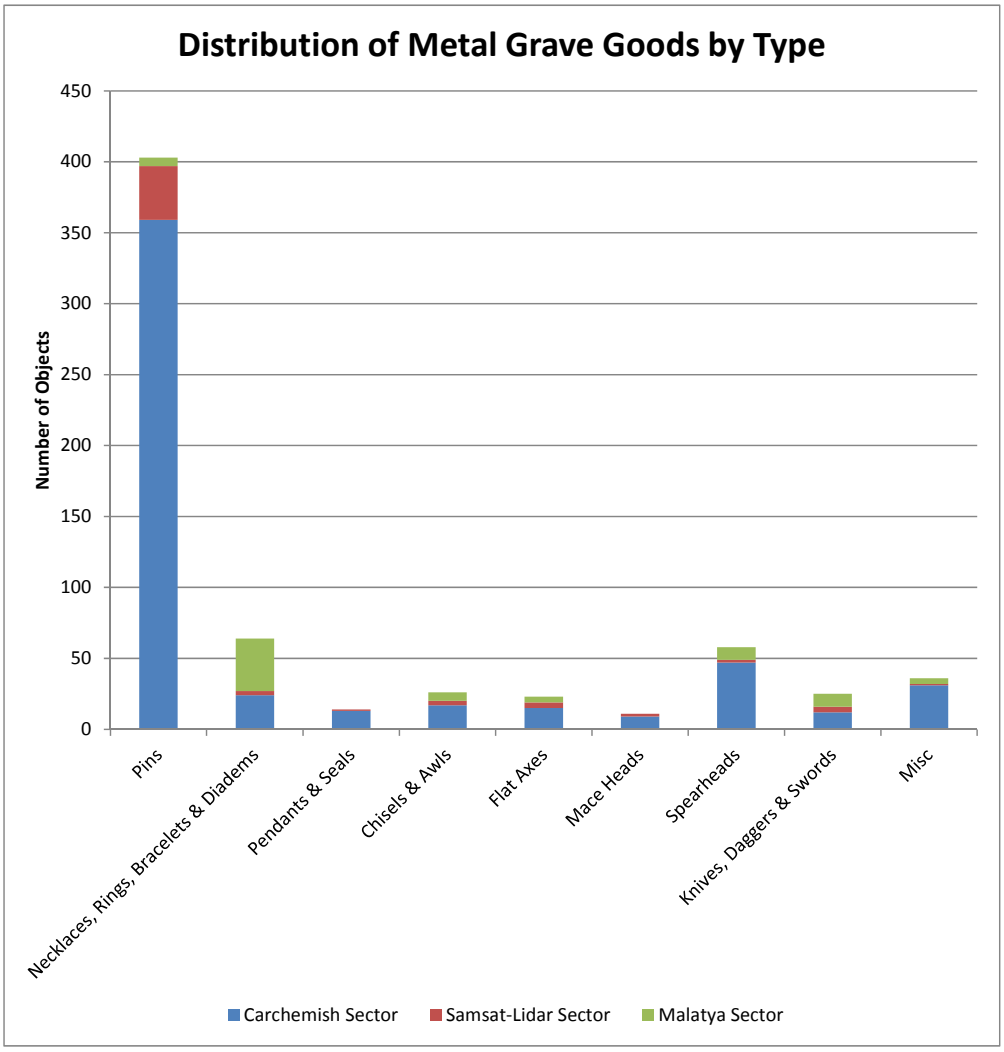

Figure 74 Distribution of artefact types found in EB I-II mortuary contexts

Given the relative ubiquity of pins and rings, the occurrence of other types of personal ornaments such as pendants, seals and diadems stands out in the metal assemblage. In the case of seals, the examples from the early third millennium (see Plate 3) are quite different than the Korucutepe seal mentioned above in several respects. The later examples were made of copper/copper alloy rather than solid silver, were cylindrical rather than a stamp seal like the Korucutepe example, and the EB I-II examples featured geometric motifs rather than the animal motif on the Korucutepe seal. Additionally, the Korucutepe seal was attached to a silver wristband while the Birecik Dam cemetery and Hassek seals had a loop at the top suggesting that they were could be worn on a cord around the neck or wrist- possibly having a decorative purpose as well as a functional one.

Like the seals, the majority of pendants dating to the early third millennium were from the Birecik Dam cemetery. The pendants found in these graves included two crescentic axe types, one double spiral and one leaf-shaped pendant. The double spiral type of pendant was also found upriver at Hassek Höyük and a similar example was also found at Taşkun Mevkii in the Malatya sector, though the Hassek pendant was made of lead rather than copper/copper alloy like the others. Earlier examples of this type of pendant were found at Norşuntepe in the early fourth millennium, one of which was made of lead (1074) like the Hassek example.

Following personal ornaments, weapons were the next most popular item used as grave goods in the EB I-II. Of the approximately 100 metal weapons dating to the EB I-II, all but six of them came from mortuary contexts (see Figure 75 below).

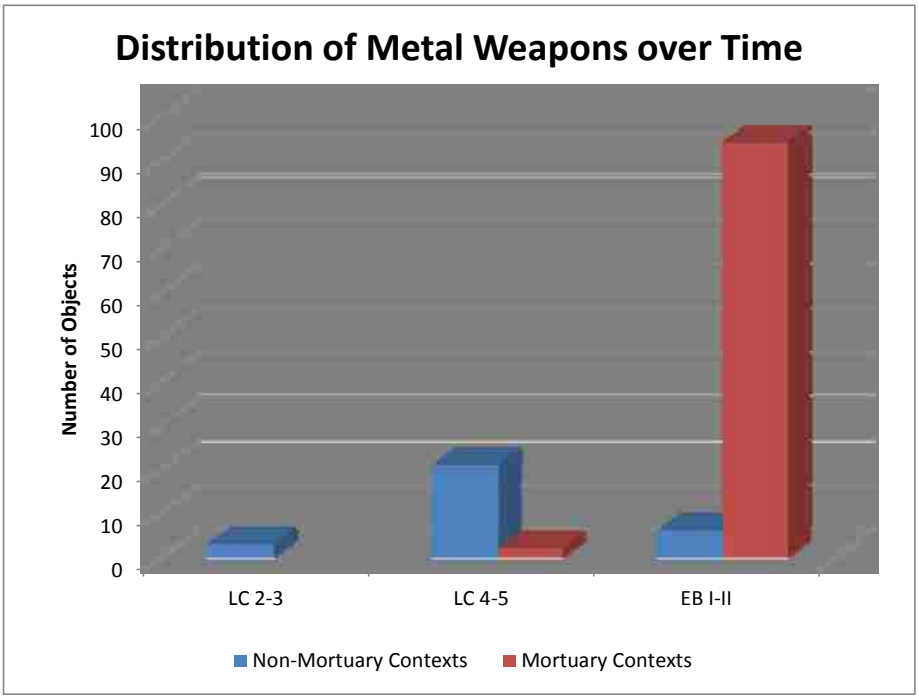

Figure 75 Distribution of metal weapons over time and context in the Upper Euphrates Valley

While the presence of weapons in burials is often interpreted as being indicative of a warrior burial or the burial of a chief (see Parker Pearson 1999; Philip 1995; Treherne 1995), it seems more likely to be the case that the presence of metal weapons in EB I-II burials in the Upper Euphrates Valley has more to do with the quantity of objects and the type of metal that was used to make these objects rather than a direct indicator of the socio-political or economic role of the individual in the

grave. Similar explanations as to the presence of weapons in burials are put forward by Philip (2007) and Squadrone (2007) who both suggest that the styles and types of weapons deposited in mortuary contexts denote accepted symbols of high status inferred by the almost hoard-like deposition of these items. Bridgford takes this interpretation further and stresses that the ownership of weapons does not immediately confer prestige and power upon their owner:

> Although it seems highly likely that a person could gain status by displaying skill in the use of a functional weapon, it is difficult to envisage how the mere ownership of such a weapon could confer any lasting status on someone who could not use it, unless the particular weapon was deemed unique in terms of its symbolism or 'magical' properties (Bridgford 2002: 127).

Rather than immediately associating any weapons included in a burial with a warrior ideology, it can be theorised that these weapons were more in the way of what Helms (1993) described as 'shock' weapons. Helms (*ibid*.) includes standards, mace heads, miniature weapons, weapons made of inappropriate materials and any other types of weapons that were for show rather than for use in this category.

Similarly, the inclusion of utilitarian metal tools in EB I-II burials can also be considered as a way in which the Euphrateans conspicuously disposed of a quantity of metal in a novel fashion. While leather and woodworking tools (chisels, awls and punches) made out of metal can be found quite early on in domestic, public and industrial contexts, it is not until the early third millennium that these items are found in mortuary contexts (see Figure 76). Palumbi relates this trend to the changing role of socio-political display in the Euphrates Valley:

> The nature and representation of power had changed and so had the image of the new chiefs, who were not only enterprising traders in raw materials and finished metal goods, but also skilled artisans who knew the art of building with timber (chisels and awls), strategic conquerors of new territories to be used for pastoralism for their own flocks by practicing deforestation (axes), but who were and perhaps above all were obliged to be courageous warriors (Palumbi 2008b: 154).

It is tempting to label those individuals with metal tools included in their graves as woodcarvers or artisans as Palumbi *(ibid*.) does; however, just as the argument that weapons do not equal warriors, the presence of tools in burials does not mean that the deceased were lumberjacks and carpenters who had strategically conquered new territory through their craftsmanship.

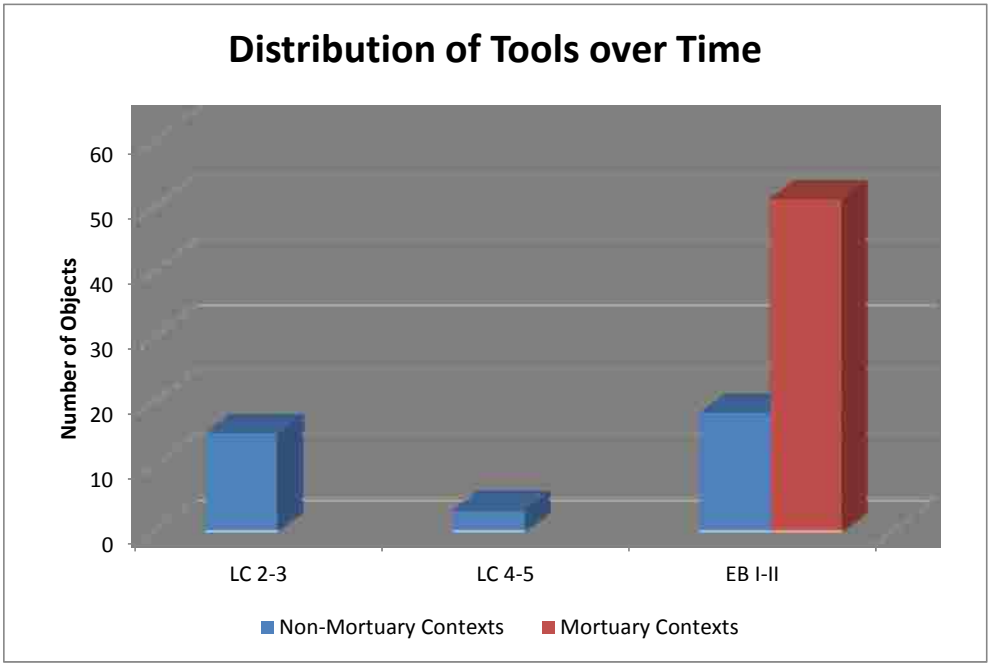

Figure 76 Comparison of contexts in which metal tools were found in the Upper Euphrates Valley over time

Among this larger category of objects, flat axes are unique in that they are not reported in the Upper Euphrates Valley until the EB I-II period and co-occur in both mortuary and non-mortuary contexts. In terms of the distribution of tools in graves, flat axes and chisels have been found together in the same grave at the Birecik Dam cemetery, the two richest graves in the Hassek cemetery and the Arslantepe 'royal' tomb. Of the flat axes found in EB I-II burials, Squadrone (2007: 201; personal communication) mentions that five of the flat axes found at the Birecik Dam cemetery had at least one or more incised marks on them that are identified as being 'proto-cuneiform ideograms'. An example of the clearest incised flat axe found at this cemetery can be seen below:

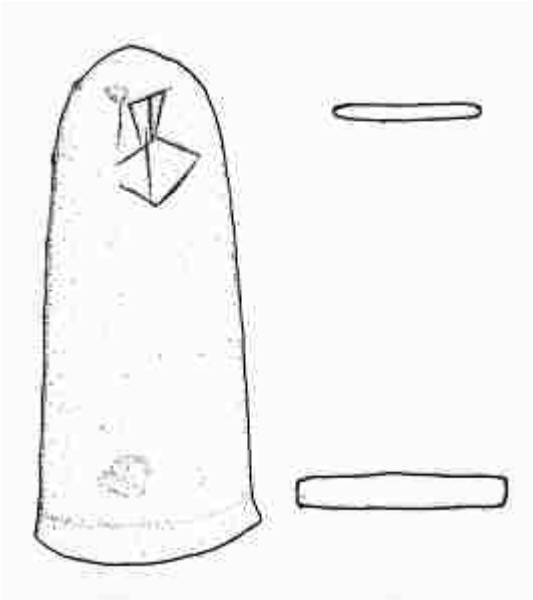

Figure 77 The Birecik flat axe with the 'DUG AŞ' signs. Not to scale. Drawing property of F.F. Squadrone

The example above contains two signs: the vertical line is 'AŞ' to the left, which translates to the quantity one, while the other sign depicts a jar and is read as 'DUG'. This sign is interpreted as meaning a jar for, or containing, liquids. Schmandt-Besserat interprets 'DUG' as 'beer'(Squadrone personal communication), and it may be the case that 'DUG AŞ' can be interpreted as meaning one jar or one jar of a particular quality of beer or other liquid. Other proto-cuneiform signs[143] that were identified on the Birecik Dam flat axes and two of the bipartite spear heads include:

ŞE- 'barley' or 'cereal'
ŞU- possibly a numerical value
BIR- this sign resembles a 'W' and may be related to a yoke, but could also be read as 'ERIN' which means 'soldier' or 'mercenary'
GADA (?) and six AŞ – a quantity (six units) of 'linen' or possibly more generally 'cloth'

The final sign, or sign combination, is more difficult to read though 'TILLA' has been suggested. If this is correct, it may refer to a 'geographical place' (Squadrone personal communication).

[143]The signs on the Birecik Dam cemetery metals were identified by Dr. Simonetti and can be related to the archaic cuneiform symbols found on tokens (Squadrone personal communication), but see the comprehensive 'The Sign List' by Green (1987) for proto-cuneiform signs and shifts in designs over time.

Based on the meanings associated with these proto-cuneiform signs, the quantities or items noted on these objects possibly represents their trade value at the time based on the amount of metal used in their manufacture. It is also possible that these items were not used before deposition because the signs were not worn off through everyday use. If this was the case, then these axes can be interpreted as items with a recognised, stored value rather than as purely utilitarian tools and therefore these items were intentionally deposited 'brand new'. Thus far, the incised signs on the Birecik Dam metal objects are entirely unique for the region with the only other example of a proto-cuneiform inscription found on a sherd[144] from the late fourth millennium occupation at Tilbeş Höyük. Without further comparisons or supporting evidence, the interpretation of these signs as proof of their trade value is still open to discussion.

As a comparison of metal use by context over time shows, the evidence from the Upper Euphrates Valley indicates a decided trend towards the increased use of metal items in mortuary contexts over time. While the presence of these grave goods may have been very obvious indicators of status and wealth, possibly an inherited status following Stein (1999b), by the EB I-II metal was being used in new forms of social display. This development can be compared and contrasted with mortuary data from sites outwith the Upper Euphrates Valley in order to highlight and then discuss the possible reasons for this unique developmental trajectory.

[144] The script reads '/EZ/ EN INANNA SIG4 ?GI' and KALAG and has been interpreted to mean "returned from the feast of Evening-star Inanna to the labourers" (Fuensanta *et al*. 2003: 370).

5.2.2 Regional Comparisons

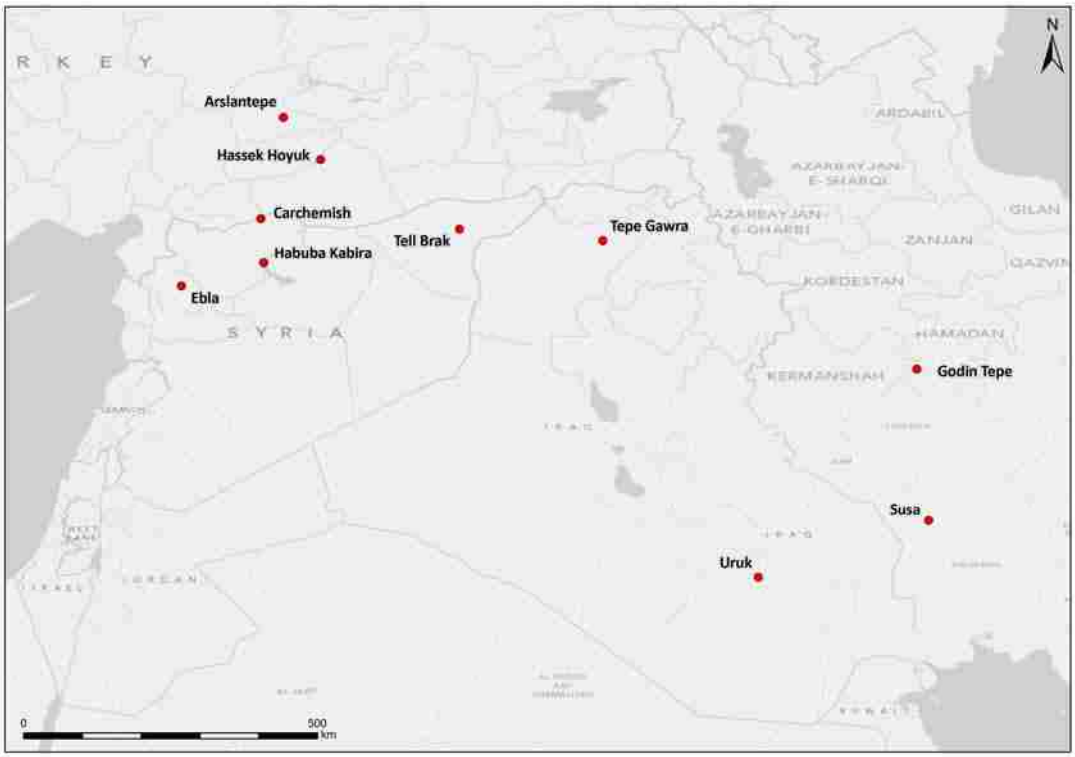

Figure 78 Map of selected sites mentioned below

Beyond the sites of Tepe Gawra and Ur, which both had large numbers of excavated graves, there is more limited evidence for the use of metal as grave goods in the Near East in both the Late Chalcolithic and the beginning phases of the Early Bronze Age. Beginning with the Late Chalcolithic data, Tepe Gawra is again a useful site that can be used to compare against the Late Chalcolithic Upper Euphrates Valley data.

Of the 107 burials from periods XI – XA at Tepe Gawra (LC 2), only five of these graves had metal artefacts[145] included in their grave good repertoire (Peasnall 2002), which is 4.67% of the total burials from this period. Only one of these burials was of an adult (number 36-135), and this individual had one copper double spiral pendant (similar to the examples from Norşuntepe LC 2-3). The other four burials contained infants or children whose metal grave goods included gold ornaments, gold beads and a golden earring. Apart from the copper pendant in the adult burial just mentioned, only one of the child burials also contained copper which had been

[145] Excluding any noticeably robbed burials and using the same criteria to quantify and classify metal artefacts as in Chapters 3 and 4

made into beads for a bracelet. Like the Late Chalcolithic burials in the Upper Euphrates Valley, the grave goods from the early Gawra burials were also all personal ornaments.

The number of burials with metal grave goods increased in proportion to the total number of graves in the following period X (LC 2-3) when 12.5% of the burials had metal objects (6 of 48). The number of metal items found in these six burials also increased compared to the previous period XI – XA burials; burial 109 had at least nine complete metal items with the next highest (burial 114) having five items (including an electrum wolf's head figurine). The remaining four graves had several personal ornaments apiece that were made up of multiple beads or pendants that had been bracelets, necklaces or clothing ornaments (Peasnall 2002). Unlike the previous phase, no copper objects were found in any of the Period X burials as it seems that objects made of gold and electrum were the favoured metal grave goods, though this could also be related to 'utilitarian' metals being reserved for making non-ornamental objects.

In the succeeding period IX-VIII settlement (late LC 3/early LC 4) there were 72 burials that can be attributed to this period. Though the site had grown quite large at this time and there were significant horizontal and vertical exposures (*c*. 3000 m²) of the IX-VIII settlement both Tobler (1950) and Peasnall (2002) concluded that there must also be an offsite cemetery from this period as only one of the burials in the intramural cemetery definitely contained two adults and there does not seem to be enough graves overall for a settlement of this size and duration. Despite this apparent lack of bodies, the sample size is still close to double that of the published burials from the LC 4-5 in the Upper Euphrates Valley.

Of the 72 tombs from Gawra IX-VIII that were not robbed or disturbed, 13.9% of the total graves had metal grave goods associated with the interred individuals. This can be compared to the Upper Euphrates data where 10.52% of the LC 4-5 graves had metal objects, which would suggest that the number of burials found in the Upper Euphrates Valley with metal grave goods is in keeping with what would generally be expected for the broader time period even if there is not a large extant dataset for the Upper Euphrates Valley. As the Tepe Gawra data shows, there is an increase in the percentage of graves with metal objects from XI-XA to the later

X-VIII burials, a trend that can be related to an increase in both the number and size of the mud brick tombs at Gawra. The types of metal that these objects were made of also changes in the middle of the fourth millennium; none of the objects were made of electrum like in period X, but rather the metals used are more similar to the earlier XI-XA phase when gold and copper were most popular. In fact, there are significantly more copper objects in level IX-VIII including three copper pins, a fragment of a copper object, two bronze beads and four bronze rings. The increased use of copper and copper alloy objects in these later burials marks a period in which copper was available in greater quantities to the Gawrans for non-utilitarian items, thereby allowing it to be utilised more frequently in the grave good assemblage in order to bulk up the number of metal objects deposited with the deceased. This trend can be broadly associated with the changing use of metal types in the Upper Euphrates Valley from the Late Chalcolithic to the Early Bronze Age.

As was noted in section 5.1.2 above, Tepe Gawra underwent a fairly significant shift to a socio-economic system with greater centralisation where the temple and large public building became the focal point at the centre of the site, which corresponds with the Gawrans moving off of the main mound and turning to new styles of mortuary architecture and grave goods (Rothman 2002a). Peasnall (2002) interprets the increase in tomb size and number of grave goods in these later periods as novel ways in which the Gawrans could display greater social distinction whereas previously social status was defined by the use of specific burial types (*i.e.* pit vs. pot).

Turning to Tell Brak for a comparison between the mortuary patterns in the Upper Euphrates sites with an Uruk population and a similar type of site in another area of Upper Mesopotamia, the most noticeable feature is that there is quite a small mortuary dataset at Tell Brak which is in keeping with what would be expected of an 'Uruk' populated site from this period. The data comes from two areas of the site, HS and TW. HS includes an area of approximately 1000 square metres on the northwestern spur of the site while trench TW includes an area of approximately 400 square metres in the northeast quadrant of the 48 hectare main tell. Two burials were found in the HS1 trench, the first of which was found in the second deepest layer (Level 6) and was a jar burial of a two year old infant without any grave goods that

was placed in a pit (A4112) adjacent to the west wall of room 1 in this trench. The second burial comes from later in the occupation of this area of the site, though it is uncertain from which level the burial pit was cut from due to the heavy erosion of the surface of the site (Felli 2003). At the bottom of this deep pit were buried five children between the ages of 5 and 8. A sterile layer of soil was placed on top of the bodies before a number of whole pots were deposited on top of this sterile layer in two discrete events. Apart from the pots just mentioned, there were no other grave goods directly associated with this burial. However, there were several large sherds and a bovine horn core that could potentially have belonged to this burial initially before being disturbed later (Felli 2003).

The remaining burials from the LC 4-5 at Tell Brak were found in area TW in level 17 which dates to the middle of the fourth millennium. This phase of occupation is marked by the levelling of the casemate fortification walls and the extension of the settlement north beyond the original walls and gate. The graves that were found in this area were all jar burials of both infants and young adults that were placed beneath the floors of the level 17 houses and in three instances cut into the preceding level 18 fortification wall. Oates and Oates (1997) do no give an exact number of jar burials in this short report, though based on the information in the article there were at least five confirmed burials, none of which were reported to have metal grave goods.

Mortuary data that is contemporaneous with the transition from the Late Chalcolithic to the Early Bronze Age in Upper Mesopotamia is found at Tell Karrana 3, a site that seems to have been reliant on agricultural surplus in economic interactions based on the many grain storage structures at this site (Fales 1993). There were five burials excavated at Tell Karrana 3 that date to the terminal Late Uruk period with a further three burials dating to the succeeding early Ninevite V period. The Late Uruk burials include both pot burials (three of them, none with grave goods) and two more unusual types including a mud brick wall burial (also seen at Tepe Gawra and possibly Hacınebi) and a burial that possibly had two upright stone markers north of the body. The three Ninevite V graves were pit burials and were all of children between the ages of 2 and 14. Of these three Ninevite V burials, only Burial 10 had metal grave goods which consisted of a copper cylinder

seal depicting a horned quadruped beside an anthropomorphic figure or a plant as well as a copper-bronze pin with a round head. Both of these items were placed near the child's head, and the seal may have been suspended on the pin though it is also possible that it was suspended on a string around the child's wrist and moved after the body decomposed (Wilhelm and Zaccagnini 1993).

The limited use of metal in Upper Mesopotamia during the Ninevite V period fits within the larger scope of the use of metal in the Near East; Moorey (1988a, 1994) notes that metal use at most sites in southern Mesopotamia was quite limited, even well into the Early Bronze Age. Where there is evidence of metal use, it seems to have been quite restricted as part of an attached craft industry whose finished objects were used by the elite population for specific purposes (including display and ritual), as can be seen in the Ur burials (Philip 2007; Woolley 1955; Zettler and Horne 1998). The presence of a vast quantity of metal objects deposited in the 'Royal Cemetery' of Ur (later third millennium) indicates that the southern Mesopotamian elite had access to a thriving and innovative metal industry whose products were tightly controlled[146].

While the so-called royal graves at Ur provide some dazzling examples of metal use in mortuary contexts, these 16 graves are the exceptions in the site's total mortuary assemblage which includes over 2000 graves (Pollock 1991). These burials can be pared down to those that are chronologically relevant for comparison, which excludes the 16 chamber tombs, though there is still a significant sample size of early third millennium mortuary data at Ur to compare to the Upper Euphrates Valley EB I-II dataset. Of the 336 Jemdet Nasr period (roughly equivalent to the EB I period, see Matthews (1992) for chronology) burials at Ur that are reported by Woolley (1955, see Appendix III) from *ca*. 625 square metres of excavated area, 19.7% of these had metal grave goods interred with the deceased (see Figure 80 below), which can be compared to the distribution in the EB I-II Upper Euphrates Valley burials

[146] Further evidence for this comes from administrative texts found at Nippur that mention the temple's use of private metalsmiths to work with copper, bronze and gold (Zettler 1990: 85). The later mid-late third millennium Ebla archives can also be looked at for hints as to the history of metal use in Upper Mesopotamia as there are several tablets that reference metalworking- including a recipe to make bronze (Muhly and Stech 2003), its administration and the gifts of metal objects given to the rulers of Kish (Archi 1987; Archi and Biga 2003; Astour 2002). Among the gifts from Ebla to Kish were textiles, silver objects and gold ingots while Kish gifted Ebla with lapis lazuli and other exotic goods (Archi 1987).

where approximately half of the graves had metal grave goods[147] (see Figure 73 above).

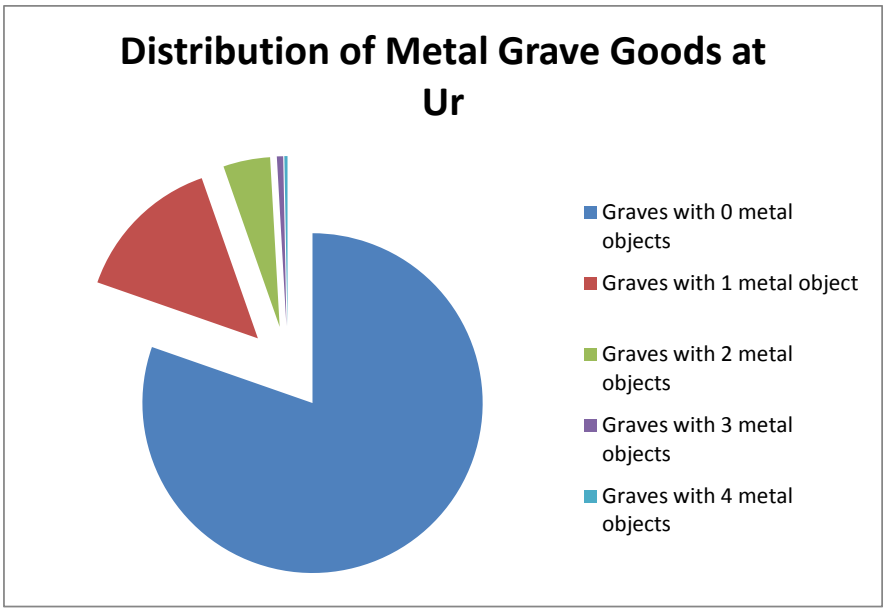

Figure 79 Distribution of metal graves goods at the Jemdet Nasr Ur cemetery

The Ur mortuary metals consisted of a small number of miscellaneous objects (*i.e.* a fish hook, mirror, 'spoon' etc.) and personal ornaments (four of which were silver earrings) with the greatest number of objects consisting of metal vessels mainly made of lead (see Appendix III) (Philip 2007; Woolley 1955). This is quite different from the metal grave good repertoire in the Upper Euphrates Valley burials where personal ornaments make up the vast majority of objects followed by weapons and then tools, and the only metal vessels reported for this region were the arsenical copper basin and 'truncated conical beaker' from the Arslantepe 'royal' burial[148].

Turning now to the mortuary information from the southern Caucasus that dates to the EB I-II, this dataset is quite important as this region and its population are thought to have heavily influenced the culture of the Upper Euphrates Valley, especially at the northernmost sites (Palumbi 2008b). Like the spread of novel mortuary architecture, the sharp increase in the number of metal objects deposited in

[147] This percentage would almost certainly decrease if all of the EB I-II graves were thoroughly published and could then be used as reliable sources of information. As it currently stands, there are quite a few cemeteries lacking complete publication and so these burials are excluded from the dataset here which skews the percentage of graves with metal artefacts.
[148] The beaker is similar to EB I Plain Simple ware examples in the Upper Euphrates Valley though the basin has no parallels in the region (Palumbi 2008b: 133). Instead, parallels to the basin were drawn to the later Maikop kurgans at the Klady-Novosvobodnaya cemetery where numerous basins and other vessels made of gold, silver and bronze were found (Palumbi 2008b).

mortuary contexts is also attributed by Palumbi (2007-2008, 2008b) to the spread of the Transcaucasian population and their cultural influence on local burial customs, though Sagona (2004a) notes that the majority of burials within the traditional Transcaucasian geographical 'homeland' in the region surrounding the Kura and Araxes rivers had very few or no metal objects included in the grave good repertoire[149]. The sites that were chosen for this comparison are located in modern southern Georgia (Kiketi and Samshvilde), north-central Georgia (Kvatskhelebi, Tulepia and Aradetis Orgora) and Armenia (Horum) and were chosen mainly because of the availability of information as well as the fact that the number of graves between these sites provided an adequate sample size.

An analysis of the metal grave good assemblage from the chosen sites shows that nearly all of the published items were ornaments and only rarely were examples of tools (one awl each from Tomb 35 and Tomb 29 at Aradetis Orgora) or weapons (one knife from Tomb 3 at Kvatskhelebi and one spearhead from Tulepia Tomb 3) found. Of these ornaments, hair spirals made of copper or silver were the most common objects followed by pendants and beads, best exemplified by the collective burial of five individuals in Tomb 29 at Aradetis Orgora which contained 26 hair spirals and 10 pendants (Koridze and Palumbi 2008). The preference for hair spirals by the inhabitants of this region is quite different from the preference for pins that is seen in the Upper Euphrates Valley; in fact, pins were rarely included with the Transcaucasian burials researched for this thesis, and when they were present, there was never more than one per individual. At Kvatskhelebi, only the single interments had pins (Glonti *et al*. 2003) and the one example from Aradetis Orgora came from a double burial where only one individual had metal grave goods (including one pin) directly associated with them (Koridze and Palumbi 2008).

[149] There are exceptions to this, and several 'royal' or 'chiefly' burials have been reported in the limited mortuary evidence.

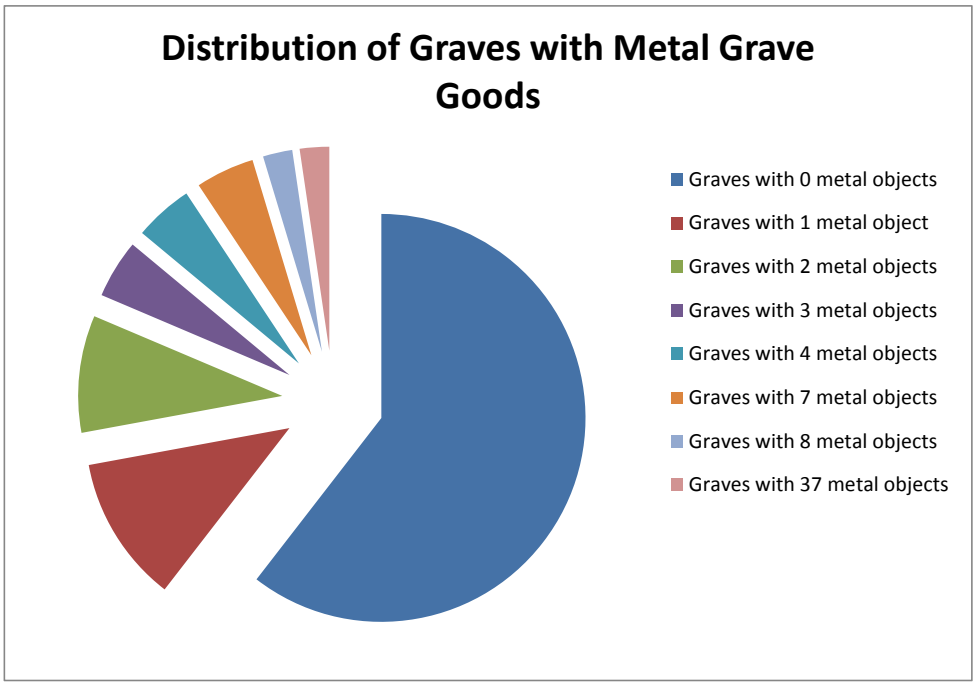

Figure 80 Distribution of metal grave goods by grave from the Transcaucasian sites

Comparing the distribution of metal artefacts in burials in the southern Caucasus to the Upper Euphrates Valley (compare Figure 80 and Figure 73), the pattern of metal grave good distribution in these burials can best be related to the contemporaneous burials in the Malatya sector based on the extreme difference between the richest group interment and the remaining graves from each site. This trend is especially evident at Aradetis Orgora where the five individuals interred in Tomb 29 had ten times the amount of metal of the next richest tombs (Koridze and Palumbi 2008). One major difference between the Arslantepe burial and the burials from the southern Caucasus is that there is greater variation in the types of objects deposited in the Arslantepe 'royal' tomb than in the Transcaucasian burials where nearly all of the objects were personal ornaments (predominantely hair or ear spirals) and only rarely were tools or weapons deposited as grave goods. This contrasts with Palumbi's (2008b) vision of conquering chiefs described above.

5.2.3 Discussion

The dearth of Late Chalcolithic Upper Euphrates burials with metal objects makes it difficult to draw solid conclusions about social stratification at this time, though several observations can be made. The first is that the pre-contact Hacınebi

jar burial found in Locus 73, while unique for the site, represents the small percentage of burials that would be expected to have metal grave goods at this time in the Upper Euphrates Valley. Though admittedly from a small sample size, the Hacınebi jar burial represents 5% of the total graves for the period. This is quite close to the percentage of Tepe Gawra XI-XA graves with metal artefacts, which was 4.67% of the total burials. The second observation is that both the Tepe Gawra and Hacınebi Late Chalcolithic 2-3 burials contained very few, fairly simple metal ornaments; the Hacınebi burial had the most items with three earrings while the Tepe Gawra burials had no more than two complete metal items per burial. The third observation is that there was a difference in what metals were being used at the two sites; gold was the most frequently found metal in the Tepe Gawra burials throughout the Late Chalcolithic with copper and electrum used to a lesser extent. At Hacınebi there were two silver rings and one of copper, making it difficult to discuss trends in the types of metal used in LC 2-3 burials in the Upper Euphrates Valley with any confidence.

As both gold and silver were softer and more rare than copper, it can be assumed that the Late Chalcolithic Euphrateans and Gawrans did not use these metals to make utilitarian tools, and so personal ornaments made out of these metals may not have been viewed in the same light as copper personal ornaments whose metal had been deliberately diverted from making utilitarian tools. Stein (1999b) uses the Hacınebi earrings as proof of inherited elite status, though it is also possible that these two silver earrings were allowed to be buried with the deceased infant because silver would not have been used to make utilitarian tools that would benefit the larger (living) kin group or community and were therefore more socially acceptable to 'waste' as grave goods. Other factors may also have motivated the use of silver by the Euphrateans; perhaps silver was chosen because it required more skill to make finished objects or it may be that silver was more difficult to acquire through trade or travel than copper was, making it a more valuable commodity and therefore a more powerful social statement in its conspicuous disposal in a burial.

Of the LC 4-5 data, only two of the Korucutepe burials and the burial under room A206 at Arslantepe featured metal objects (10% of the total burials), making the difference between these examples and other contemporary burials much more

apparent. Like the LC 2-3, the metal objects in these burials were primarily silver except for the dagger and mace head from Korucutepe K 12 no. 5. The quantity of silver items interred with the deceased implies that these individuals possessed a higher rank or status in their community if Stein's (1999b) interpretation of the use of silver is applied to the LC 4-5. The diadem and other ornaments from Korucutepe 12 no. 3 as well as the stamp seal and wrist guard from K 12 no. 5 and 4 lend credence to the association between status and the use of silver, though the silver ring found in the burial at Arslantepe is more difficult to interpret as belonging to a figure of authority as very little is known about the context.

Looking at the data from both Tepe Gawra and the Upper Euphrates Valley burials, similarities exist between the two regions not only in the types of objects being deposited in the graves but also between the mortuary architecture that was used in both regions in the Late Chalcolithic. The mud brick tombs found at Korucutepe and Tepecik[150] have parallels to those from Tepe Gawra where 34 of the 78 total burials dating to the IX-VIII period were mud brick tombs that were covered with wood, stone or mud brick (Peasnall 2002). The similarity in mortuary architecture between a typical Tepe Gawra mud brick tomb and the Korucutepe single and double mud brick tombs can be seen in the figures below which illustrate the mud brick tombs found at the two sites.

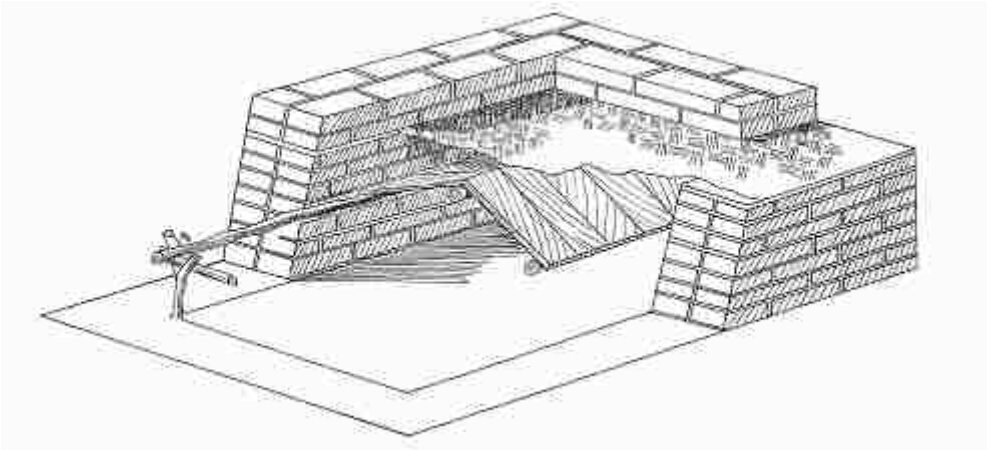

Figure 81 Reconstruction of a mud brick tomb from Tepe Gawra. From (Peasnall 2002: 181 Fig. A.3)

[150] Though the Tepecik LC 5 small mud brick tomb was found in the wall of a Late Uruk building and showed obvious signs of having been disturbed by later building at the site (Esin 1979a) and so is not included in the dataset.

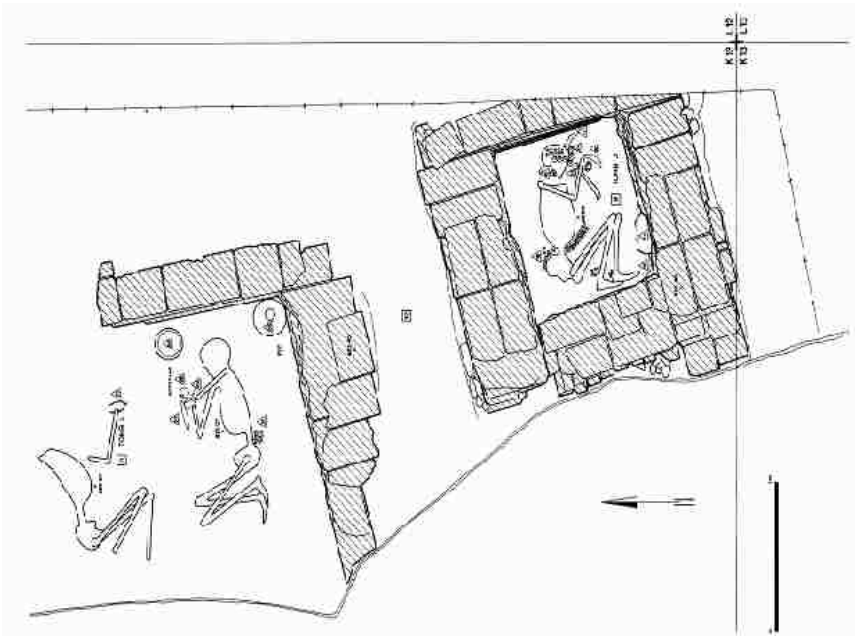

Figure 82 Drawing of the Korucutepe mud brick tombs K 12 no. 5 & 4 (left) and K 12 no. 3 (right). From (van Loon 1978: Plate 9)

More tentative evidence for the connection between the two regions in terms of mortuary architecture is found at Hacınebi where a mud brick lined pit burial was found in Area C, which may be representative of a 'sidewall' burial as described by Peasnall (2002: 173), or perhaps this was an aborted attempt at a mud brick lined cist burial like those from Korucutepe or Tepe Gawra.

If greater quantities of copper were being transported from the Upper Euphrates and Ergani-Maden region to Tepe Gawra in the fourth millennium, this could potentially explain both the presence of similar mortuary architecture in the Upper Euphrates Valley as well as the increase in copper objects in the Tepe Gawra tombs. Despite the similarities, there are also difference between the Tepe Gawra burials and the Euphrates Valley burials; metal weapons were found at Korucutepe while only metal ornaments were found in the Tepe Gawra burials. Weapons were found in earlier graves at Tepe Gawra (represented by stone mace heads), but there was a shift away from the use of mace heads in burials from level IX onwards. According to Peasnall (2002) and Rothman (2002a), this can possibly be attributed to the social and economic changes occurring at Tepe Gawra at this time; if the tombs are representative of new ideological and social displays, then the increased

emphasis on metal craft items can be related to the increased centralisation and manipulation of local trade at Tepe Gawra.

Broad similarities to this shift in ideological and social display can be seen in the Upper Euphrates Valley from the Late Chalcolithic to the Early Bronze Age. By the EB I-II, metal-rich tombs were no longer the exception to the social rule as many (121 of 237[151]) graves throughout the entire Upper Euphrates Valley feature metal objects. The EB I-II burials also tend to contain a large number of ceramics, especially the distinctive fruit stands/ champagne cups that Woolley (1952) called 'champagne glass pots'. Coinciding with the changing grave good repertoire is the use of new forms of mortuary architecture[152]; mud brick cist graves, the majority of which were E-W oriented (Ökse 2006), and stone lined examples of cist graves became much more frequent in southeastern Anatolia and northern Syria and can be found at multiple sites in the region during the Early Bronze Age.

This apparent preference for stone lined cists is argued by Palumbi (2007-2008) to have been part of the Transcaucasian cultural package[153] that was brought to the sites north of the Taurus by nomadic groups and then spread to sites south of the Taurus and into northern Syria:

> At the beginning of the third millennium, after the so-called Uruk expansion, a new funerary tradition (the stone-lined cists) appears first in the Upper Euphrates valley and later on, crossing the Taurus mountains, also in northern Syria. The adoption of a tradition originating from very distant regions (Southern Caucasus or Transcaucasia) and from a totally different cultural background (Kura-Araks) highlights that a set of profound social and cultural changes were taking place in the Syro-Anatolian communities (Palumbi 2007-2008: 141).

However, the near contemporaneity of the Lidar, Hassek, Suyatağı and Arslantepe stone-lined cist burials makes it difficult to assess this spread with any degree of

[151] This number only represents graves that have metal artefacts attributed to them and the total number of published burials; this means that of the 312 graves from the Birecik Dam cemetery, only 96 burials were published- accounting for just 117 of the 410 objects mentioned by Squadrone (2007). This also means that none of the ca. 205 burials from Lidar Höyük necropolis are counted as they are unpublished, and only 70 of the 97 pithos burials from the Hassek Höyük cemetery are included as the remaining 27 burials were not published with the others in the Hassek report (Behm-Blancke 1992).
[152] See Orthmann (1980) for an overview of third millennium mortuary customs in the region
[153] This included burnished wares, wattle and daub huts and motifs such as the double and quadruple spirals found on pins and pots (though see Alkim *et al*. 1988; Bılgı 2001; and Koşay 1973 for central Anatolian examples).

accuracy, as does the appearance of stone lined cists in Upper Mesopotamia in the Late Chalcolithic[154].

The use of metal in EB I-II mortuary contexts in the Malatya sector is significantly different from both the two southern sectors of the Upper Euphrates Valley as well as the mortuary evidence from the southern Caucasus making the association of this practice with Transcaucasian mortuary practices questionable (see Porter 2012). In the Transcaucasian graves there is typically a fairly even distribution of very few metal grave goods between individuals, which Palumbi (2007-2008) interprets as evidence of a lack of vertical stratification within these populations and instead served to:

> …stress the centrality of the family and of horizontal social relations founded on marriages, alliances or group affiliation (Palumbi 2007-2008: 149).

If this is the case, then the distribution of metal in the T1, H223 and H224 burials of the Arslantepe 'royal' tomb shows an obvious shift away from the horizontal stratification that would be expected in Transcaucasian graves. The relatively small number of reported burials and the absence of a more widespread distribution of metal grave goods in the Malatya sector suggest that the Arslantepe 'royal' burial was a one-off event that does not represent how metal was used by the majority of the population in this region in the EB I-II periods. It may be, as both Frangipane (1998b, 2001b) and Palumbi (2008b) suggest, that this tomb was a mixture of local and Transcaucasian customs, but given the significant differences between the mortuary customs of both cultures and the Arslantepe 'royal' burial further questions should be asked regarding the sources and extent of this cultural mixing.

Looking elsewhere for potential correlations to the social use of metal in the Upper Euphrates Valley, it is also possible that the limited use of metal in the Malatya sector reflects the general pattern of metal use in the Ninevite V cultural horizon. Bolt and Green (2003), Philip (2007) and Schwartz (2003) relate the absence of metal-rich graves or other metal caches in the Ninevite V region with a staple finance economic system rather than the wealth finance system (see discussion below), and it can be suggested that differing socio-economic strategies are reflected in the differing degrees of metal consumption between the Malatya sector and the

[154] Tepe Gawra had eight stone cist burials from the earliest Late Chalcolithic levels (XIA/B) through period IX-VIII, with six of them coming from *ca*. 3800-3500 BC (Peasnall 2002).

Carchemish and Samsat-Lidar sectors in the EB I-II period. Corresponding to this limited use of metal is the possibility that the social structure of the Malatya sites could have been either extremely stratified where the 'lord' in the Arslantepe burial tightly controlled the local metal resources and finished goods. Alternatively, the social structures could have been organised on more horizontal lines where the focus of mortuary behaviour was on the person or persons being interred rather than the grave goods, more like the proposed Transcaucasian social organisation (with the Arslantepe tomb being an outlier).

Based on the small settlement size, lack of overt signs of social differentiation (such as differences in domestic architecture and burials rich in grave wealth) at the majority of the Malatya sector sites, it seems quite likely that the settlements north of Arslantepe were comprised of independent subsistence farmers and shepherds who possibly obtained their few metal objects through trade or seasonal metalworking rather than having dedicated, full-time smiths. In contrast, those sites in the Carchemish and Samsat-Lidar with metal objects were oriented more on a wealth based finance system that was fuelled by the production and consumption of craft items, with metal objects being just one of the many craft items being produced and consumed at these sites.

This exemplifies the change in the socio-political and economic structures from the Late Chalcolithic when only a very few graves contained metal items with most of these being types of personal ornaments. The number of personal ornaments deposited in graves increases in the mid-late fourth millennium, and at this time there were also isolated examples of metal weapons interred with the dead. However, it is still personal ornaments, mainly made of silver, that were primarily utilised for grave goods. This situation drastically changes in the EB I-II when any type of metal object was viewed as an appropriate grave good though personal ornaments (mainly pins) still comprised the vast majority of the total assemblage followed by weapons (see Figure 83 below).

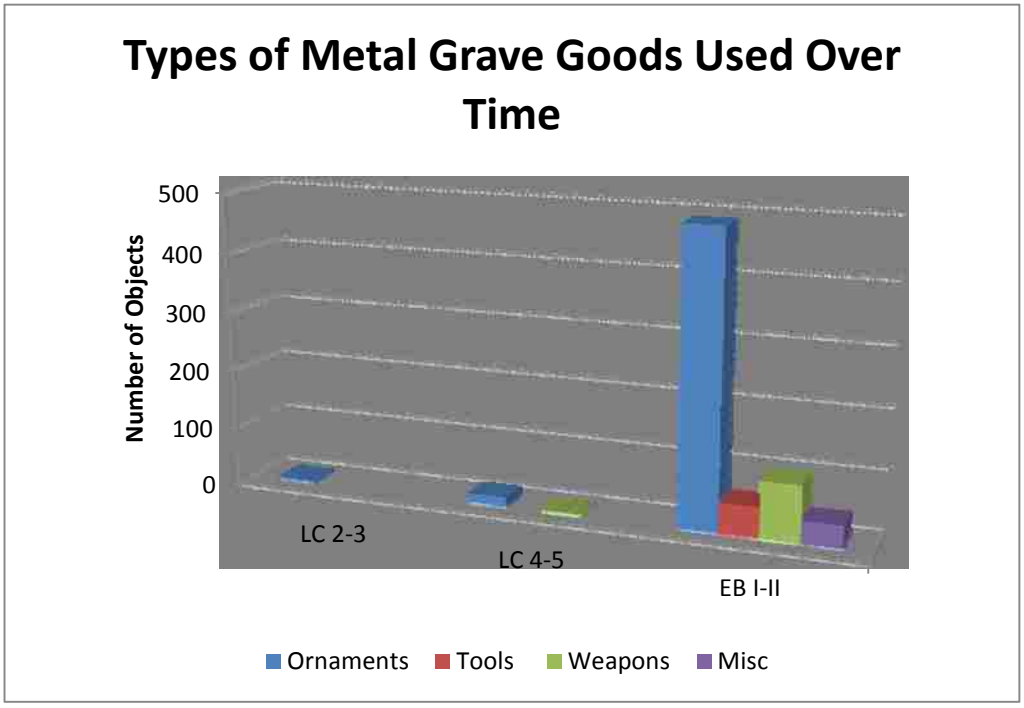

Figure 83: Distribution of metal object types in mortuary contexts from the Upper Euphrates Valley

When the distribution of types of metal artefacts deposited as grave goods is graphed against the comparative sites mentioned above, it is only at Ur in the early third millennium that personal ornaments are not the most frequently found metal grave good. The Ur assemblage further stands out for the fact that the majority of these objects were made out of lead with copper and silver significantly less represented in the assemblage (see Figure 84 below).

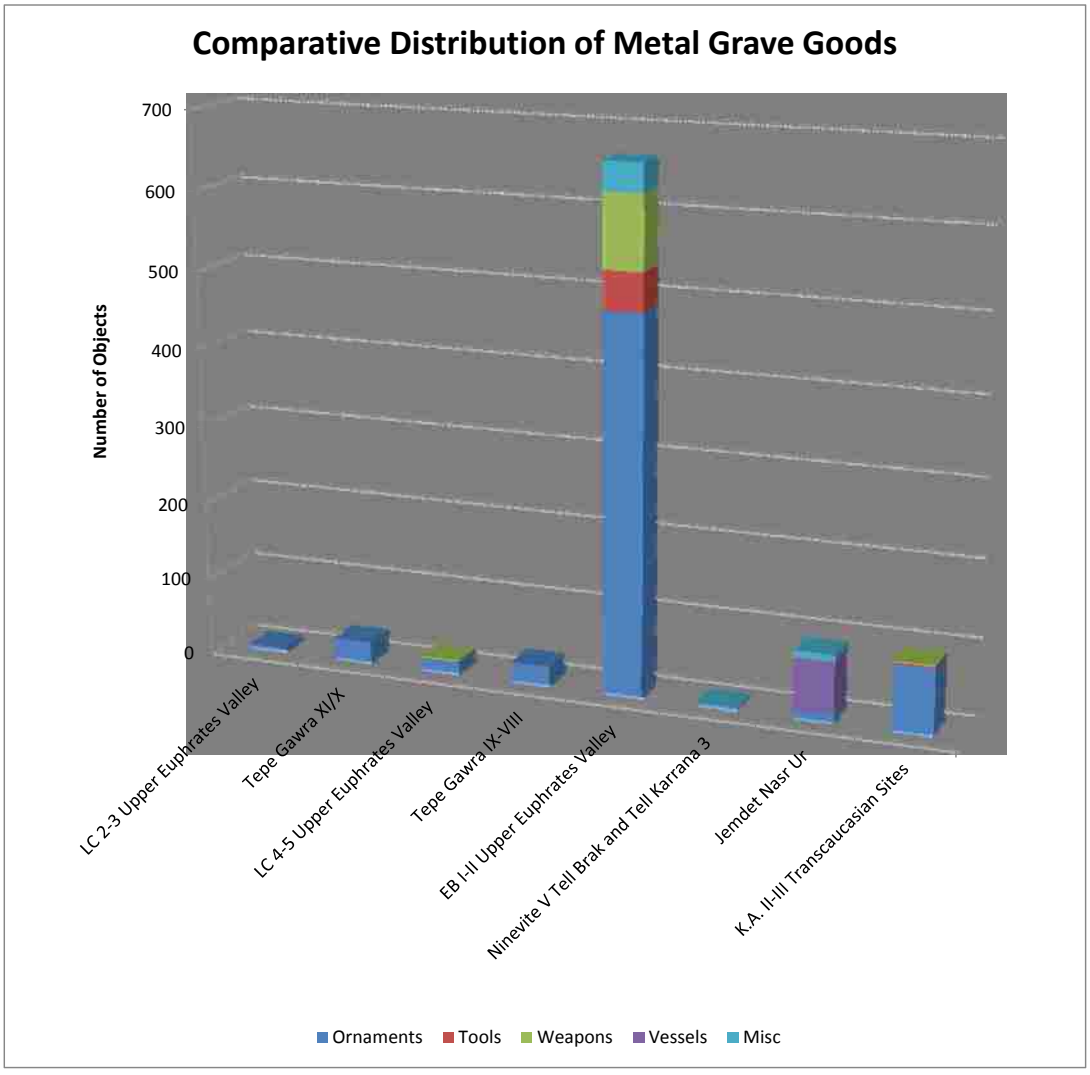

Figure 84 Distribution of metal grave goods over time in the Upper Euphrates Valley and selected comparative sites.

Overall, the use of silver (including the copper-silver alloy) in the EB I-II was significantly reduced compared to the fourth millennium preference for silver to make grave goods and objects made of silver can only be found in a small number of burials. The only three Upper Euphrates Valley graves with published silver objects in the early third millennium all had large quantities of other metal objects when compared to other burials in the same cemetery or sector. In the case of Carchemish, KCG 13 had one reserved slip chalice, beads/necklace, one 'silvery' eyeleted pin, four bronze pins, four bronze bracelets, one leaf-shaped spearhead, one dagger and possibly two other metal objects[155]. This burial had the greatest number of metal

[155] One of which may be a solid metal mace head that Woolley (1952) mentioned, but this cannot be confirmed as the notes for this burial were lost.

items among the Carchemish EB I-II burials and was the second richest burial in the Carchemish sector overall after the 'Princess' of Qara Quzaq. Like KCG 13, Cist Grave 5 in Operation 18 at Hacınebi was the richest grave found at the site and included: seven champagne cups, four small pedestal bowls, three small jars, three small bowls, hundreds of small frit beads, two conical-headed pins (HN 12789 and HN 12297), one 'normal' sized pin with rams heads[156] (HN 12294), one large[157] pin with rams heads (HN 12788), the silver wire coil (HN 12784) and possibly one other item that appears in the picture of the grave goods (see Stein 1998b: 207) but is not identified.

In the Malatya sector, seven pure silver objects and a further twenty-eight silver-copper alloy objects were found in the Arslantepe T1 burial and a further six silver-copper alloy objects were associated with the Arslantepe S150 burials (Frangipane *et al*. 2001). Of these objects the three diadems from Arslantepe were made of this copper-silver alloy and all of them featured decorations that were fairly similar to each other. This decoration consisted of rows of circles in a straight or wavy line, though the diadem with the individual interred in tomb T1 had a unique decorative element in the centre of the band where a double line intersected a vertical line that terminated in a small circle. Frangipane *et al*. (2001) relates the T1 diadem with a possibly contemporary example found in Tomb 2 at Kvatskhelebi in Central Georgia (see Glonti *et al*. 2008), though any similarities in decoration are mainly in the technique that was used as the Kvatskhelebi example is decorated with animals rather than geometric motifs that were found at Arslantepe (see Plate 8). This similarity has been seized upon by Palumbi (2007-2008, 2008a, 2008b) and Frangipane (Frangipane 1997c, 1998a, 2001b; Frangipane *et al*. 2001) as an indicator of the degree of Transcaucasian influence on the population at Arslantepe in the Early Bronze I, though the earlier Korucutepe headband/diadem allows for the possibility that the use of diadems in the Upper Euphrates Valley may be related to other geographical or cultural influences.

[156] This is similar to the double goat-headed pin from Chagar Bazar that was found in Grave 67 (Mallowan 1936, fig. 8:2).
[157] The size of the pin in the pictures as well and the scale shown on the drawing in (Stein 1998b: 207) indicate that this 'pin' is inordinately large at *ca*. 23 cm long.

Palmieri and Hauptman in Frangipane *et al*. (2001: 130) note that the items made of the silver-copper alloy were entirely unique to both Upper Mesopotamia and Arslantepe, though Caneva and Palmieri (1983) had previously reported that a chisel made of the same alloy was found in A226 in the VI B period[158] at Arslantepe. Instead, Palmieri and Hauptmann in Frangipane *et al*. (2001) draw the closest parallels to a silver-copper arrowhead from the city of Uruk at the end of the Late Uruk period (see Pernicka 1993) and two hair spirals from the Middle Bronze Age site of Arich in the Transcaucasian region (see Gevorkian 1980). Regardless of the possible novelty of this alloy or not, the objects made of the silver-copper alloy would have resembled items made out of pure silver in terms of colour and shine, and it can be speculated that the smiths used this alloy to save on the cost of making all of the objects out of silver[159] while still giving the appearance of these items being silver.

As was noted above, there is continuity in the association of silver grave goods with the richest burials (in terms of amount of metal grave goods) from the Late Chalcolithic through the Early Bronze Age despite the shift towards quantity rather than quality of metal objects in the EB I-II. It may be that the changing role of metal in burials from the LC 2 through the EB II is due to a shift in the prescribed or restricted mortuary behaviour, and Derevenski and Sørensen (2002) suggest that such changes are reflective of the struggle between tradition and innovation and changes in the social meaning attached to metal objects.

What is often stressed in discussions of mortuary contexts is the presence and richness of any 'elite' tombs and how metal was utilised by these elite individuals or surviving family members to cement their place in the socio-political hierarchy (see especially Arslantepe above), essentially interpreting the social use of metal through a top-down model. However, if a bottom-up approach is taken then the widespread use of metal at many sites in the southern two sectors of the Upper Euphrates Valley

[158] The royal tomb was found in 1996, while the analysis of the silver-copper alloy chisel was published more than ten years before this and eighteen years before the Frangipane *et al*. (2001) write up

[159] Copper and silver do not occur together in any of the ore deposits known in Anatolia, leading to the conclusion that this alloy was intentional. This implies that the inhabitants were also familiar with silver cupellation as well as copper smelting since the lead content of these items was quite high, which is in following with silver extracted from silver rich lead (Palmieri and Hauptmann in Frangipane *et al*. 2001).

in the EB I-II can be viewed as part of social displays that are not necessarily elite. Metal, especially copper, can then be interpreted as a valuable but not unobtainable material in light of the high percentage of graves with metal objects in this period. This is exemplified in the Carchemish and Samsat-Lidar sectors where metal can be found in 63% of the graves in the Carchemish sector and 37% of the graves in the Samsat-Lidar sector. This can be contrasted to the Malatya sector where 16% (3 of 19) of the published burials had metal objects, which can be reduced to 5% if the 'royal' tomb is taken as a single unit.

This is a very clear increase from the Late Chalcolithic where only 5% of the LC 2-3 burials had metal objects and 10% of the burials in the LC 4-5 had metal objects. When compared against the extra-regional sites mentioned above, the Late Chalcolithic use of metal in mortuary contexts in the Upper Euphrates Valley seems to be fairly standard when related to the 'local' site of Tepe Gawra. However, there is a gap in the use of metal between the Upper Euphrates Valley (specifically the Carchemish and Samsat-Lidar sectors) and what may be Uruk burials at Tell Brak, the later Ninevite V burials at Tell Karrana 3 and the southern Mesopotamian burials from Ur. In terms of percentages, when the graves are taken altogether the use of metal in the Transcaucasian burials is the closest to that of the EB I-II Upper Euphrates Valley; however, the distribution of metal in graves at the specific Transcaucasian sites shows that only limited numbers of the burials contained metal grave goods implying that their deposition in mortuary contexts was much more restricted than in contemporaneous graves in the Upper Euphrates Valley.

As was noted above, the number of burials discussed here is only a small sample of the potential burials that exist or may have existed in these areas. While the EB I-II data seems especially convincing as to the role of metal in mortuary contexts in the Upper Euphrates Valley, caution must be exercised as these burials likely represent only a fraction of the population and therefore may not be as representative as the data indicates. The difference between the estimated total population and the total number of burials found may relate to the varying preferences and rituals associated with burying the dead in these different regions; the Late Chalcolithic mass grave discovered at Tell Majnuna as part of the Tell Brak excavations demonstrates that archaeologists may only be seeing a small percentage

of the burials if only the main mounds are excavated. At Tell Majnuna a series of mass graves was discovered and subsequently dated to 3800 – 3600 BC (LC 3). It is estimated that at least several hundred individuals were buried in the excavated areas of Tell Majnuna as part of a single event where both humans and animals were secondarily interred[160] (McMahon *et al*. 2011; Oates *et al*. 2007). This emphasises the danger of drawing too many inferences from limited excavations while at the same time giving a hint as to the varying methods in which the deceased could be dealt with.

5.3 Chapter Overview

The early use of metal in the Upper Euphrates Valley fits in with the stages of metal use outlined by Derevenski and Sørensen (2002) who specify that the initial use of metal by a population is gradual as the members of that society negotiate its meaning over time, with more familiar types of objects being adopted more quickly than novel types of objects made of metal because these more familiar objects do not change the social order dramatically. Therefore, in the early stages of metal use there are few types of objects and these are limited to tools and ornaments whose value is based on what materials were used to make them rather than on the objects themselves. This initial stage of development reflects the situation at the beginning of the fourth millennium in the Upper Euphrates Valley where the silver rings in the Hacınebi jar burial and the lead spiral pendant and the lead 'ball' from Norşuntepe were set apart from the copper examples of personal ornaments and tools.

In a period when metal objects were relatively rare and mainly limited to utilitarian tools, the use of metals other than copper to make personal ornaments such as the earrings and spiral pendant would have been a powerful social message. The relative rarity of these metals in the archaeological record contrasts sharply with artefacts made of copper, copper alloy and arsenical copper which are by far the most frequently reported metal objects dating from the LC 2-EB II in the Upper Euphrates Valley. The use of copper at such a high proportion, especially in the early third

[160] Some of the human remains found in Area EM had been refashioned into bone tools, which is unique thus far in Mesopotamia (McMahon *et al*. 2011).

millennium, suggests that this metal was intentionally being selected by the inhabitants of the Upper Euphrates Valley. This is likely due to copper being the most commonly available metal ore to the inhabitants of the Upper Euphrates Valley as it can be found at multiple locations within a reasonable travelling distance from the Samsat-Lidar and Malatya sectors and a slightly greater distance from the sites in the Carchemish sector. Other factors that would have influenced the choice of metals used by the Euphratean metalworkers included: the relative cost of imported materials, the skill involved in refining the ore and making the finished objects, fashion trends, values associated with the objects (see Bachhuber 2011; Wengrow 2011), and the types of items being made, *i.e*. utilitarian tools versus ornamental objects**.** In terms of relative cost of materials, it is frequently assumed that because copper was so much more readily available to the inhabitants of the Upper Euphrates Valley this material was the least costly of all of the metals and therefore the most likely to be made into both utilitarian and ornamental objects[161].

Looking at the other types of metal used in the Upper Euphrates Valley from the LC 2 through the EB II, silver is the next most frequent type of metal found and would have been an attractive elite material because it was the most accessible of the rarer metals during the time frame being studied. The Keban area is reported to have had a fairly rich silver-lead deposit as does the Bolkardağ area (Hess *et al*. 1998; Yener 1983) and both were accessible to the Euphrates Valley settlements with a bit of travelling. Another possible reason for using silver over copper in certain contexts was that the processes involved in refining the silver-lead ore[162] would have been more time consuming and required more skill than copper smelting. This would then result in simple objects such as rings and pins standing out because of their material of manufacture rather than the form of the object itself.

Gold, on the other hand, is found in quite specific geological complexes whose sources are often tied in with the Anatolian tin debate (Crawford 1974; de Jesus 1980; Earl and Özbal 1996; Kaptan 1995; Yener 2000). As a material with

[161] Though as Bayley *et al*. note, "The complex pattern of resource generation through geological time leads to enormous variation in style of mineralization, which in turn means that exploitation of the resources often has particular, local features of technology, regulation or social context" (Bayley *et al.* 2008: 3).

[162] Native, or pure, silver is extremely rare, meaning that almost all silver from early contexts was from refined mixed ores. Apart from the Keban mine, the Pontic region of Turkey is another major silver source in the region (de Jesus 1978, 1980; Yener 1983).

which to make prestige objects, gold does not appear in the Upper Euphrates Valley until its use to make a hair spiral and several beads that were placed in the Arslantepe 'royal' tomb in the first phase of the EB I[163]. Given the lack of gold sources and the extreme rarity of gold objects in the region, it is most likely that these items were imported as finished objects rather than their being manufactured on site.

It is possible that the few examples of personal ornaments from all contexts in the Late Chalcolithic 2-3 were almost exclusively made of copper or a copper alloy because the limited availability of metal resources for personal consumption made these objects socially valuable no matter what type of metal they were made of. The use of metal to make ornaments in the early fourth millennium further stands out because at the time metal was mainly being used to make utilitarian tools, especially chisels, which could be hypothesised as being evidence of the Euphrateans reserving metal resources to make tools that could be utilised by multiple members of kin groups or communities. This scenario would fit in with a corporate staple finance system that is based on the communal labour of kin groups with the surplus agricultural resources being pooled together to trade for metal ore or finished metal items. The presence of metal personal ornaments (either copper or silver) in the early fourth millennium could then be viewed as evidence of elite individuals who had the ability to divert metal resources away from making utilitarian tools and instead towards making highly visible personal ornaments that further differentiated them from their neighbours.

When comparing the use of metal over time in the Upper Euphrates Valley, perhaps the greatest differences that can be seen are in the intensity of production and the changing contexts in which metal objects were utilised. In the later half of the fourth millennium, only a small number of the occupied sites have evidence of both metalworking and metal objects within the same site (see Chapter 3). This suggests that the presence of metal objects at sites in the LC 4-5 was in part due to trade (local or long-distance) in finished objects rather than in raw ores to manufacture these items on site; a different situation from the first half of the fourth millennium when sites were producing their own metal objects for local

[163] Frangipane (1996) mentions a gold disc (either a clothing ornament or a seal) that was found on the floor of the temple cella in the Arslantepe VI A Building IV complex; however, this is the only mention of this object and so is not reliable enough to be included.

consumption. This discrepancy may also be related to the different cultural attitudes towards metal use; the few metal items found at the heavily Uruk influenced sites were ornamental objects that could be easily imported or exported as finished objects, a trend that corresponds with the overall increase in the number of pins and other personal ornaments in the LC 4-5.

The lack of tools in the LC 4-5 makes it difficult to expand the model of corporate oriented, staple finance socio-economic systems to the second half of the fourth millennium, though the burgeoning centralisation shown at Arslantepe and the assumed increased trade with the Uruk population and the rich tombs at Korucutepe would suggest that like Tepe Gawra, new forms of social display were being integrated into the Upper Euphrates Valley societies in the second half of the fourth millennium. The events leading up to the end of the Late Chalcolithic disrupted the centralisation processes, allowing a more widespread social use of metal to arise in the EB I-II which can be related to the individualising of social, political and economic interactions rather than the corporate or centralised structures of the Late Chalcolithic.

In terms of the incidence of metal in domestic, industrial and public contexts, there is more ambiguity in how these items were used and perceived socially. In the case of tools, it is logical to assume that these items were utilised and/or owned by several individuals, possibly families, who pooled their resources together to acquire them. This would account for their early appearance in the archaeological record as well as their scarcity since they would have been recycled when necessary. The use of metal ornaments, on the other hand, intimates that metal was perceived as a valuable resource that gave the ornaments made of the various metals greater social value over the exact same items made of stone or bone- relating to Derevenski and Sørensen's (2002) argument. The fact that there is an exponential increase in the amount of metal being used from the early fourth through the early third millennium suggests that the degree of social necessity of these objects had changed over time along with a change in how these objects were utilised, both by the living and the dead.

One outcome of the socio-political and economic changes that occurred at the end of the Late Chalcolithic is that this adjustment allowed individuals and

individual kin groups different mechanisms by which to obtain wealth and power and different ways in which to display this newfound wealth and prestige. The increasing importance of craft production and the control of agricultural surplus bolstered a level of inter-site hierarchy that was augmented by the availability of exotic or prestige items and the raw resources used to manufacture specialised craft items in a wealth finance influenced socio-economic system (MacCormack 1981; Mann 1986; Marfoe 1987; Mazzoni 2003; Nissen 2001; Oates 1993; Tilley 1981). The growing disparity in the horizontal and vertical stratification within the Upper Euphrates Valley settlements was heightened by the presence of differential access to wealth through the control of surplus and labour, a burgeoning craft industry and the increase in politically motivated gift exchanges between socio-political leaders and other elite members of a society (Archi 1987, 1992, 1996; Brumfiel and Earle 1987; Costin and Earle 1989; Stein 1996). Therefore, the upsurge in the use of metal in the EB I-II is likely related to the changing nature of public displays of wealth, power and identity and the need to express these concepts in a highly visible way.

These social displays became more important as the socio-political and economic relations between settlements became increasingly more complex. In a period of transition that involved not only changing socio-political and economic systems, but also a high degree of population and cultural mixing, an apparent 'Euphratean identity' which utilised portable social displays in the form of metal objects to signal multiple meanings including wealth, status and identity within a particular settlement or population group became more fixed in the archaeological record. These concepts will be more fully discussed in the following chapter alongside of the economic and socio-political systems that may have contributed to their use.

Chapter 6: The Production and Social Use of Metal

6.1 The Role of Metal in Socio-Economic Systems
6.2 External Influences and/or Local Development?
6.3 A Discussion of the Social Use of Metal

The Near East has had a long relationship with metallurgy, and a microcosm of the rapid development of metallurgy in this large geographical area can be seen in the Upper Euphrates Valley. The long continuity of settlement and degree of modern excavation in the Upper Euphrates Valley have allowed a more detailed glimpse of the processes that contributed to metal artefacts being consumed first as objects that were utilised by multiple individuals within a larger kin or settlement group and later as privately owned commodities that were an integral part of social display by a large proportion of the population. The early and prolific use of metal in this region is likely due to the proximity and availability of local mineralogical resources and trade routes that allowed metallurgy to flourish both before and after the southern Mesopotamians moved into the region during the Uruk Expansion.

The increasing diversification of metal object types over time occurred in conjunction with an overall increase in the total metal assemblage of the Upper Euphrates Valley, a situation that reflects the changing social use, value and the overall necessity of metal to the point where metal was valued not so much as an exotic material, but as a material with which to make items that required large amounts of metal to manufacture as the emphasis shifted from the specific objects themselves to the amount of metal being used.

In the case of the Upper Euphrates Valley, the initial impact of metal on Euphratean society in the LC 2-3 seems to be focused on its usefulness to the larger community while in the LC 4-5 the metal industry was affected by both the Uruk trade and initial local centralisation processes. The material evidence then shows that the role of metal in the Upper Euphrates Valley changed quite drastically in the EB I-II to the point that many more individuals had the wherewithal to manipulate resources and consume metal objects as part of individualising and factionalising forces. This is evident in the presence of a ‘middle’ class in the EB I-II mortuary contexts prior to the more exclusionary and hierarchical socio-political structures of

the mid-late third millennium where craft goods and raw resources were more tightly controlled. The factors that contributed to this development in the social use of metal from the LC 2 through the EB II will be more fully discussed below using the data presented in Chapters 3 and 4 and the analyses from Chapter 5 as supporting evidence.

6.1 The Role of Metal in Socio-Economic Systems

New forms of economic and socio-political power can be realised through multiple sources including labour and resource control as well as the manipulation of craft items, gift exchanges and strategic political marriages. This power could then be manifested in large-scale public displays such as the construction of fortifications or the ownership and public display of craft items that were viewed as being items with a socially determined value, *i.e*. prestige goods[164]. In discussions of craft production and specialisation, the degree of control that individuals or groups exercised over craft workers, their labour and finished products is central to the qualification of these industries as independent or attached (Adams 1966, 2000; Arnold and Munns 1994; Brumfiel and Earle 1987; Costin 1991; Trigger 1972; Wright 1998). In independent craft production models, the manufacture of craft items takes place in discrete domestic work areas that are usually associated with an individual household. In contrast, attached craft industries are controlled by a political, religious or economic authority who supported those making the craft goods, controlled the resources necessary to their production and the distribution of the finished product. In the case of attached workshops, it was not only the items produced that had an elite quality, but the institution of attached craft production itself also had elite socio-political and economic implications (Wattenmaker 1998b). This can be tied to Zeder's (1998, 2003) observation that craft specialists attached to elite households were free from agricultural labour and thus able to spend more time producing prestige objects; however, Adams (1996, 1997, 2000) cautions that archaeologists should not place too much emphasis on the fact that attached craft

[164] Stein, following Brumfiel and Earle (1987) labels prestige items as, "… 'politically charged commodities' whose possession and display were critical to the state's ability to tax, wage war, provision itself, or claim legitimacy" (Stein 1994b: 14).

specialists existed in the Late Chalcolithic as hierarchy, craft specialists and administrative technologies occurred at approximately the same time.

While it may be argued that independent specialists had a greater degree of autonomy in regards to the fruits of their labour because of their ability to switch employers, negotiate the terms of their labour or simply move throughout the region as itinerant craft workers (see Zaccagnini 1983), Wattenmaker points out that independence was not always the best strategy:

> Specialized economies made households more vulnerable to intervention in the economy by the political elites. It is easier for governments to meddle with production and consumption when it occurs on a household basis. Nucleated production paves the way for states to intervene with production through means such as extortion (see Brumfiel 1994, 2) taxation, or diverting supplies or products (Wattenmaker 1998b: 6).

The debate surrounding independent versus attached specialists within elite and non-elite households or public workshops can be further pared down to the underlying discussion of labour control. Apart from the supplies themselves, labour is one of the most important resources for those attempting upward socio-political and economic mobility:

> Mobilization is a form of resource and labor appropriation that marked a qualitative change in socioeconomic relations and the rise of the real economic power of the elites (Frangipane 2000: 220).

There are several approaches that can be utilised to examine the role of labour in the economy more closely. Zipf (1972), in his 'Principle of Least Effort', takes the rather bleak view that the exploitation of others is a fact of life, and the key is to obtain the maximum amount of work out of others while giving the least amount back in return-whether this be in food and shelter, wages or another form of exchange that is at least minimally beneficial to both parties. This labour can be used for all facets of daily life including: craft production, the construction of buildings, working in the fields, managing herds and engaging in warfare[165].

[165] Zipf relates warfare and labour control because, "Physical combat with others involves the expenditure of work, as well as the assumption of the risk of being defeated by one's adversaries. For that reason, any device of less work and risk that can be substituted with equal effect for an actual physical combat in the struggle for prestige will be recommended for adoption, yet as we introduce the concept of substitute devices we introduce, by definition, the concept of symbols" (Zipf 1972: 518). The symbols that Zipf mentions can be in the form of war trophies such as slaves, body parts or weaponry.

Building on early theories of the division and manipulation of labour in society[166], Hayden (1994, 1995) attributes the mobilisation of labour to aggrandisers who:

> … probably found it easiest to use kinship ties for recruitment, but they also used other means including marriage (especially motivated by possibilities to acquire resources), the bestowing of titles on desirable potential members thereby increasing the value of the individual, and providing other material enticements… It seems evident that the main goal of aggrandizers was to attract, control, and manipulate labor (Hayden 1995: 67).

Defined as people who are charismatic, ambitious, acquisitive, aggressive and even deceitful, aggrandisers play a part in instigating social, political and economic change within a population (Hayden 1994, 1995). One way in which to accomplish this is by enacting new ideologies or turning to socio-economic systems that limited access to specific goods from the larger population or by importing and using exotic materials in order to enhance social standing within the community- essentially operating an exclusionary wealth-finance system. This strategy allowed for greater stratification as economic and social prime movers were able to control labour and surplus products to the degree necessary to attain elite status. Frequent changes to ideologies, which items were deemed 'prestige' or, in more extreme cases, changes to socio-political structures would not have been unusual as the aggrandising individuals in a population struggled to maintain their position at the top of the social, political or economic hierarchy as the equalising pressures exerted by corporate groups limited the amount of power individuals were able to accrue (Blanton 1998).

Arnold (2000) takes a similar view to Hayden (1994, 1995) in that she bases the power structure of a society on who has the rights to an individual's or a household's labour[167] in a model where essentially the more powerful the leader, the greater their access to the labour pool and its products. Her model is broken down

[166] According to Durkheim, "The growth of the division of labor is thus brought about by the social segments losing their individuality, the divisions becoming more permeable" (Durkheim 1949: 256); while Heichelheim ascribes the division of labour to innate qualities of the population and human nature in general, "The variety in human nature leads, in village life, to a widespread division of labour, which does not exclude very high honours; even though, under peasant conditions these honours are gained only by very strong and particularly gifted personalities" (Heichelheim 1958: 59).
[167] According to Arnold, "Labor organization determines a great deal about the overall organization of society, structuring not only how products are made but also how resources are used and goods and services distributed" (Arnold 2000: 21).

into three levels of complexity and their associated degree of control over the labour of others; in small-scale societies, household elders control the household and individual, in an intermediate hierarchy the household elders and political elite control domestic labour, while in a complex hierarchy, the household elders, other bureaucratic levels and the political elite all control domestic labour (Arnold 2000: 18; see also Webster 1990). If this model is followed, then the immediate household and kin group are a readily available source of labour and therefore power, which reflects the scale of labour control in corporate socio-economic systems which were more socially cohesive and community-oriented than Hayden's (1995, 1998) more individualistic aggrandisers who theoretically operate best in exclusionary wealth finance systems. In the case of metalworking, controlling the output of specialised labourers was essential for those trying to control the physical and ideological market in these goods as well as reaping the maximum economic benefit.

Based on the types of items being made in the early fourth millennium and the metalworking evidence from this period, the production of metal craft items seems to have been oriented more towards the needs of the community rather than the production of metal craft items for profit. Hacınebi and Norşuntepe both had dedicated industrial areas where the metalworking detritus was concentrated, and if the slag and litharge found in the rooms and courtyards at Fatmalı-Kalecik is included with the data from these two sites, then it can be hypothesised that metalworking was a community activity, or at least an activity carried out by multiple members of a community, in the early fourth millennium. Özbal *et al*. (2000) estimates that at least five individuals would have been needed to work each of the four pit furnaces found at Hacınebi necessitating at least 20 individuals if all of the furnaces were being operated at the same time. It is entirely possible that the inhabitants of Hacınebi were like the inhabitants at Fatmalı-Kalecik (see Chapter 3) and limited their metallurgical activities until after the subsistence resources had been seen to so that there would be enough individuals able to participate in both tasks without one or the other suffering. While quantitatively impressive, the items that were being made by these early metalworkers do not seem to have required a high degree of skill or expertise to manufacture, which would further support the

theory that metal production in the early fourth millennium was a community endeavour carried out by workers who were not necessarily dedicated metalsmiths.

There is more evidence for metalworking taking place in the Upper Euphrates Valley sites in the mid-late fourth millennium as several sites in the Malatya sector show a more centralised control of the production and distribution of the finished objects. According to Mazzoni, the control of resources is one of the hallmarks of economic and social complexity as centralised control of these resources served to reinforce socio-political and economic authority:

> Growing administrative centralization and the development of the state were linked to the intensified production, consumption and distribution of craft goods, with major institutions at key locations for the accumulation, exchange and consumption of precious goods, frequently procured from distant sources. Consumption grew in-step with the increasing organizational complexity of the institution, with goods being consumed in the context of prestige activities and through their redistribution among the many channels of the administration, such as intra-institutional gifts and exchanges. Through the deployment of craft products in this way, these gifts became a major source of wealth and their control a source of power (Mazzoni 2003: 176).

The most evocative examples of this are the 21 weapons found in the public building at Arslantepe, the tripartite 'craft' building at Tepecik and the metal workshop at Tülintepe- all of which can be interpreted as evidence of greater control being exercised over the production and use of metal objects by either specific individuals or the socio-political authority at these sites. Further evidence for the control over the use of metal comes from Korucutepe where, with the exception of one copper bead found in a burnt house, the use of metal was limited to the mainly silver items found in the mud brick tombs (see Chapter 3). While the metal industry may not have been completely centralised at this point (see Hacınebi where metallurgical activities were carried out in both the Uruk and local areas of the site), the LC 4-5 use of metal indicates that elite individuals were making their status more pronounced both by the control of a large number of unique, symbolic items like the Arslantepe weapons and the deposition of multiple silver items in graves. As was mentioned above and in the previous chapters, this increasing centralisation and control of craft production seems to be linked to the Uruk presence in the Upper Euphrates Valley and the southern Mesopotamians consumption of exportable metal goods.

The types of items being made at this time are also different than the assemblage from the LC 2-3; from the currently available evidence there were far more personal ornaments than tools being produced and consumed in the LC 4-5 with weapons being the next most common item. It can be speculated that this apparent change in production patterns may be related to the demand from the Uruk population who had recently moved into the region; with the exception of the Jerablus Tahtani awl, all of the remaining items found at 'Uruk' sites in the Upper Euphrates Valley were personal ornaments. This suggests that the local settlements were orienting their metal production towards the needs of their target audience and would also explain why so few metal tools were found in LC 4-5 levels if these objects were being exported to southern Mesopotamia in more economically transportable finished forms rather than raw ore or ingots being exported. While such a claim is admittedly highly speculative without further material to corroborate it, this situation might also explain the greater centralisation that occurred at sites in the Upper Euphrates Valley at this time. The tighter control of the raw resources needed to manufacture finished metal items as well as a greater degree of control over which items were made all tie in with what would be expected if the metal industry was being more closely monitored by a bureaucratic or co-operative authority who were focused on capitalising on their trade relationship.

Contrary to World Systems theory, the Late Chalcolithic metal industry in the Upper Euphrates Valley was not controlled by a core population but rather by the inhabitants of the local settlements who were capitalising on the increased demand for exportable items. This scenario accounts for both the drop in metal tools and increase in personal ornaments in the LC 4-5 metal assemblage as well as the lack of metal items at the Uruk outposts if these items were being sent to Mesopotamia. However, what this model does not account for is the lack of metal items that have been found in contemporary contexts in southern Mesopotamia despite the fact that there should be a fair number of items if there were significant quantities of metal objects that were being imported from the Upper Euphrates Valley. The recycling of metal objects can account for some attrition in the number of artefacts, though this discrepancy bears further research.

The end of the Uruk Expansion meant the end of the lucrative trade in metal and other craft items with southern Mesopotamia. While the increased production of craft items and resultant centralisation may have served as a mechanism by which to bind communities together towards a common goal, the loss of this trade and subsequent re-structuring of local socio-political and economic systems stressed many of these relationships to the breaking point resulting in factionalism between populations and settlements. This individualising or factionalising of populations meant that identity and connectivity with groups needed to be expressed in more visible ways (Brumfiel 1992) which can perhaps be connected to the drastic change in the metal industry that can be seen in the transition from the Late Chalcolithic to the Early Bronze Age.

In the EB I-II, the scale of metal consumption had increased significantly over the previous millennium, and coincident with the increase in the number of settlements that had finished metal products was an increase in the number of sites where metalworking was being carried out. Despite these dual increases, there were fewer sites overall that had both finished objects and metalworking evidence that would suggest that the items were made on site rather than being imported. One explanation for this difference may be that the cost of finished items was more affordable in the EB I-II than in the previous centuries making it more economical to acquire finished items rather than the raw resources necessary to produce them. Another equally likely explanation for the reduced number of sites with both metal objects and evidence of metalworking is that off-site metal workshops at many of these sites were not found because of the short duration of excavation prior to many of these sites being flooded.

Tied into the discussion of how the scale and organisation of craft production changed over time in the Upper Euphrates Valley is the larger discussion (introduced in Chapter 5) of the socio-economic models that were being utilised at these settlements which could either facilitate or limit the degree of craft production and consumption of exotic goods or craft items in a society. Rothman (2004) cogently summarises the theory of dual evolution described by Blanton and colleagues (Blanton 1998; Blanton and Fargher 2008; Blanton *et al.* 1996) which elucidates the

differences between corporate and exclusionary models, but also maintains that a society is rarely wholly one or the other:

> … there are broadly two sets of goals and their concomitant strategies used by administrative organizations: corporate, on the one hand, and exclusionary or network, on the other hand. In corporate strategies the administrative organization is a necessary coordinating or regulating body that is nonetheless dedicated to the common good rather than taking advantage on behalf of its own socially and economically stratified members. An exclusionary or network strategy emphasizes the amassing of status, privilege, wealth and political power for a limited 'elite' group, in part by reaching beyond their political boundaries to establish economic relations of direct benefit to their in-group and in part by mobilizing the labor of their local population (Rothman 2004: 90-1).

The application of Blanton's (1998) theory of dual evolution and Rothman's (*ibid*.) discussion of corporate and exclusionary models to the use of metal in the Upper Euphrates Valley from the LC 2 through the EB II shows that different strategies were utilised over time by the Euphrateans. These strategies reflect the social and economic importance, if not value, placed on the metal objects being produced and consumed during this time and influenced which contexts (i.e. domestic, public, industrial or mortuary) metal objects were primarily utilised in.

When the use of metal in public, domestic and industrial contexts is collated with the evidence of metalworking and the use of metal in mortuary contexts (see Chapters 3 and 4), the data points more towards a scale of metal use in keeping with what would be expected in a corporate system despite a brief foray into centralisation at the end of the fourth millennium. This interpretation is based on several lines of evidence; one of which is the fact that of the approximately 60 published burials from the LC 2-5, only four of them are reported to have contained metal grave goods, a rare occurrence at a time when grave goods were typically composed of stone beads or the occasional ceramic vessel. A corporate system would also explain why the majority of metal objects found in fourth millennium burials were made of silver rather than copper as it may have been the case that the use of copper was limited to making tools and weapons and silver was used specifically to signal elite status or specific ideologies in death because it was not a 'practical' metal.

This brings to mind the much later Sumerian disputation text of the 'Dispute between Copper and Silver' where copper chastises silver for its relative uselessness in almost all contexts (emphasis added):

> Silver, only in the palace do you find a station, that's the place to which you are assigned. If there were no palace, you would have no station; gone would be your dwelling place… *In the [ordinary] home you are buried away in its darkest spots, its graves, its 'places of escape' [from this world]*. When irrigation time comes, you don't supply man with the stubble-loosening copper mattock; that's why nobody pays any attention to you! When planting time comes, you don't supply man with the plough-fashioning copper adze; that's why nobody pays any attention to you! When winter comes, you don't supply man with the firewood-cutting copper axe; that's why nobody pays any attention to you! When the harvest time comes, you don't supply man with the grain-cutting copper sickle; that's why nobody pays any attention to you! (Kramer 1963: 265)

If the tools and weapons from the fourth millennium domestic and public contexts were stored or held communally, such as was the case with the Arslantepe metal weapons cache, or held by kin groups for the use of multiple members of an extended family, this would also be part of the corporate system in which the common good was placed above the needs of any social-climbing individuals. By this reasoning, the visible distinctions in rank and wealth would not have been as visible in the day to day interactions in corporate systems where action was oriented towards the good of the community rather than the elevation of the individual. This is not an argument for a heterarchical social organization as envisioned by Porter (2002a, 2002b, 2010, 2012) and to some extent Cooper (2006a, 2007), but rather one in which Blanton's (1998) and Blanton and Fargher's (2008) equalising pressures kept any strongly hierarchical tendencies[168] at bay.

The presence of metal ornaments in domestic and public contexts in the fourth millennium would seem to counter the suggestion that these settlements were operating under a purely corporate system, though. Of the personal ornaments from the LC 2-3, the examples from Norşuntepe stand out because the metal artefacts from

[168] Such egotistical behaviour, as described by Blanton and Fargher (2008), was not limited to individuals in a position of authority in early societies as individuals or individual kin groups who worked to the benefit of their own interests rather than for the population in general also countered collective action (Feinman 1998, 2000; Flannery 1998; Frangipane 2010a; Haas 1982; Hopkins 1996; Kipp and Schortman 1989; Kohl 1981). Evidence of the breakdown in collective action may be represented by the difference in domestic architecture, differential accumulation of prestige objects and their disposal and the accumulation of surplus agricultural or pastoral products (Paynter 1989).

Arslantepe and Hacınebi were limited to several metal pins while the personal ornaments from the Norşuntepe public and domestic contexts included beads and spiral pendants, but no pins. In the LC 4-5, all but four of the twenty metal ornaments found in domestic or public contexts were pins, with the exceptions consisting of the quadruple spiral plaque, lead bead and copper-lead pendant from Arslantepe and a copper spiral bead from Korucutepe. While one argument would be that the use of personal ornaments is evidence of stratified societies in the Late Chalcolithic, it may be that these personal ornaments were family heirlooms passed down from one generation to the next or were symbols of office or a specific role within the society, both of which could potentially co-exist with the corporate use of metal rather than symbolising a more exclusive use of metal by elite members of a society alone, as does the high incidence of tools in the LC 2-3 and the weapons cache in the LC 4-5 if these items were held in trust by the administration.

These objects further stand out from the metal items found in mortuary contexts for several reasons; the metal items found in domestic and public contexts were made of copper or copper alloy (with the exception of a lead 'ball' and spiral pendant from Norşuntepe), were primarily objects that can be considered to have had a utilitarian purpose, and were accessible to multiple members of a kin group of community. As was noted in Chapter 5, the metal grave goods dating to the LC 2-5 were all made of silver (with the exception of one ring, one knife and one mace head), a metal that seems to have been reserved solely for use in mortuary contexts possibly because of its limited application for utilitarian items and the cost of acquiring this resource. In this interpretation, elite status represented by the use of metal items is limited to a very few individuals; the infant in the Hacınebi jar burial in the first half of the fourth millennium and the Arslantepe and Korucutepe individuals in the second half of the fourth millennium. In contrast, the data from the early third millennium strongly points to the beginnings of an early exclusionary model where the accumulation of wealth, status, power and a client labour pool went hand in hand with the consumption of craft items that had social and economic value.

Though the socio-political structure at many of these settlements has been upgraded from 'simple' to 'complex' chiefdoms (see Stein and Rothman 1994), there remains a stalwart bastion of theory exemplified by Porter (2002a, 2002b, 2010,

2012) and Cooper (2006a, 2006b, 2007) that bases the organisation of the third millennium Euphrates Valley societies on kin groups, as noted in Chapter 1. Porter (*ibid,* but especially 2012) also introduces ancestral groups to the equation and intimates that the bonds of family, both with the living and the dead members, were the overarching influence in almost all aspects of the lives of the Euphrates Valley inhabitants in the fourth and third millennia. While kin-groups were part of the larger social organisation at the Euphrates Valley sites, a society based on kin group organisation does not preclude stratification[169] from occurring, especially in the more individualising socio-economic system of the early third millennium. While not a constant, the increase in the number of vertically integrated societies in the Upper Euphrates Valley can be related here to the rise in economic potential signalled by the shift of some economic systems from staple finance to wealth finance (see Liverani 1996) and the associated increase in interregional interactions following the Uruk withdrawal.

Compared to staple finance which is based on the control of agro-pastoral surplus, wealth finance is a more diversified economic system where items perceived as prestige or elite were considered to be necessary to the increasingly complex social and political relations within a given society:

> The recognition of prestige goods is obviously highly subjective as we are dealing with a culturally specified dimension of an item's meaning, which may vary according to its context. Nevertheless, one would predict that prestige goods are likely to be artefacts which require rare materials, considerable technical skills or a high labour investment, or are only available from outside the local system e.g. foreign trade goods – all factors which are likely to have influenced a past group's own process of categorisation. With the emergence of a distinct hierarchy, it is obviously open to higher-ranked individuals to try and reinforce their power over dependents by manipulating the quantities or even by redefining the nature of the valuables acceptable in the discharge of social obligations (Haselgrove 1982: 81-2).

The control of surplus and the resultant increase in stratification necessitated a more complex system of coping with frequently changing social dynamics, and the use of

[169] Ur (2010) notes that the seeds of the kinship-class debate lie within the larger argument regarding the overarching character of these systems; the danger in modeling prehistoric socio-political entities lies in taking long-held ideas as fact, "In interpretations of the archaeological record, the kinship-class opposition has proven to be durable and is often explicitly or implicitly regarded as the basis for change in other variables" (Ur 2010: 389). As Ur suggests, it should not be taken as a given that there was a sharp dichotomy between kinship and class in prehistoric societies or that these two aspects of a society were incompatible.

craft items or exotic materials were one way in which social roles or affiliations could be relayed to a wider audience.

In both the staple and wealth finance models, the trade and redistribution of local and foreign items is influenced by the degree of socio-political and economic control exhibited by administrative systems, entrepreneurs or the elite, as was noted above, and Frangipane's (2000) revised version of Earle's (1977) four forms of redistribution can be used to describe possible variations (though this is a top-down influenced model):

1. *Share-out*: the distribution of goods produced in common by the community, generally without any gap between production and consumption, characteristic of hunter-gatherer societies.
2. *Egalitarian redistribution*: the reallocation of goods held centrally, which may be produced either collectively or by individual domestic units, but which are, at all events, collectively stored. Central storage is a distinctive element, linked to the time lag between production and consumption, and makes it necessary for the operations to be recorded and controlled, usually by people representing the community. Allocation can take place following different criteria (the produce of each single household can be kept separately or pooled), but the producers and the consumers are the same. This form is specific to egalitarian agricultural societies.
3. *Hierarchical redistribution*: control over the circulation of goods by a centralized leadership that gathers those goods (as offerings, taxes, tribute) and redistributes goods and services. The financing of the leaders is limited mainly to providing for their needs and supporting their public functions (political and religious). The producers and the consumers are not one and the same, but those who pay and receive other goods or services in exchange. This model is specific to ranked societies, or those whose leadership is a socially stable elite.
4. *Centralization*: the form that Earle called mobilization, in which goods and labor are centralized and redistribution is, in reality, reinvested to finance the activities of the elites. There is no longer an identity between producers and consumers or reciprocity in giving and receiving. This form is typical of stratified and early state societies (Frangipane 2000: 220-21).

Following Frangipane's descriptions above, egalitarian redistribution and centralisation were utilised in the Late Chalcolithic, while a more hierarchical redistribution system was in place by the Early Bronze Age in the Upper Euphrates Valley. Factional competition allowed more hierarchical social displays as some individuals or groups were able to accrue and control more resources and labour than others. The dramatic upsurge in the use of metal craft items for both economic and

social purposes in the first two phases of the Early Bronze Age signalled the marked importance of the trade and consumption of prestige items in the socio-political and economic interactions of the Upper Euphrates Valley when compared to the Late Chalcolithic. This is most evident with the public display and conspicuous consumption of metal items in the many EB I-II burials, a trend that focused attention on the individual or their social affiliation.

The use of metal in mortuary contexts at this time can also be related to the larger trend of visible and mobile displays of ideology and identity that are connected to the establishment of socio-political legitimacy (Cannon 1989). As Johnson and Earle (2000) and Kurtz and Showman (1981) have noted, establishing legitimacy[170] is a major concern for those attempting to rise within socio-political systems and was often accomplished with the aid of ancestors, kin groups, the consumption of prestige goods (Brumfiel and Earle's (1987) 'politically charged commodities') and social manoeuvring on a scale greater than their social, political and economic competition.

Those who influenced the production and redistribution of politically charged commodities therefore had a degree of control over the initial ideology that was being presented to the general public through these objects, confirming the strong connection between those who control the raw resources, labour and finished craft products and the maintenance of socio-political ideology[171]. This ties in with the increased presence of metal items in mortuary contexts during the EB I-II as the greater availability of craft items, control over the labour of others and individual entrepreneurship allowed for greater commoditisation of resources and the establishment of new social groups outwith immediate family or kin relations. These new relationships and affiliations were then expressed by the use and disposal of craft items, including metal, by both the living and the dead.

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[170] Kus further describes the situation, "However, if we understand society as Marx did, as consisting of individuals engaged in creative social practice, then a question of legitimacy becomes a critical issue, particularly in the case of 'complex' societies, with regard to an understanding of a given society's capacity for self-creation and change" (Kus 1984: 105).

[171] According to Hayden, "The purpose of creating prestige artifacts is not to perform a practical task, but to display wealth, success, and power. The purpose is to solve a social problem or accomplish a social task such as attracting productive mates, labor, and allies or bonding members of social groups together via displays of success…I suggest that the main goal of prestige technologies is to employ as much surplus labor as possible to create objects that will appeal to others and attract people to the possessor of those objects due to admiration for his or her economic, aesthetic, technical or other skills" (Hayden 1998: 11).

While the number of metal objects in the Upper Euphrates Valley increased over time, the types of objects being made did not change so dramatically. Instead, there is a widespread similarity of styles of metal items between sites in the Upper Euphrates Valley as well as throughout much of Upper Mesopotamia (see Philip 1989; Squadrone 2000b; Watkins 1983a, 1983b), with the main interregional difference being in the scale of metal production and use by the general population rather than the types of objects being produced and consumed (see Chapter 5). This transmission of styles over a large geographical area can be attributed to long-distance trade networks and the movement of diverse population groups throughout the region. Interregional interaction can also be related to the introduction of new ores and technologies as well as a greater audience of consumers and producers that kept the trade in raw and finished metal resources alive and thriving in the transition from the Late Chalcolithic to the Early Bronze Age despite the disruption of the Late Chalcolithic trade networks at the end of the fourth millennium.

A proposed shift to a wealth finance system at many of the Euphrates Valley settlements at the beginning of the Early Bronze Age would have allowed the accumulation of not only surplus agricultural products and immediate kin-group labour, but also the accumulation of exotic materials and the ability to influence local trade and the economy by individuals and individual families rather than by larger kin groups and corporate oriented socio-political power structures. According to Algaze, however, the relative wealth that is seen in the Upper Euphrates Valley is purely because of the region's role as a trade goods intermediary from the Late Chalcolithic into the Early Bronze Age:

> …the Early EBA villages of the Samsat-Lidar and Zeugma-Carchemish portions of the Turkish Euphrates were far from isolated. Both areas continued to import a substantial amount of copper from sources in the Ergani-Maden region…The substantial amount of wealth discovered in these [Hassek and Gaziantep] cemeteries in the form of jewellery, copper artifacts, and weapons suggests that Early EBA societies in the Turkish Euphrates were acting as intermediaries in trade between Syro-Mesopotamian polities elsewhere and Early Transcaucasian polities in the resource-rich Anatolian Highlands (Algaze 1999: 546).

While it is undeniable that many of the Euphrates Valley sites were well situated to exploit the trade routes, Algaze's (*ibid*.) argument that these sites were only intermediaries to this interregional exchange is untenable based on the profusion of

metal and other craft goods in the Euphrates Valley compared to contemporaneous sites in Mesopotamia.

The change in socio-economic systems combined with interregional population movement through trade and settlement displacement in the transition from the Late Chalcolithic to the Early Bronze Age would have provided an atmosphere in which new groups based on social, political, economic and familial relationships could be established independent of any prior affiliations that existed. Therefore, it is not inconceivable that these groups needed to create overt symbols of identity that could be understood by a diverse audience on a highly visual level, and the use of metal objects, especially in mortuary contexts, seems to have been one mechanism by which group affiliation, social status or ideology could be displayed. The upsurge in the amount of metal objects being consumed from the Late Chalcolithic to the Early Bronze Age and the greater accessibility of this craft item to multiple groups within a given settlement and the Euphrates Valley as a whole can be related to the changing nature of public displays and the need to express these concepts in a highly visible way during a period of transition that involved not only changing socio-political and economic systems, but also a high degree of population and cultural mixing.

Based on the comparison of data presented in Chapter 5, the widespread use of metal in this way seems to be centred around the sites south of the Keban Dam in the Upper Euphrates Valley as part of the 'Euphratean identity' where portable displays in the form of metal objects were used to signal multiple meanings including wealth, status and identity within a particular settlement or population group. Small personal ornaments such as pins or rings were the most cost effective way in which to take part in these social displays as these items were not only easily transported but also took smaller amounts of metal to manufacture. This can be contrasted to the use of larger items such as flat axes, spearheads, swords and mace heads which would have required more metal to manufacture and therefore would have been more expensive to produce and then conspicuously dispose of while still in good working order.

Attempts to estimate the relative cost and the cumulative economic and social value for each type of item is problematic for several factors, not least of which is

that the social value assigned to these items was liable to change (Derevenski and Sørensen 2002). Additionally, current value systems are not likely to match up with the average Early Bronze Age Euphratean and are therefore influenced by the perceptions of the archaeologists excavating or analysing them. However, if it was the amount of metal being consumed that was important rather than the objects themselves, then it could explain why some of the richest graves have fewer, but more 'expensive' metal objects, as is the case at Hassek Höyük and Carchemish in their richest tombs. Another strategy that was employed was the use of an inordinately large number of small personal objects or tools, such was the case with the 'princess' of Qara Quzaq who had 25 pins and 5 spearheads buried with her as well as Burial 5 at Hacinebi which also featured a large number of pins (one of which was quite large) in addition to a coil of silver wire.

A large quantity of pins, the use of larger than normal sized pins and the inclusion of more decorative pins in burials all suggest that the emphasis was on showmanship that focused on the quantity of materials used rather than these items being used solely with the intent to secure burial shrouds. Another explanation for the presence of so many pins in the EB I-II burials may relate to the use of these pins in association with securing textiles that were part of the grave good repertoire. In the rare cases when silver, lead or gold was used, these items were almost exclusively small ornaments- mainly earrings or hair rings- which likely relates to their higher materials cost. The simplicity of these items would also suggest that again the focus may have been on the amount of precious metal being used rather than the specific items themselves.

Related to the discussion of the increased use of pins in mortuary contexts in the EB I-II, especially in the Carchemish sector, is that this trend coincides with an increase in household textile production in the Euphrates Valley (Cooper 2006a) and a proposed increase in the use of imported, high status textiles from southern Mesopotamia (Crawford 1973). The best evidence for the use of imported textiles comes from later in the third millennium at Ebla (Archi 1992, 1996; Milano 1995) where the archives mention gifts of both metals and imported textiles alongside of semi-precious stones and other items between local rulers, while tablets from southern Mesopotamian sites also record quantities of laborers, sheep and other

aspects of textile production (Postgate 1992). Further evidence for local textile production comes from the quantity of spindle whorls and loom weights that have been found at many of the Euphrates Valley sites and the increase in ovicaprid remains in the faunal data (see Danti 2000; Frangipane and Siracusano 1998; McCorriston 1997; Zeder 1998, 2003).

As was mentioned in Chapter 5, the use of a large number of pins in graves may not have been to secure a burial shroud, but rather the extra pins (especially those not found on the skeleton) may have been used to secure textiles that were also included with the grave good assemblage. Whether these were imported or local textiles is impossible to deduce given that textiles are rarely preserved in this region; however, the use of metal pins to secure them may have given these textiles added value as grave goods.

In terms of using more 'expensive' metal items as grave goods, it is quite likely that metal weapons were not normally carried around, but rather they were reserved for special occasions as these items were too economically or socially valuable to risk anything happening to them. While the old association of weapons equalling warriors could be used to explain the inclusion of weapons in burials as could an increase in regional conflict or a warrior-based ideology, the inclusion of utilitarian tools in burials is slightly harder to understand. Therefore it is plausible that just as the inclusion of tools in graves is not indicative of the deceased's role in life, the value attached to weapons was not limited to what archaeologists perceive as their ability to confer 'warrior' status upon the individual. The inclusion of metal weapons and tools in burials can then be viewed as a more exotic variety of metal grave good and one method of consuming a large quantity of metal in public social displays.

Further evidence to support this theory of quantity over quality comes from the incised metal objects that were found at the Birecik Dam cemetery (see Chapters 4 and 5). The proto-cuneiform signs incised into these flat axes and spearheads may represent their economic value at the time as several of the signs are quantities and others refer to commodities like beer, barley and cloth (Squadrone personal communication). If this was the case, then these axes can be interpreted as items with stored value rather than as simply utilitarian tools that had their price tags left on

them. Later textual evidence from Ebla can be related to this conclusion of quantity over quality based on the almost obsessive recording of metal weights and the listing of what weights and quantities of metal objects were received and given as gifts and what proportions of copper to tin were to be used when making bronze (Archi 1987, 1992, 1993, 1996; Matthiae 2003; Mazzoni 2003; Michalowski 1985 Palmieri and Hauptmann 2000; Pettinato 1981).

As social currency, then, the widespread use of metal items in graves signalled that the manipulation and control of surplus resources was being carried out on multiple levels and not just at the highest elite tier in the Carchemish and Samsat regions. With the exception of Arslantepe, the sites north of the Keban Dam seem to have been operating under a corporate, primarily staple finance socio-economic system in which metal played a more minor role in social, political and economic displays as the control of surplus subsistence resources was the base of the political economy. This introduces the discussion of the differing social uses of metal between the inhabitants of the Malatya sector and those who inhabited the Carchemish and Samsat-Lidar sectors in the EB I-II. As was noted in Chapter 5 and above, the differences are attributed here to the use of different socio-economic systems, though other theories attribute regional differences in the Upper Euphrates Valley to differential degrees of external influence from population groups originating in eastern Anatolia and the southern Caucasus and other regions of the Near East. Using the comparative site information from the previous chapter, the role of external influence on local development will be discussed in greater detail below.

6.2 External Influence and/or Local Development?

Until the beginning of the Early Bronze Age, the use of metal throughout the Upper Euphrates Valley shows a great deal of consistency in the technology being used, the types of items being made and the contexts in which metal was being used in. It is not until the transition following the Uruk withdrawal at the end of the Late Chalcolithic that strong differences in how metal was being used begin to appear in the archaeological record; in the Late Chalcolithic the main difference seems to be in

the quantity of metal being consumed between the local and Uruk sites[172]. In the Early Bronze I-II the main differences were between sites that had placed greater economic importance on craft items and those that were still oriented in a staple finance model. While this is one factor that influenced how metal was perceived and used by the Euphrateans, external contact should also be mentioned as a possible motivator for this change.

Going back to the Late Chalcolithic 2-3, metal use in the Upper Euphrates Valley at this time can be considered to be a fairly local affair in which the metal items that were needed were produced and consumed locally with any excess items potentially used as trade commodities with other small regional centres in other parts of Upper Mesopotamia, such as Tepe Gawra in northern Iraq, that were some distance from the raw ore sources. In this model, the ore was acquired and processed through community effort and the finished products put to use primarily for utilitarian purposes and were then kept as part of a toolkit that was accessible to the larger kin group or community. The presence of personal ornaments at this time negates there being a truly heterarchical social organisation of the population, though for the most part these simple items were fairly small and are more notable for their materials cost which leads to their interpretation as symbols of a burgeoning stratified society. It is also possible that these small personal ornaments may also have been used as talismans, portable trade items or indicators of a specific role within the greater social organisation (*i.e.* religious figure, arbitrator, trader, etc.). While not heterarchical, the social use of metal in the early part of the Late Chalcolithic seems to be oriented more on a community, if not a communal, basis in which practical items consisting of tools and other utilitarian items made of copper or copper alloys were the focus of metal production, consumption and use rather than prestige items made of more exotic metals.

A comparison with Tepe Gawra shows that the LC 2-4 use of metal at this site in domestic, industrial and public contexts was primarily oriented towards utilitarian tools (especially in Gawra VIII) with personal ornaments making up the

[172] This may be an artificial lack of metal at the Uruk sites if the colonists were keeping little or no metal items for their own use. However, given the assumed quantity of metal exported to southern Mesopotamia, there does not seem to be enough metal represented in the contemporaneous archaeological levels at southern sites bringing into question Algaze's (1989b, 1993b, 1999) theory.

next most frequent type of metal artefact found in these contexts. When the use of metal in mortuary contexts dating to Gawra XI/XA is compared to the use of metal in pre-contact sites in the Upper Euphrates Valley, there is a similarity in the degree of metal use; 4.67% of the LC 2 graves at Tepe Gawra contained metal objects compared to the 5% of the graves from the LC 2-3 in the Upper Euphrates Valley. In the following period X, 12.5% of the Gawra burials had metal objects, which increases to 13.9% in the LC 3-4 period. This can be compared to the mortuary evidence from the entire Upper Euphrates Valley in the LC 4-5 where 10.5% of the burials had metal objects.

The broad similarities between the use of metal at Gawra and the Upper Euphrates Valley sites can be considered in light of the extensive interregional connections that existed at this point in time; Rothman (2002a: 11) notes that there were greater stylistic similarities between the small regional centres from southeastern Anatolia, the piedmont sites in Iraq and northern Syria than between the large urban centres and these smaller centres. Presumably these small centres were well connected because of the trade networks that criss-crossed the region, and the movement of information, people and commodities along these routes would then explain the similarities in burial practices and material culture between distant geographical areas. Rather than suggesting that foreign influence was responsible for metal being used in the Upper Euphrates Valley in the earliest phases of the Late Chalcolithic, these long-ranging similarities in the degree of metal usage in mortuary and domestic, industrial and public contexts imply that this was a widespread 'local' tradition and can be used as a basis on which to compare later changes following the introduction of new ores, technologies, trade routes and populations.

The use of metal in the LC 4-5 was still oriented on a predominantly corporate scale rather than an exclusionary one (see discussion above), though there are hints from several sites that metal production and use were being monitored more closely by the socio-political authority of these sites, despite there being more sites with metalworking evidence and twice as many sites as before with finished items. This greater availability is related to the influx of southern Mesopotamians into the region whose presence is very generally associated with the acquisition of trade resources (Algaze 1993b, 2001b; Oates 1993) in addition to other factors such as

food shortages caused by population expansion (Lamberg-Karlovsky 1989), the avoidance of political oppression (Johnson 1988-1989), the trade and transmission of technological developments (Collins 2000), good old-fashioned manifest destiny (Adams 1981) and the establishment of trade colonies similar to those of the Greek colonisation of Italy and other regions in the Mediterranean in the eighth to sixth centuries BC (Zagarell 1989).

Rather than there being numerous metal objects or evidence of metallurgical activities at the Upper Euphrates Valley sites described as outposts or colonies (with the exception of Hacınebi) as would be expected if the southern Mesopotamians were only in the region to exploit its resources, these sites are actually quite far behind the local sites in terms of on-site metal production and consumption. Between the five sites south of the Taurus range- the region argued to have had the greatest degree of Uruk impact- only five objects came from confirmed Uruk sites while the remaining seven metal items found in this part of the Euphrates Valley came from mixed population sites. This is still a comparatively little amount as the sites located north of the Taurus had 36 items between three sites. Özbal (1997) attributes this difference in metal use to cultural factors, including the general ignorance of metallurgical technology by the Uruk settlers at these sites and the fact that these settlers tended to use technology that they were familiar with rather than adapting new tools. The few metal artefacts that were found at the Uruk sites in the Upper Euphrates Valley were all from domestic contexts and were likely obtained as finished objects from the local metal smiths in a reciprocal trade in finished or exotic items. Presumably these represent just a small proportion of the total number of objects that were being exported to southern Mesopotamia if Algaze (1989b, 1993a, 1993b, 1999, 2001a) is correct in describing the outposts and colonies as trade intermediaries or facilitators. Collins describes this exchange further and writes that:

> The ultimate purpose and destination of these objects is unclear, though larger institutions was certainly one, for example, some of the larger cylinder seals used by high ranking administrators sometimes have knobs dowelled into the top which are in the shape of animals[173] cast in copper and provide some of the earliest evidence for the use of the lost-wax technique of metal casting (Collins 2000: 23).

[173] This is reminiscent of the seals found in the early third millennium at both the Birecik Dam Cemetery and at Hassek Höyük (See Appendix II).

While Collins (*ibid.*) is correct in noting that the consumption of metal by the Uruk population in the Upper Euphrates Valley was focused on the finished rather than the raw products, he goes on to attribute the expansion of the metal industry in Upper Mesopotamia to the presence of the Uruk population and ignores the fact that metal was being used at many of these sites long before the appearance of the southern Mesopotamians and at levels far above those of the Uruk outposts and colonies.

A look at the metal objects found at both local and Uruk sites in the Upper Euphrates Valley shows that conical and loop-headed pins were still quite popular, though new types of pins are present including zoomorphic and double spiral-headed pins in addition to swords, spearheads and the many silver objects from Korucutepe, including the diadem and solid silver stamp seal (see Appendix I). Based purely on the typological similarities of the published artefacts, it would seem that the new forms of metal objects in the Upper Euphrates Valley sites in the second half of the fourth millennium can be more closely associated with the Transcaucasian region and Upper Mesopotamia than with southern Mesopotamia.

While there is a recognisable external influence on the metal industry of the second half of the fourth millennium in the Upper Euphrates Valley, the scale of production, types of metal being used and the contexts in which these items were found still points to a predominantly corporate use of metal, albeit produced in more centralised frameworks- at least at the local sites. The limited metal evidence from Habuba Kabira would seem to suggest that dedicated argentiferous lead ore processing was being carried out on site, presumably then to be sent south. However, the greater quantity and types of copper objects found during excavation intimate that at least some of the finished copper objects stayed at Habuba Kabira rather than being transported to southern Mesopotamia.

Just as specific pin types were taken as indicators of Uruk influence on the local metal industry of the fourth millennium (Stein 2001: 294 Tables 8.1 and 8.2), double and quadruple spiral-headed pins and the Arslantepe weapons are interpreted as evidence of the greater degree of impact that the Transcaucasians had on the local Euphrates Valley settlements in the LC 4-5 through EB I-II (Frangipane 2002; Frangipane *et al*. 2001; Palumbi 2008b). The association of the local settlements with the southern Caucasus and eastern Anatolia is particularly stressed at the end of the

fourth millennium and beginning of the third millennium, especially at the sites located north of the Taurus, mainly because of what is perceived as a limited interaction with the Uruk inhabitants at these sites[174]. Lupton (1996) describes the influx of the Transcaucasians into the area north of the Taurus as a catalyst for the socio-political and settlement pattern shifts that occurred in the EB I, and Marro (2005) also bases the disruption of exchange networks and the widespread fortification of many Euphrates Valley EB I-II sites on the westward movement of these population groups[175].

A comparison of all of the metal evidence from the early third millennium shows that there are several clear differences in how metal was utilised between sectors, with nearly all of these differences commonly attributed to cultural-geographical divisions associated with the Taurus range (Burney 1993; Frangipane 2002; Palumbi 2008b). Sagona (1994) explains that this region has such a mixture of styles and populations because it is:

> Accessible through a number of major routes, the fertile and resource rich Euphrates basin attracted Trans-Caucasians, Syro-Mesopotamians and, to a lesser extent, central Anatolians. The degree and nature of Syro-Mesopotamian contact allow the region to be divided into two cultural zones. One encompasses the Malatya-Elaziğ region, north of the Anti-Taurus ranges, and falls within the expansive culture province of East Anatolia and Trans-Caucasia. The other incorporates the Euphrates region south of the Anti-Taurus (Sagona 1994: 15).

This division is based on the two regions reacting differently to the socio-political and economic crises of the early third millennium, to the extent that two disparate cultural regions were created. One obvious cause for such a crisis is the Uruk withdrawal at the end of the fourth millennium, discussed at length by Algaze (1989b, 1993b, 1999, 2001a), which would have disrupted the fourth millennium trade routes. However, differences in ecological settings, subsistence strategies, socio-political and economic systems as well as the basic idea of personal preference

[174] Though the tripartite building at Tepecik could be related to southern Mesopotamian or Godin Tepe examples of tripartite structures (Young 1969; Young and Levine 1974).
[175] According to Marro, "The general picture is that the Kura-Araxes culture as it slowly developed, progressively encroached on areas so far mostly exploited by Syro-Mesopotamian communities, and eventually kept the latter out of the highlands altogether, all the way from the Caucasus down to the Oriental Taurus and possibly the Northern Zagros" (Marro 2005: 32).

could also be causes for such divisions in the use of metal between sites north and south of the Taurus range.

One aspect that has been stressed in the interpretations of the cemetery sites mentioned in Chapter 5 is that the Transcaucasians did not measure social status through the conspicuous consumption of metal grave goods (Kiguradze and Sagona 2003; Kohl 2003, 2007; Palumbi 2008b; Sagona 2004a, 2004b). This assumption of a lack of clear status differentiation is based upon the distribution patterns of grave goods and collective burial practices, which led Kohl (2003, 2007) and Palumbi (2007-2008, 2008b) to conclude that there was a greater emphasis on horizontal rather than vertical social stratification in Transcaucasian society. This conclusion is thus far supported by the nearly standardised layout and size of Transcaucasian domestic structures and the near homogeneity of artefacts recovered from these structures.

The extent of Transcaucasian influence on the settlement in the Upper Euphrates Valley also raises an important related issue; that of whether the populations living in the sites north of the Keban Dam in the EB I-II should be so generically labelled as Transcaucasian purely because of the limited use of metal items and evidence of metalworking, lack of rich burials and the ceramics at these sites. As a cultural descriptive term, it masks the agency of individual communities in favour of labelling them based on the material culture that they chose to adopt and utilise, even if these items bear no relation to the actual social affiliation of these populations. A bottom-up approach would allow for more nuanced narratives of a discrete population instead of lumping them in with the macro scale population and thereby with a set of cultural indicators that might not have been their own- including specific contextual uses of metal.

The comparative data presented in Chapter 5 also demonstrates that there were links between the Upper Euphrates Valley sites with other sites in Upper Mesopotamia. In the Late Chalcolithic the connection with Upper Mesopotamia was through the upper reaches of the Balikh and Tigris routes into northern Iraq, though in the Early Bronze Age the Carchemish and Samsat-Lidar sectors seem to have been more closely connected with the Middle Euphrates Valley sites rather than with the more eastern parts of Upper Mesopotamia. At the same time, there appears to be a

greater divide between the Carchemish and Samsat-Lidar sector sites and the sites north of the Keban Dam which were looking eastward for trade and communication networks. The metal evidence from Tell Brak that was outlined in the previous chapter supports the conclusion that the scale of metal use seen at the Upper Euphrates Valley sites is not mirrored in the eastern Jezireh sites of Upper Mesopotamia at this time.

One possible reason for this regional difference is that the majority of Ninevite V sites are thought to have been structured on staple finance models (Fortin and Schwartz 2003; Hole 1999; Schwartz 2003; Schwartz and Curvers 1990, 1992; Schwartz and Falconer 1994; Stein and Wattenmaker 2003), where the use of metal at Ninevite V sites was reserved for special occasions, objects, or individuals, which would necessitate this valuable commodity being kept either in public storage or in protected storage such as the temple precincts at Tell Brak. A socio-economic system based on staple rather than wealth finance would explain why metal was not typically used in Ninevite V mortuary displays as this material would have been limited only to the most elite individuals. Instead, Ninevite V burials tended to be simple pit inhumations whose most ostentatious grave goods consisted of cylinder seals made of stone that were worn or placed at the wrist of the deceased (Bolt and Green 2003).

In southern Mesopotamia the use of metal was also quite limited at this time due to the limitations imposed by a strong central authority who sought to limit the use of metal by the populace so that this resource maintained its elite or prestige quality. Unlike the staple based finance system that is thought to have been in place in the Ninevite V zone, in southern Mesopotamia it was a centralised wealth finance socio-economic system that allowed the enactment of social displays such as those seen at the Ur cemetery. That there were only 66 of 336 total burials (19%) with metal grave goods (Woolley 1955) implies that the metal that was in circulation at the beginning of the third millennium in southern Mesopotamia was tightly controlled by a social, political or economic organisation that had the authority to centralise the production and use of certain craft goods (Pollock 1991; Postgate 1992; A. Smith 2003, 2007; M.E. Smith 2004).

The use of metal in the Ur graves is different from the use of metal in the Upper Euphrates Valley graves as the Ur metal items were predominantly lead

vessels, and few tools or ornaments were represented in the repertoire (see Appendix III). This would suggest a greater focus on specific large metal items that were used as part of a scripted mortuary ritual or ideology rather than on the quantity of metal items being consumed, as was the case in the Upper Euphrates Valley. While a wealth finance socio-economic system was also being used at many sites in the Upper Euphrates Valley, the metal industry was not centralised to the degree of southern Mesopotamia. This lack of true centralisation allowed multiple members of a population to consume large amounts of metal, as can be seen in the Birecik Dam cemetery which had roughly the same number of burials as the Ur cemetery but with half of the burials containing metal grave goods compared to the 19% from Ur.

Based on the drastic change in the social use of metal from the Late Chalcolithic to the Early Bronze Age, there was some thing, cultural event or innovation that triggered the mass consumption of metal objects in the Upper Euphrates Valley at this time, particularly in mortuary contexts. This trend towards the metallurgically ostentatious by approximately half of the represented mortuary population in the EB I-II is completely different to the social use of metal in the surrounding spatio-temporal cultural regions that are thought to have been the prime contributors to the development of the Upper Euphrates Valley material culture and social organisation. Recent explanations for this massive increase in metal consumption in the Upper Euphrates Valley in the EB I-II focus on the role of external influence from both the Uruk and generic Transcaucasian populations, with the most popular theory in the current literature being that the change in metal consumption during the transition from the Late Chalcolithic to the Early Bronze Age can be directly attributed to the adaptation of new mortuary behaviours that reflect the Transcaucasian cultural influence on the Upper Euphrates Valley (Palumbi 2007-2008, 2008b, 2011). While it is evident from the third millennium contextual information that a shift in mortuary behaviour was responsible for the increased incidence of metal in the beginning phases of the Early Bronze Age, it is a bit presumptive to declare that the Early Transcaucasians were solely responsible for the overall increase in metal consumption in the Upper Euphrates Valley in the EB I-II based on the long history of metal use in the region and the different patterns of

metal use between the different regions studied here in the Early Bronze Age (see Figure 85 below).

Region	Pins	Pendants & 'Seals'	Necklaces Rings Bracelets & Diadems	Chisels & Awls	Flat Axes	Knives, Daggers & Swords	Mace Heads	Spear-heads	Vessels	Misc
Carchemish Sector (7 sites)	≥360	13	≥24	≥18	≥15	≥12	≥9	≥47		≥31
Samsat-Lidar Sector (4 sites)	≥43	≥2	≥1	≥7	≥5	≥6	≥2	≥2		≥4
Malatya Sector (8 sites)	≥40	≥3	≥43	≥20	≥4	≥12		≥12	2	≥6
Ninevite V (2 Sites)	3					1				6
Transcaucasia Region (5 Sites)	3	18	≥61	2		1		2		2
Ur Cemetery	8		4						67	9

Figure 85 Summary of total excavated EB I-II metal evidence from both mortuary and non-mortuary contexts

As the figure above demonstrates, there is a much greater variability in the types of metal objects that were being used and consumed in the Upper Euphrates Valley when compared to the other regions considered here. While this is not an exhaustive list of comparative sites, it serves to highlight that different regions of the Near East perceived metal objects differently based upon their prevailing system of values. Wengrow (2011) divides the use of metal into two broad categories (archival and sacrificial) based upon the context and degree of use. In the sacrificial use of metal:

> …we should expect to see clear evidence for the regular and deliberate burial of finished metalwork in copious and impressive quantities, possibly – but not necessarily – in association with human remains and the construction of visible monuments above ground (Wengrow 2011: 137).

While in archival systems:

> … we should expect to see a much smaller proportion of metalwork preserved in those parts of the archaeological record where they were dominant, relative to the amounts that were actually in use (Wengrow 2011: 137).

Where metal was used in archival systems there should be evidence of standardised ingots, fixed weights, a plethora of administrative objects and technology as metal

needed to be continuously circulated and converted into different quantities of value in order for it to remain an archival system of value.

In the same volume in which Wengrow discussed his systems of value, Bachhuber (2011) also divided metal use into two distinct systems, though he (2011: 169-71) described them as 'sacrificial' and 'liquid'. Bachhuber's liquid value is associated with foreign commercial ventures while objects are given sacrificial value when they are adopted by the local population and used in contexts of legitimation and others where quantities of individually produced items are deliberately taken out of economic circulation:

> The ideological value of metal was necessarily reduced or threatened in its negotiation. The indigenous value of metal could be restored through its extravagant sacrifice in highly choreographed, cosmologically salient ceremonies in north-central Anatolia that incorporated the ancestral dead (Bachhuber 2011: 171).

Both Bachhuber's (*ibid.*) and Wengrow's (2011) description of metal objects disposed of in mortuary contexts can be applied to the Upper Euphrates Valley in the EB I-II, though this can be further narrowed down to those sites in the valley that were south of the Keban Dam based on the currently available evidence.

But how, or from where, did this system of metal-related value arise? Philip (1989) noted that the Syrian metal industry in the third millennium had direct ties to the earlier, local late fourth millennium metal industry from Byblos, Arslantepe and the 'Amuq, with the proximity of the Euphrates Valley settlements to the ore sources in Anatolia further spurring on the development of the indigenous metal industry. This trend can be extended further up the Euphrates River to the Samsat-Lidar and Malatya sectors in the Late Chalcolithic and together with the excavated material reinforces the conclusion that the development of the metal industry in the Upper Euphrates Valley was well in hand prior to the arrival of the southern Mesopotamian population and possibly the Transcaucasians as well. Therefore, rather than the influence of foreign cultures shouldering all of the responsibility for inciting all of the changes to the social use of metal in the Upper Euphrates Valley in the early third millennium, more localised causes including the fissioning of socio-political and economic systems were likely the most significant factors in the changing social use of metal from the Late Chalcolithic to the Early Bronze Age.

The use of metal in the Upper Euphrates Valley in the EB I-II can be broadly related to Wengrow's (2011) and Bachhuber's (2011) 'sacrificial' system of values as the presence of a large quantity of metal in a number of cemeteries and scattered graves in the area supports their description of such a system. However, the use of administrative objects and technology in the region both before and after implies that the Upper Euphrates Valley was more in keeping with Wengrow's (2011) 'intermediate zone' that stretches between archival zones of urbanised areas and the sacrificial zones further away from the urban centres of the Near East. While there was a degree of southern Mesopotamian influence on the Upper Euphrates Valley because of the long-term interregional interaction, the intensive use of metal in 'sacrificial' (that is to say mortuary) contexts in the Upper Euphrates Valley can ultimately be viewed as an expression of the local value placed upon metal and what contexts were perceived as appropriate for its use and disposal.

6.3 A Discussion of the Social Use of Metal

Childe (1951) linked the emergence of bronze with a great leap forward in civilisation while Renfrew (1972, 1986) suggests that weapons and militarism were the driving force behind the innovation and development of the metal industry and hastened its spread throughout the Near East; ultimately an instance of social changes driving product invention and innovation[176]. In a similar argument to Renfrew's (1986), Kavtaradze (1999) writes that:

> Among all types of artefacts, metal objects in general and tools and weapons in particular, are subjected most of all to innovations – the development of society is considerably connected with their functional abilities. Therefore metallurgical data of the ancient societies – of one and the same geographical zone – have, in contrast to the data of other archaeological sources, such as pottery, architecture, burial habits and others, which are more apt to indicate the genetical relations, a special importance in the establishment of a relative chronology (Kavtaradze 1999: 67).

[176] Renfrew states, "It is my argument, then, that the decisive innovation in the development of a new commodity is generally social rather than technical. Often the technology is already there" (Renfrew 1986: 146).

This sentiment is echoed by Muhly and Stech (2003) who emphasise the importance of metal objects in social development- especially objects whose value is based upon multiple social and economic factors.

While metal objects undoubtedly had social meaning that was liable to change, using the interpretations of these objects as symbols of power and prestige to define past ideologies is fraught with problems, not least is that these are top-down views of political economies which emphasise the upper echelons of society rather than society as a whole. Because of the impact of active agents, the changing role of metal from the Late Chalcolithic to the Early Bronze Age should be considered outside of the popular top-down models that focus on the consumption patterns of the elite and the manufacture of prestige rather than utilitarian goods.

In a bottom-up approach, the metal items found in the Upper Euphrates Valley were made by non-elite craft workers out of locally or readily available materials within corporate, staple finance socio-economic structures in the Late Chalcolithic, and it was not until the later half of the Early Bronze Age that metal was used in truly top-down models as mentioned above and in Chapter 5. This is in keeping with Palmieri (1985a) who also describes[177] the use of metal in the Late Chalcolithic as a craft industry that has its roots from the bottom-up rather than it being a craft industry that was strongly controlled by political or religious institutions as can be seen in the comparative Ninevite V and southern Mesopotamian data.

Increased social display and changing social roles within the larger population was one potential outcome from bottom-up production models because multiple members of a population had access to resources and the ability to acquire craft items produced in local workshops; this is especially visible in the early third millennium where the increased competition between populations and communities necessitated more and varied social displays. Archaeologically, this can be seen in the EB I-II burials where roughly half of the graves in the dataset had at least one metal item and very few individuals had more than three items or could be described as being truly elite based on the quantity or types of metal grave goods. This is a break from the Late Chalcolithic mortuary use of metal which emphasised the

[177] "The general picture of the Local Late Chalcolithic communities on the Upper Euphrates seems to be that of groups with advanced craft specialization, and with a tendency towards social differentiation, which however do not show any strong centralization" (Palmieri 1985a: 196).

restricted use of silver rather than the more available copper items. The exception to this changing trend was the Arslantepe 'royal' burial whose silver-copper and silver objects are a throwback to the Late Chalcolithic use of silver in mortuary contexts.

Ultimately, it can be asked why metal was used as a grave good in the first place. Ceramics would have been less costly and more widely available and utilitarian tools or personal ornaments made out of stone or bone would have been functional substitutes to many of the metal objects that were found in burials. As a resource, metal was rare but not exceptionally so if the estimates of the Ergani-Maden mine and the geological surveys of the Keban region are considered (de Jesus 1978, 1980; Muhly 1973, 1985, 1988; Özbal *et al*. 2000; Palmieri *et al*. 1995; Palmieri *et al*. 1999, 2004; Stech and Pigott 1986; Yener 2000). The availability of metal in the early third millennium may have created a circle of consumption where the increased availability of resources or finished items meant that more people were able to acquire metal items, leading to an ever increasing demand for metal items of all sorts (utilitarian and ornamental) in order to elevate social status or gain a dependent labour pool (see Schortman and Urban 2004 on debt and dependency). This cycle of consumption meant that at many sites metal items became a social necessity- one that did not necessarily indicate a strongly stratified society- but rather these objects were a visible sign of belonging to a particular group with a shared identity that was expressed through the consumption and subsequent display of certain resources in various contexts, including metal.

As the evidence presented in Chapters 3 and 4 and the analyses in Chapter 5 has shown, the impact of metal on the economic and social spheres is increasingly evident over the course of the fourth millennium so that by the end of the Late Chalcolithic and beginning of the Early Bronze Age, metal was both a resource and a social tool that could be manipulated by multiple members of a society with different end results. Given the impressive quantity of metal that was deposited in graves during the early third millennium, particularly in the Carchemish and Samsat-Lidar sector sites, there must have been a steady flow of raw materials, finished craft items (including textiles, semi-precious stones and metal objects) and agro-pastoral products into and out of the region to feed the demand for these items. The quantity of finished metal items recovered from these sites suggests that quite a few

individuals, families or corporations were familiar with the trade in raw and finished objects[178] and the manipulation of both staple and craft resources to acquire these resources.

It is unlikely that the profusion of metal objects in the early third millennium was the result of mass production in its strictest sense, but it has been remarked upon that many of the items found, including the relatively novel flat axes and the profusion of spearheads in the EB I-II, represent items that were not technologically challenging (Philip 2007). Instead, their appeal was the amount of metal used to make them rather than their finished appearance. The similarity in artefact styles between the Euphrates Valley sectors and sites outwith the Upper Euphrates Valley also suggests that forms and styles were quickly transmitted between these regions which Squadrone relates to the changing socio-political and economic systems in the region as:

> …the central role that the metalwork of Carchemish and its northern neighbours had in the early EBA must have gradually changed along with the growth of new centres, and the appearance of new political and economic dynamics and hierarchies in settlement patterns during the mid and mid-late EBA (Squadrone 2007: 211).

Based on this view, the metal industry in the Euphrates Valley was amplified through the growth of inter- and intraregional economic activity that perpetuated the demand for novel prestige items as part of increasingly stratified socio-political systems and wealth finance based economic systems, a demand that is most emphatic in the inclusion of metal objects in the grave good repertoire from the Late Chalcolithic onwards.

The complex socio-political and economic interactions between the sites in the Upper Euphrates Valley and those sites outside of the immediate region allowed for new avenues to wealth and power in addition to the pre-existing reliance upon kin dynamics. The increased use of metal craft items during the Late Chalcolithic into

[178] The best documented example for metal objects serving as trade goods are the flat axes and spearheads from the Birecik Dam cemetery that had proto-cuneiform ideograms incised into them (Squadrone personal communication). These 5 flat axes and 2 bipartite spear heads were all items that did not require a vast amount of skill to make (Philip 2007), so it may be that their weight in metal was the attractive element rather than their finished form. The visibility of the signs etched into them may be a prehistoric price tag, or perhaps a receipt of what was traded for them so that their value would be known to those who recognised the signs etched into them. This second scenario would have then meant that the owner displayed their wealth and status both through having the object and having its value advertised before the items were interred with the dead.

the early centuries of the Early Bronze Age is in keeping with the development of bottom-up models from corporate to exclusionary systems where the increased population mobility and changeable socio-political and economic structures all contributed to the demand for metal items. One of the possible reasons for this increased demand is that highly visible signs of ideological affiliation, belonging or identity were socially necessary during a period of individualization and factionalism following the disruption of the previous socio-political and economic systems of the Late Chalcolithic. The change in how metal was used in the Upper Euphrates Valley from the early fourth millennium through the early third millennium coincides with the widespread social, political and economic changes in the region, and this adjustment of socio-political and economic structures allowed individuals and kin groups new mechanisms by which to obtain and then display status, wealth and power in addition to intangible social elements such as identity and ideology.

Chapter 7: Thesis Conclusion and Directions for Future Research

As there is a fairly rich *corpus* of texts devoted to typological studies of various types of metal artefacts and surveys of ore sources (see de Jesus 1980; Egeli 1995; Klein 1992; Müller-Karpe 1994; Philip 1989; Squadrone 2000b; Stronach 1957; Yener 2000) from sites in the Euphrates Valley and Mesopotamia, yet another thesis of measurements and categories was deemed unnecessary- especially given the difficulties involved in locating and studying the material from multiple museums in two different countries. While the studies mentioned above discuss a range of metal artefacts and metalworking paraphernalia from a number of sites and compare this data across regions, much of this research is still focused on determining typological categories and tracking changes in styles over time across this larger region. What is missing from much of the literature of Near Eastern archaeology and metallurgy are discussions on the how and the why of metal use and its context in a given society, specifically how any changes in the ways in which this material was perceived and utilised can be related to the context of its use, both in terms of the physical find spot and the current events that occurred during the period being studied. Therefore, the overarching aim of this work was to utilise these typological analyses, site reports and published artefact information to place the use of metal within a socio-economic framework that details the development of the metal industry and the corresponding social use of metal in the Upper Euphrates Valley from the fourth millennium through the beginning of the third millennium, or the Late Chalcolithic 2 through the Early Bronze II period.

In order to achieve a comprehensive study of this topic, a comparative analysis of sites from neighbouring geographical regions was included in order to identify possible contributing factors to the changes in the social use of metal in the Upper Euphrates Valley as well as to highlight developmental differences in the use of metal between the regions in the lead up to the urbanisation and secondary state formation in Upper Mesopotamia during the EB III-IV periods. What became clear during the course of this research was that multiple factors influenced how metal was perceived and used from the Late Chalcolithic to the Early Bronze Age and that there

is no single causal factor that can be pointed to as an explanation for either regional or chronological change.

Based on the analyses of the published data (see Chapters 3, 4 and 5) there were two major changes in the social use of metal during the period being considered in this thesis. The first, and most obvious, observation is that there was a very dramatic upsurge in the amount of metal objects being produced and consumed at the beginning of the Early Bronze Age in the Upper Euphrates Valley, which a comparison of the numbers of metal objects over time shows fairly convincingly. The second trend in the data is that this increased production and consumption of metal in the Early Bronze I-II is coincident with a radical shift in the social use and subsequent disposal of metal objects; it is at this time that approximately 90% of the total metal assemblage from the Upper Euphrates Valley comes from burials as compared to the Late Chalcolithic 2-5 data when only 9-24% of the total metal assemblage came from mortuary contexts. While this trend is skewed to some extent by the extreme difference in the number of extant burials between these time periods, the corroborative evidence from public, industrial and domestic contexts seems to broadly support this trend.

Despite the change in contexts in which metal was predominantly used, the types of objects being produced and consumed in the Upper Euphrates Valley does not change too much from the Late Chalcolithic to the Early Bronze Age. The addition of flat axes to the metal repertoire and the limited use of swords at Arslantepe represent the biggest changes in terms of types of objects being introduced to the total metal assemblage. A general survey of the types of objects found in the Late Chalcolithic 2-3 shows that the objects are largely comprised of tools that were found in domestic or public contexts. The emphasis appears to shift away from tools in the latter half of the Late Chalcolithic, though there is still greater emphasis on the communal or public use of metal objects as is demonstrated by the Arslantepe VIA weapons cache. As was noted in Chapters 5 and 6, this may be an artificial trend linked to the hypothesised trade of finished metal tools to the Uruk outposts and the more rigorous recycling of used objects in order to increase the profit of those who produced or controlled the production of metal objects. The extreme increase in the use of pins in mortuary contexts in the EB I-II should also be

ntoed here, with this trend coinciding with the increased use of textiles as trade commodities and therefore the pins may have been used to secure bulk textiles rather than burial shrouds.

The context of use and the types of objects that have been found points towards a corporate use of metal that began to shift towards the centralised production of metal items in the LC 4-5 to meet the demand of the new inhabitants of the Upper Euphrates Valley. The end of this close trade association contributed to the change in socio-political and economic systems that then allowed the more widespread consumption of metal craft items. The EB I-II can then be considered to be a transitional period between the corporate systems of the Late Chalcolithic and the strongly hierarchical and centralised socio-economic systems that were present in the Early Bronze Age III-IV. This transition is characterised by the factioning of social groups and an increased reliance on public displays that utilised mobile objects with social value, including metal items. The use of these objects in displays of wealth, status, ideological affiliation or identity is most visible in the Upper Euphrates EB I-II burials where just over half of the graves contained metal objects. This can be contrasted to the Late Chalcolithic mortuary data where only a small number of burials had metal objects associated with them as well as the mortuary data of the EB III-IV when the use of metal was especially emphasised in the monumental elite burials as part of very public displays which served to legitimise claims to power, status or the physical land on which they were buried.

It is also during this transitional period that differences in how metal was perceived and used within the Upper Euphrates Valley began to appear in the archaeological record. As was mentioned in the previous chapters, the key differences are in the contexts in which metal objects were utilised in the EB I-II periods. In the Carchemish and Samsat-Lidar sectors metal was overwhelmingly represented in mortuary contexts while in the Malatya sector the use of metal in burials is limited to the Arslantepe ‘royal’ burial while the remaining metal assemblage from this sector was found only in domestic or public contexts. Various explanations for these regional differences have been put forward including: the geographical barrier of the Taurus range, foreign population and cultural influence, changes in trade routes, ruralisation, different scales of craft production, and the

wide-ranging socio-political and economic changes that emerged during the period of 'collapse' following the Uruk withdrawal and the influx of groups from eastern Anatolia and the southern Caucasus.

The prolific use of metal in the Upper Euphrates Valley in both the pre- and post-contact periods refutes several suggestions including the notion that the Uruk population brought metallurgical technology to the region, the theory that the Euphrateans were imitating or emulating the southern Mesopotamian use of metal and that there was a regional disruption of the metal industry following the Uruk withdrawal. Furthermore, it can also be questioned if the influx of population groups from eastern Anatolia and the southern Caucasus had the major impact on the production and consumption patterns of metal that Palumbi (2007-2008, 2008b) suggests.

These groups are predominantly described as corporate, nomadic-pastoralists who were organised on horizontal lines rather than emphasising vertical social relationships (Sagona 1984, 1998, 2004a). Because of the skewing of the data towards cemetery sites and discrete grave excavations, the true extent of metal use in Transcaucasian settlements is unknown; however, the sites north of the Keban Dam in the Upper Euphrates Valley shed some light on how metal was utilised by the occupants of settlements that had had long-term contact, and presumably population mixing, with groups from eastern Anatolia and the southern Caucasus. The metal objects from the sites north of the Keban Dam were all found in settlement rather than mortuary contexts and show a small range of objects, though the objects were predominantly personal ornaments. Overall, the published data from these northern sites and a comparison with contemporaneous sites from the Euphrates Valley and beyond indicates that metal was being utilised by the inhabitants in the Malatya sector differently than the inhabitants of the other two sectors in the early third millennium, a trend which may be explained by different economic strategies being utilised- as was discussed in Chapters 5 and 6. The early use of metal at these sites also indicates that if the Transcaucasians were responsible for the spread of metallurgical technology to the Upper Euphrates Valley, this transmission occurred quite early on rather than during the apparent wave of migration that can be seen at the end of the fourth millennium.

The other zone that is thought to have had some degree of impact on the local development of the Euphratean cultural assemblage is the broad stretch of Upper Mesopotamia that is included in the Ninevite V catchment zone. However, this area can also be excluded as being a direct influence on the changing social use of metal in the Upper Euphrates Valley at the beginning of the Early Bronze Age. The majority of the small sites in the Jezireh are thought to have relied upon agricultural surplus rather than craft items to back their socio-economic staple finance systems (Akkermans and Schwartz 2003; Hole 1999; Schwartz 1994; Weiss 1983, 1986), and because of the hypothesised focus on centralised storage structures as the basis of socio-political power and the control of agricultural wealth, craft items had a limited role in staple finance systems. The use of metal in these small settlements can be contrasted to the large Ninevite V urban centres where metal resources were tightly controlled and presumably only available to a limited proportion of the site's population (see Chapter 5). If the small sites north of the Keban Dam were also oriented towards the production of agro-pastoral resources, this could explain the low frequency of metal objects as well as the absence of metal items at other similarly oriented settlements throughout the Upper Euphrates Valley.

While external influence is not completely discounted as an influence on how metal was used in the Upper Euphrates Valley, the factors that are thought to be most responsible for the changing social use of metal that occurred at the end of the Late Chalcolithic can be related to the period of ruralisation mentioned by Akkermans and Schwartz (2003) and the subsequent change in socio-political and economic systems as part of this period of regionalisation. This was the result of the disruption in the long-distance trade networks which served to focus trade inwards both between members of the same settlement and between settlements in the Upper Euphrates Valley, all of which contributed to the creation of a more localised 'Euphratean' cultural identity that included the apparent social reliance on metal craft items that is not seen in contemporary small settlements in the Ninevite V area, southern Mesopotamia or the Transcaucasian region. Such a widespread social use of metal by multiple groups would not have been possible without the support of the socio-political and economic systems. The appearance of a 'middle' class in the mortuary record is evidence of the consumption and use of metal by multiple agents within

diverse social groups as part of social displays of status, wealth, identity and connectivity that were perceived as necessary in a period of increased factionalism.

As noted, the increased use of metals, particularly in mortuary contexts, at the beginning of the Early Bronze Age is often associated with the increasing interregional interaction between the Upper Euphrates Valley and the diverse populations living within this region, but perhaps the greatest impact on the use of metal over time was the greater reliance on wealth finance socio-economic systems in the non-centralised Upper Euphrates Valley societies. This allowed multiple members of a society access to metal items for personal ownership rather than corporate ownership as was seemingly the case in the Late Chalcolithic, which was part of the larger trend towards the individualisation that is present in the Early Bronze Age. Therefore, the ability to conspicuously dispose of wealth in mortuary contexts in the EB I-II periods can be considered as a precursor of the extremely stratified mortuary behaviour of the second half of the third millennium in the Euphrates Valley, and it may be that the struggle to maintain elite standing at the top of the upper echelon motivated the centralisation of the metal industry in the Euphrates Valley in the EB III-IV.

By looking at both economic and socio-political models, the intensification of metal use in this region over time can be explained as a product of local complexity tempered with intra- and interregional trade and contact in terms of object styles and new markets. Increased socio-political and economic competition and interaction between settlements meant that there were more avenues by which the Euphrateans could accumulate wealth and power and more avenues by which to display this newfound wealth, status and affiliation; just as Cooper (2006, 2007) ascribes the Early Bronze Age trend of burying the dead in cemeteries as an expression of belonging to a particular tribe or corporate group that extended into death, the use of metal grave goods in the EB I-II Upper Euphrates Valley burials also served a similar social function. Though referring to state level societies, Schortman and Urban's assessment of the social need for craft items can be used to describe the development of the social use of metal in the Upper Euphrates Valley:

> As the array of social affiliations proliferates within state-level societies, it is increasingly important to develop physically overt cues that signal who is party to any interaction, which identities they are employing, and what can be

> expected of them…Craft production, therefore, is spurred by broad-scale demands for easily decoded, physically distinctive items useful as explicit markers of social affiliation (Schortman and Urban 2004: 198).

When viewed thusly, the widespread use of metal in the Upper Euphrates Valley during the EB I-II can be interpreted as part of social displays that signalled not only economic and social status, but also identity and connectivity with a particular group or ideology.

Altogether, the Upper Euphrates Valley data from both mortuary and public, domestic and industrial contexts have shown that metal had social, economic and political value not only as a raw or finished commodity but also as a tool with which to influence social interactions and display concepts such as identity, wealth and status. The usefulness of this resource in social interactions is increasingly apparent from the Late Chalcolithic onwards as displays of socio-political and economic power and identity and connectivity were becoming increasingly necessary in inter- and intraregional interactions in the period of regionalization following the Uruk withdrawal. These displays needed to be both visible and changeable in order to adapt to shifting ideological values over time, and as Peltenburg (forthcoming) points out, as a fluid medium metal could be used in multiple and diverse social situations meaning that the regional continuities and changes in the use of metal are linked to the shifting socio-political and economic structures in the Upper Euphrates Valley during the transition from the Late Chalcolithic to the Early Bronze Age. While stylistic changes in pins, spearheads and daggers are evident over time in the entire region, it is the general trends in context and scale of production that reveal more information of the social use of metal and how this commodity was perceived and valued by the inhabitants of the Euphrates Valley, both local and foreign, elite and non-elite.

Building from the typological studies of metal artefacts and site reports and then integrating this data with new research into archaeological studies of ancient political economies and social theory allows for a more holistic approach to the traditional materials study. In the case of the Upper Euphrates Valley during the transition from the Late Chalcolithic to the Early Bronze Age, this approach has revealed several conclusions; the first is that rather than external influences being directly responsible for large-scale changes in how metal was perceived and used, the

local socio-political and economic systems are largely responsible for enabling change, whether towards austerity or glut in the market. The upsurge in metal consumption at the beginning of the Early Bronze Age can therefore be attributed to the lack of strongly centralised socio-economic systems which allowed for multiple members within a given society to accrue surplus subsistence and craft resources in order to elevate their own or their family's status. This situation can be compared to Childe's (1944) analysis of metal use where he determined that:

> … the superiority of metal craft tools might just as well have intensified the 'tyranny' of the few craftsmen who possessed them or, in class societies, of the priestly corporations, landowners or merchants who alone had the capital to acquire metal at all (Childe 1944: 9).

The evidence from the transitional period from the Late Chalcolithic to the Early Bronze Age in the Upper Euphrates Valley suggests rather the opposite; in a region with local metal resources it was much more difficult to limit the accessibility to the raw resources and the technology to produce finished objects. Instead, it is not until socio-political and economic strategies were significantly altered that metal objects became firmly embedded in the elite or prestige object repertoire.

Another conclusion is that differences in metal use between settlements are by and large due to personal choice and differences in economic strategies employed by the inhabitants; some of the sites closest to the metal ore sources in southeastern Anatolia have few or no metal objects and exhibit signs of being oriented towards subsistence and pastoral production rather than the full-time production of metal ores or objects for trade. This reinforces the claim that proximity to ore sources does not guarantee metal use or advanced metallurgical skill. While some sites may have been located closer to or further away from ore sources and trade routes, excavation has shows that where there is a will there is a way, and sites that were hundred of kilometres from ore sources could have surprising amounts of metal. Similarly, assumptions about the propensity for certain population groups to have a better handle on metallurgical technology or metal use do not hold true as sites that were classified as Uruk or Transcaucasian do not have the significant quantities of metal prophesied by some archaeologists. Instead, these sites often had only a handful of artefacts in comparison to the local sites which had much larger quantities of metal artefacts and a greater frequency of metalworking detritus. Of course this could be

due to the scale of research between sites, but even sites with large exposures can have few reported metal objects.

The final result of this research that will be mentioned here is that in the Upper Euphrates Valley from the Late Chalcolithic through the Early Bronze II, there is an apparent change in the social value assigned to different metals in different contexts over time. Silver was originally reserved for burial goods in the fourth millennium, with only a minority of silver found in non-mortuary contexts, and even this was reserved for three weapons with inlay and a pin found in the Arslantepe temple/palace complex. The use of silver in these very specific contexts can be explained several ways; one is that silver was not viewed as a 'practical' metal because of its malleability (it is only slightly harder than gold) and was therefore relegated to grave goods. Another explanation is that the rarity and skill involved in refining argentiferous lead ore meant that this was a highly prized resource and therefore limited to only the most elite individuals or administrative uses. While the use of silver and lead continued to be used in the EB I-II, silver was no longer the preferred metal to make grave goods as copper and copper alloys had become the metal of choice, likely for their affordability. This switch in metals use coincides with the extreme increase in metal consumption in the region and brings to mind the Dispute between Copper and Silver mentioned above.

In summary, this research shows that metal was utilised for both practical and prestige purposes from the Late Chalcolithic onwards, though the styles, metals used and meanings associated with these objects changed over time. The high visibility and changeable value of metal made objects manufactured from this material ideal for mobile displays of wealth, though as Brumfiel states:

> Wealth items are rarely intrinsically rewarding; they must be imbued with cultural meaning in order to be made desirable. Once their meaning was established, wealth items could be distributed to the members of coalitions, conferring honor and securing loyalty (Brumfiel 2000: 138).

The evidence from the Upper Euphrates Valley indicates that the use of metal was very much an accepted part of social display that could be adapted as needed. The longevity and exponential increase in its use attests to the established value of metal to the Euphrateans. Within the Late Chalcolithic and Early Bronze Age I-II societies in the Upper Euphrates Valley, metal appears to have been one of the primary

tangible mediums that was utilised to express and define social relationships within the larger political economy and society in general. Therefore, it can be argued that metal had become a social necessity with multiple functions, not least of which was the display of wealth, status, identity and belonging during a time of increased regionalism and social fissioning.

Directions for Future Research

To conclude this thesis, it is worth noting that while this research covers approximately 1500 years this span of time is merely a brief snapshot of time. The purpose of this research was to highlight the changes in the social use of metal during the transition from the Late Chalcolithic to the Early Bronze Age, though several further lines of inquiry emerged during the course of research for this thesis that should be pursued in order to more fully address the development of the metal industry and social use of metal. One further direction in which to take this research is to go back even further in prehistory in order to trace the development of the social use of metal from the very origins of metallurgy as well as looking forward to the establishment of silver as a monetary standard (Foster 1977; Marfoe 1987; Powell 1978, 1996) and the widespread urbanisation of the mid-late third millennium.

Additionally, while the rich tombs of T. 302 at Jerablus Tahtani, the Tell Ahmar Hypogeum, the tomb at Ayyaldiz, the mortuary complex at Tell Banat and the numerous shaft and chamber tombs and stone cist tombs at other sites in the Euphrates Valley (see Cooper 2007, 2010) can be viewed as tangible evidence of the change in mortuary customs as a result of increasingly complex and hierarchical socio-political structures, these tombs also signal that the social use of metal had undergone yet another significant shift from the beginning of the Early Bronze Age. The factors resulting in this move towards a highly exclusionary use of metal as part of the prestige craft item repertoire can very generally be attributed to the centralisation of the production and distribution of not only craft items, but also subsistence resources. However, what sparked this centralisation warrants further discussion; were Hayden's (1994, 1995, 1998) aggrandisers able to attain and then legitimise claims to power which then allowed them to limit metal resources to just

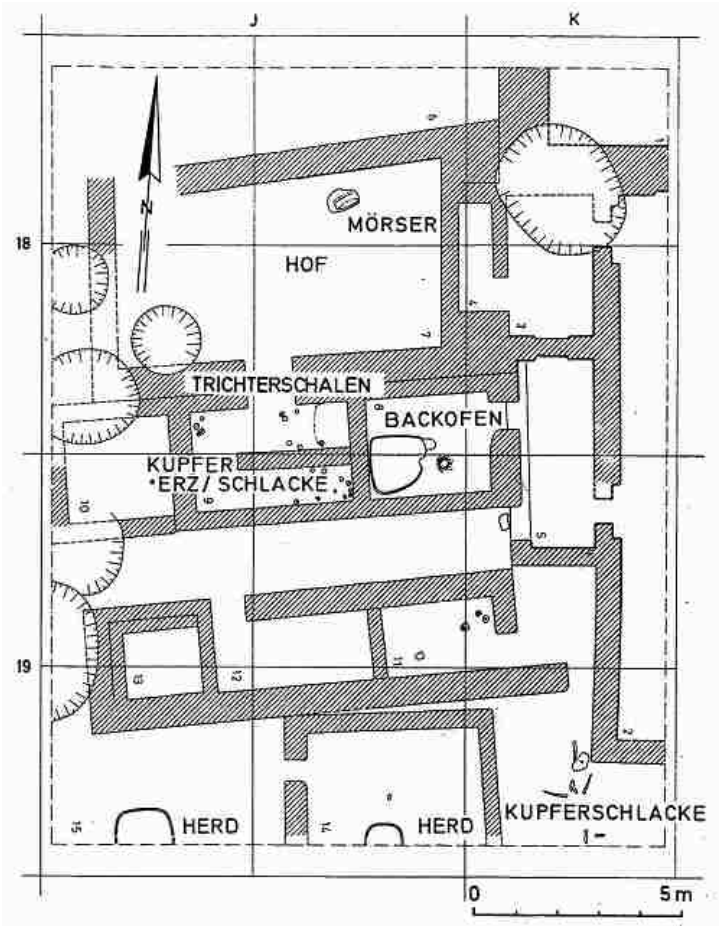
the select few, was it Porter's (2012) omnipresent ancestors who were responsible for this new trend, or were the socio-economic systems responsible?

Though there are many further avenues of research that can be taken from this stopping place, there are several problems that need to be overcome in order to more fully develop the arguments. As was stated in the introduction, the goal of this work was to research the later prehistory of metal use in the Upper Euphrates Valley and collate as much information regarding the contexts in which these items were used in order to establish patterns that would reflect the developing political economy of metal. While this endeavour was largely successful, the greatest difficulty that was encountered during the course of this doctoral programme was the sometimes shocking lack of published site reports and specific information regarding the material excavated from the sites included in this study. Further excavation of sites in the Euphrates Valley will provide more metal artefacts and evidence of metallurgy that can be included in the dataset, but without frequent publications of a consistently high standard that include both the artefacts and the contexts in which they were found, this work is of limited scholarly value. Despite these annoyances and difficulties, it is to be hoped that this is only a starting point for future research into the development of the metal industry in the Euphrates Valley and that further work on this topic will be able to track this development over both a much longer span of time as well as a greater geographical region. By moving away from strictly typological studies, the artefacts being studied can then be interpreted both within their context of use and disposal as well as being objects with changeable social value and meaning.

Plates

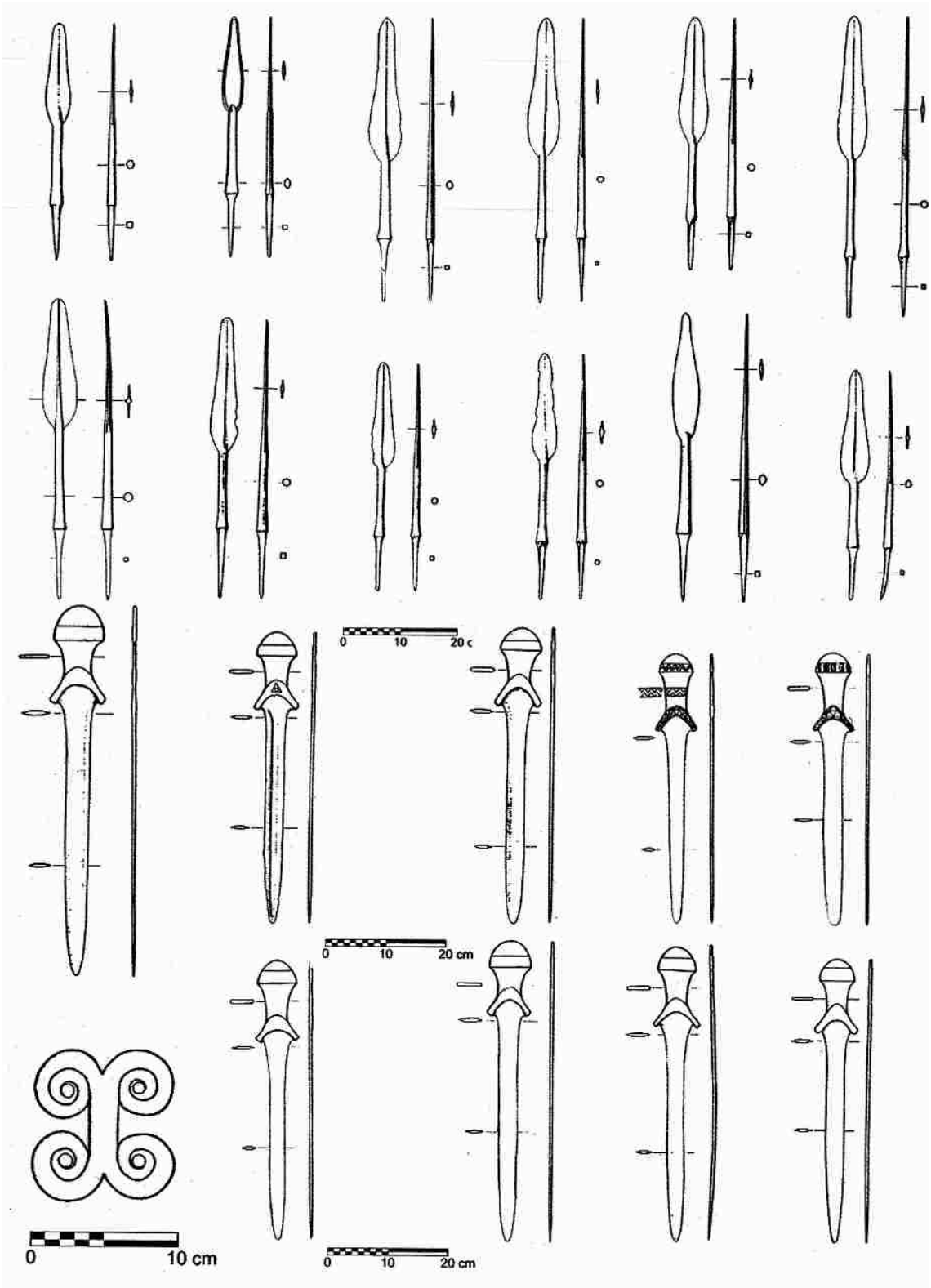
Plate 1

Rings from infant jar burial from Pre-contact Phase A at Hacınebi. From
< http://faculty-web.at.northwestern.edu/anthropology/stein/HNfindsLLCartifacts.html>



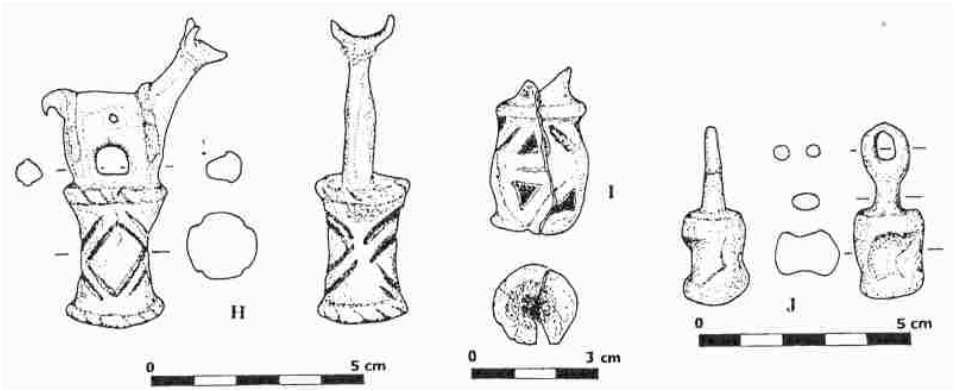
Pre-contact (Level 10) metalworking area at Norşuntepe. From Müller-Karpe 1994: Figure 8

Plate 2

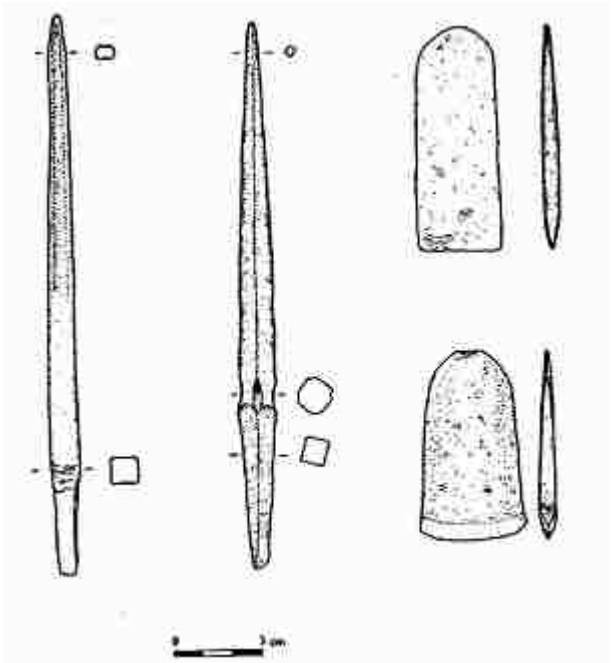


Weapons and quadruple spiral plaque from the Arslantepe A113 cache. From Palumbi 2008b: Figure 3.14 based on Frangipane and Palmieri 1983: Figures 58, 59, 60

Plate 3

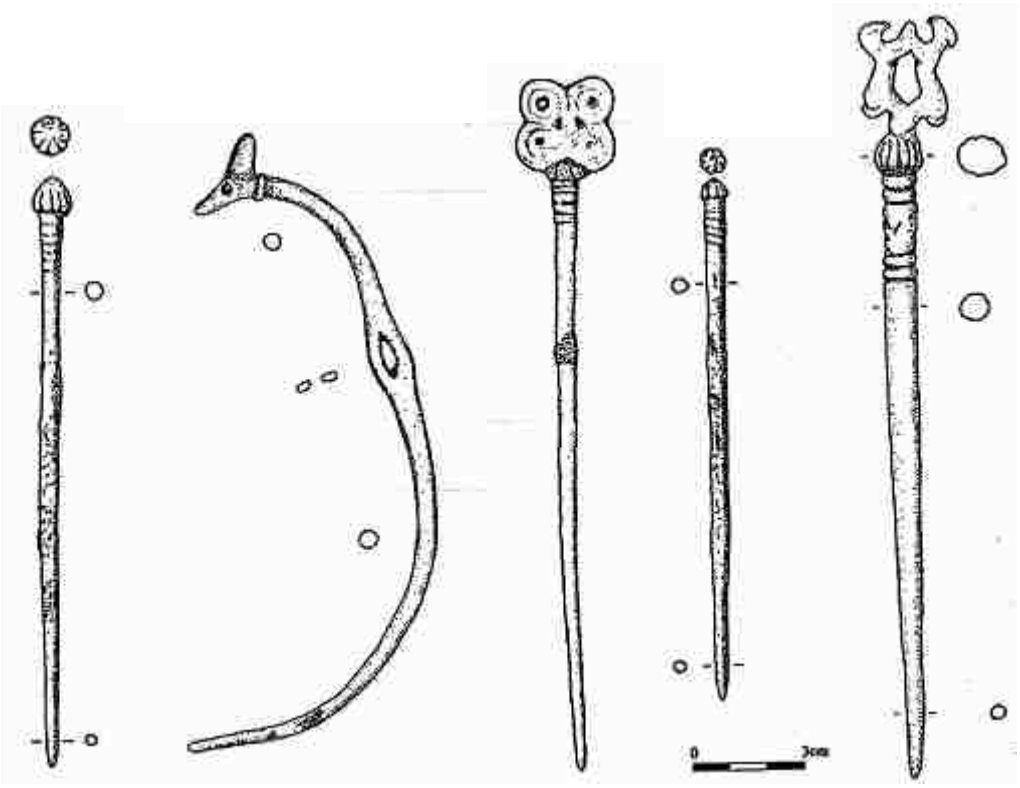


Seals from the Birecik Dam cemetery. From TAY Birecik Dam Cemetery listing in Harmankaya and Erdogu (2002).

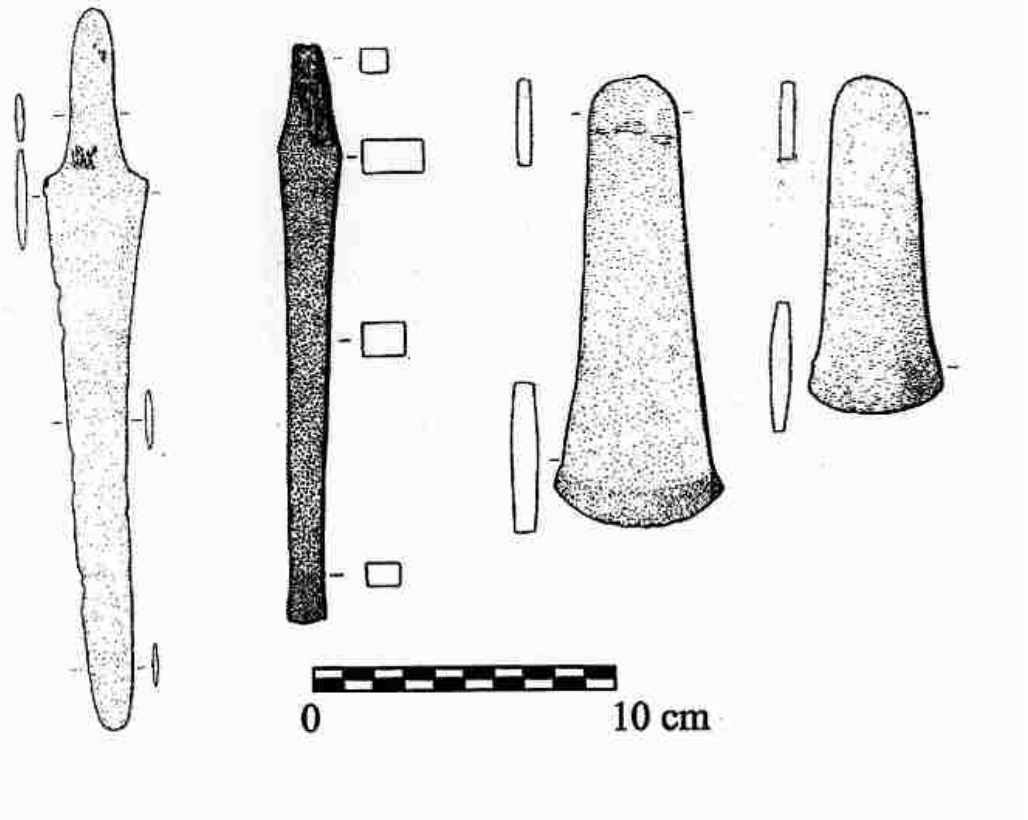


Chisels and flat axes from the Birecik Dam Cemetery. From Squadrone 2007: Figure 13.6

Plate 4

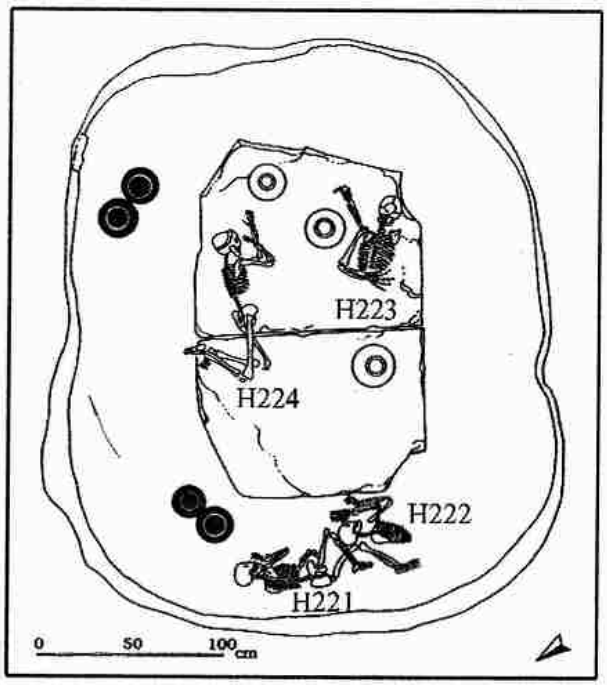


Selected pins from the Birecik Dam Cemetery. From Squadrone 2007: Figure 13.2, 13.3 and 13.4

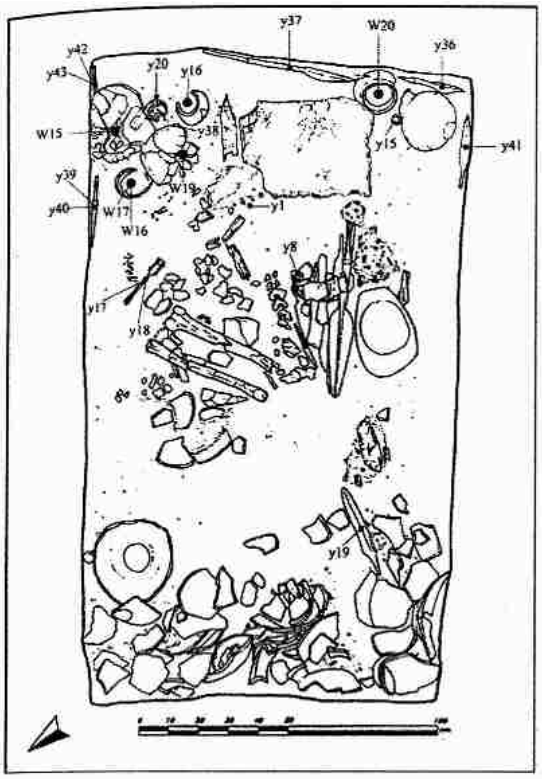


Dagger, chisel and flat axes from EB I-II Hassek Höyük. From Behm-Blancke 1984: Figure 8

Plate 5

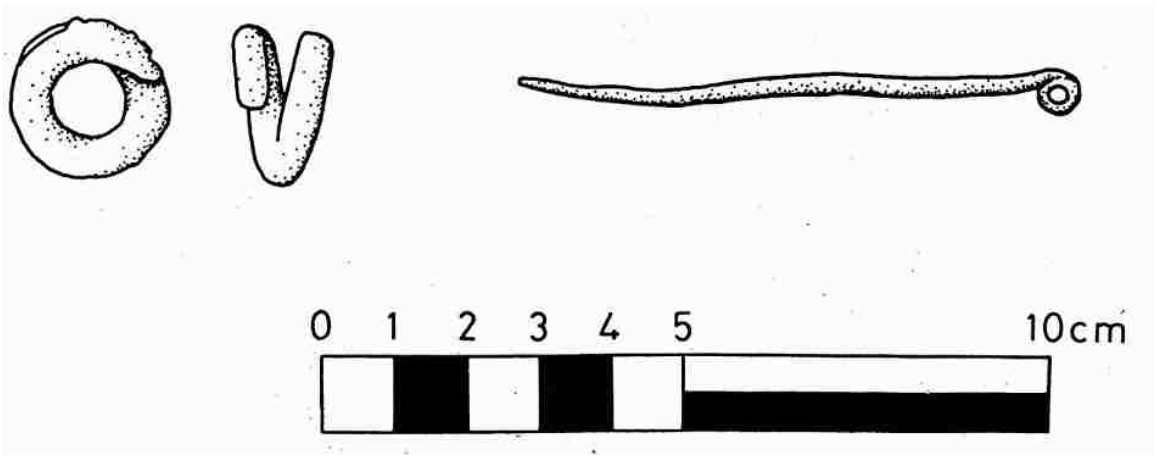


Burial S150 at the Arslantepe 'royal' tomb
From Frangipane *et al.* 2001: Figure 13

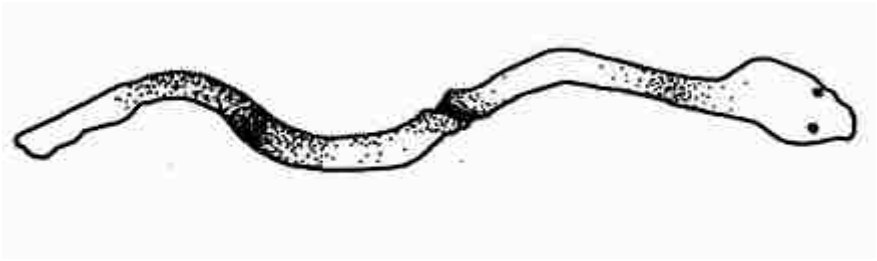


Burial T1 at the Arslantepe 'royal' tomb
From Frangipane *et al*. 2001: Figure 6

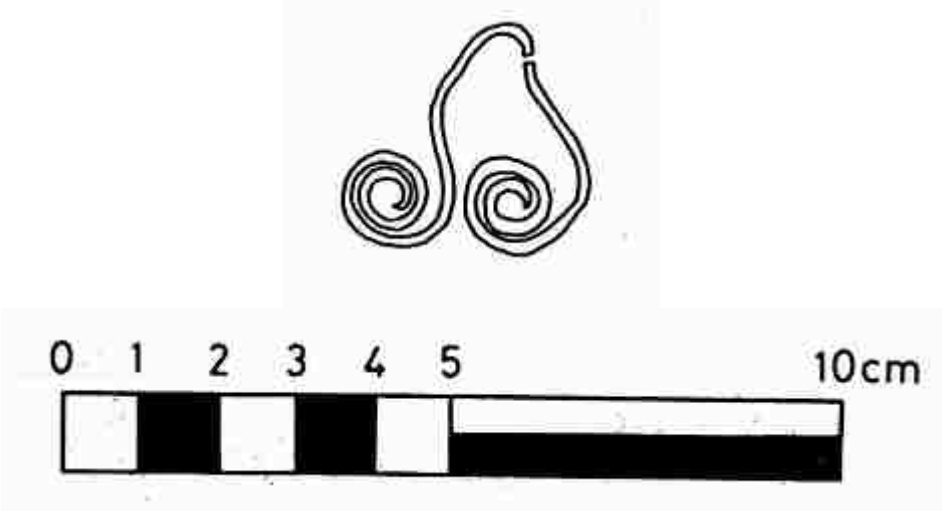
Plate 6



Metal hair spiral and rolled-head pin from Aşvan Kale. From Sagona 1994: Figure 135

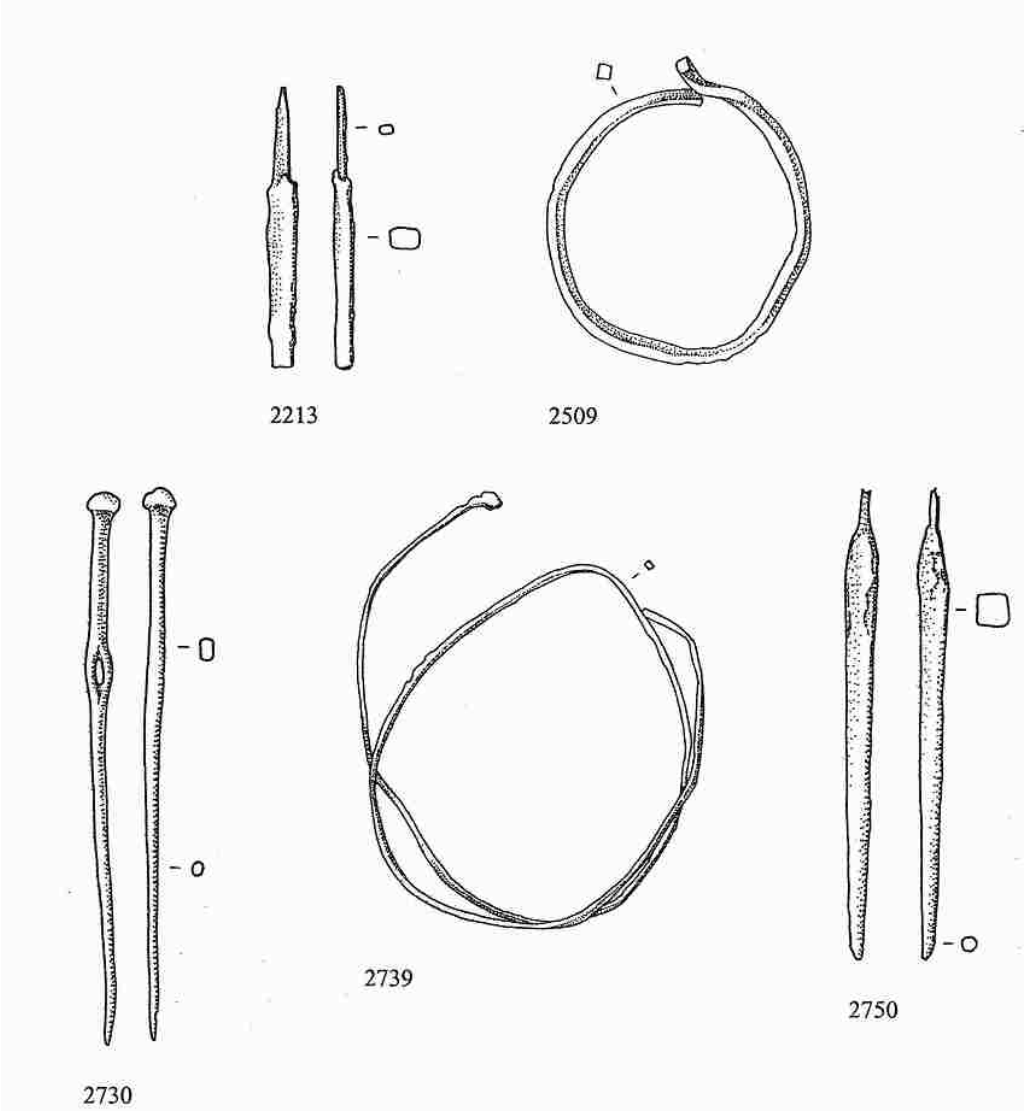


Taşkun Mevkii Object 71/2 From Sagona 1994: Figure 68

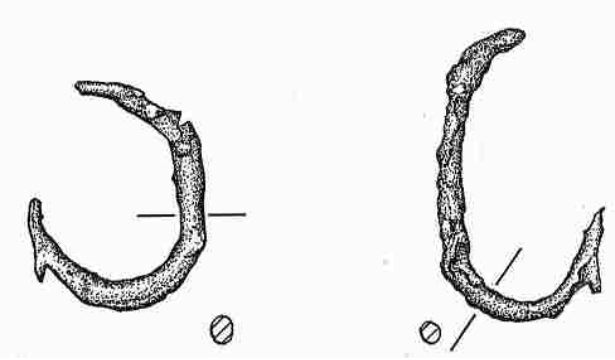


Taşkun Mevkii Object 70-4 From Sagona 1994: Figure 68

Plate 7

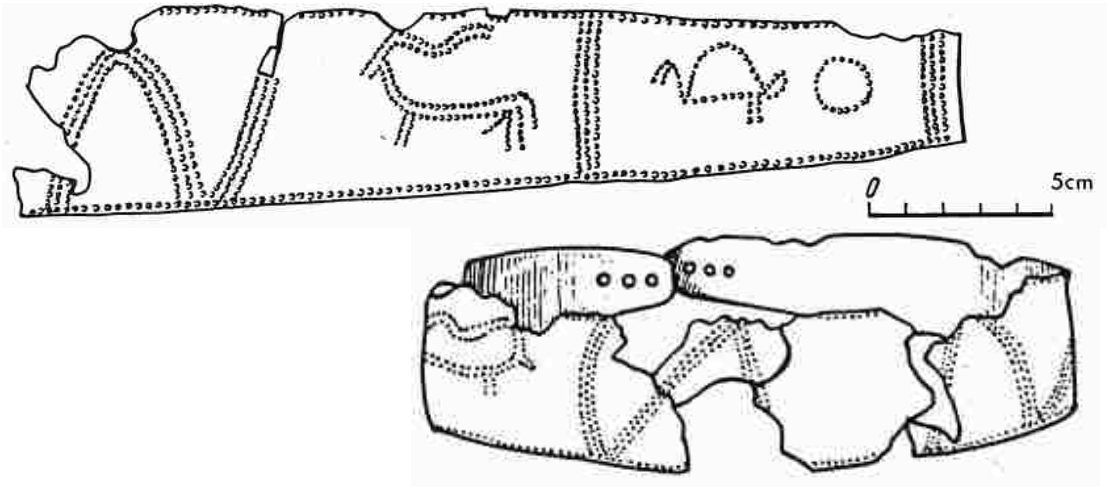


Selected metal items from non-mortuary contexts at Tepe Gawra IX (2213) and VIII (2509, 2730, 2739, 2750). From Rothman 2002a: Plate 77

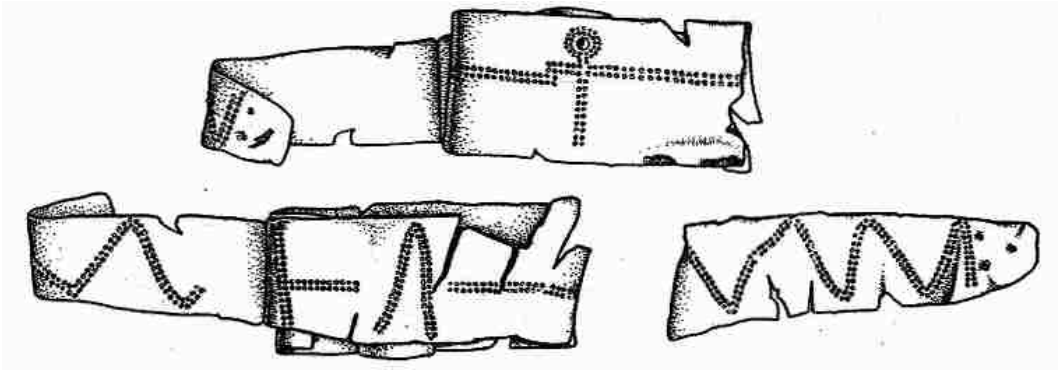


Fish hooks from Habuba Kabira. From Strommenger 1980: Figure 40

Plate 8



Diadem from Kvatskhelebi Tomb 2. From Kushnareva 1997: Figure 75



Diadem from Arslantepe T1 burial. From Palumbi 2008b: Figure 4.8

Appendix I: 4th Millennium Metal Objects and Metalworking Material

Early-Mid 4th Millennium

Hacınebi- Phase A

Context	Items (Object number)	Notes
Phase A jar burial of child buried under a floor	2 silver earrings and 1 copper ring	(Stein *et al.* 1997)
Phase A, building close to enclosure wall	Conical pin (HN 17153.1)	(Stein 1999d)
Early Phase A building, area C	Chisel (HN 6561.1 and 2)	(Stein 1999d) Similar chisel mould fragments have been found suggesting they were produced locally Özbal *et al*. (2000)
Pre-Contact	Chisel(s) Pins	(Özbal 1996, 1997; Stein 1999b)
Phase A	Ingot mould (HN 6549)	Mould was used repeatedly (Özbal *et al*. 2000)
Phase A central building, area C	Ceramic open-faced mould with droplets of copper adhering to it	Stein (1999b)
Phase A building, area C	Ceramic tuyere	Stein (1999b)
Early Phase A building, area C	Open-faced mould	Stein (1999b)
Outside enclosure wall, Phase A industrial area	4 bowl furnaces	Özbal *et al*. (2000)
Outside enclosure wall, Phase A industrial area (pit 258)	Crucible fragments	Stein (1999d)
Outside enclosure wall, Phase A industrial area (pit 258)	Vitrified slag	Stein (1999d)
Outside enclosure wall, Phase A industrial area (pit 258)	Small piece of copper (HN 15415)	Stein (1999d)

Arslantepe VII

Context	Items (Object number)	Notes
Room A617	Copper ore Pins, including 1 loop-headed pin (ARSL 3391)	(Frangipane 1993; Stein 1999) (Squadrone 2000b)
B9 (16) 2b	Chisel (3144)	(Caneva and Palmieri 1983)
C9 (9) A332, 1B	Chisel (3145)	(Caneva and Palmieri 1983)
C9 (5)	Chisel (3132)	(Caneva and Palmieri 1983)

C10 (13) A320, 1c	Chisel (3152)	(Caneva and Palmieri 1983)
A350	Awl (3147)	(Caneva and Palmieri 1983)

Fatmalı- Kalecik

Context	Items (Object number)	Notes
Rooms and courtyards	Corroded copper fragment Vitrified slag Ore fragments Crucible fragments	(Hess *et al*. 1998; Whallon Jr. and Wright 1970)

Norşuntepe Pre-contact Levels XXXVII-XXXI

Context	Items (Object number)	Notes
J 19 III/IV (Level 36)	Square tip chisel (645)	(Schmidt 2002)
J 19 III/IV RM (Level 36)	Copper bead (1057)	(Schmidt 2002)
J 18 III/IV RM (Level 36)	Copper bead (1055)	(Schmidt 2002)
J 18 III u. RG (Level 35)	Double spiral pendant fragment (1073)	(Schmidt 2002)
J 19 III/IV Str. (Level 35)	'Norşuntepe' type projectile point (629) Wire hook (678)	(Schmidt 2002)
K 19 I/II (Level 35)	Square tip chisel (638) Lead 'ball' (734.1)	(Schmidt 2002)
K 19 I/II Str. (Level 35)	Square tip chisel (640) Spiral copper bead (1070)	(Schmidt 2002)
K 18 1/II Str. (Level 34)	Spiral copper bead (1069) Square tip chisel (636)	(Schmidt 2002)
K 19 I/II Str. (Level 34)	Square tip chisel (648.3)	(Schmidt 2002)
K 17 III RA (Level 34)	Lead spiral pendant (1074)	(Schmidt 2002)
K 18 I/II (Level 34/33)	Projectile point (601)	(Schmidt 2002)
T 22c (Level 34/33)	Square tip chisel (641)	(Schmidt 2002)
K 19 I/II (Level 34/33)	Wire hook (679)	(Schmidt 2002)
K 19 I/II (Level 33)	Chisel fragment (648.1)	(Schmidt 2002)
K 19 I/II (Level 32)	Square tip chisel (650)	(Schmidt 2002)

K 18 I/II RA (Level 31)	Projectile point (599)	(Schmidt 2002)
J/K 18/19	Smelting furnaces	(Squadrone 2000b)
Levels 36 and 35	Slag pit	(Schmidt 2002)
Level 35	3 ash pits	(Schmidt 2002)
K 17 III/IV (Level 36)	Open mould fragment	(Schmidt 2002)
J 18 III/IV (Level 35)	Crucible (568)	(Schmidt 2002)
J 18 III/IV RM (Level 35)	Crucible (569)	(Schmidt 2002)

Mid-Late 4th Millennium

Jerablus Tahtani

Context	Items (Object number)	Notes
Building 2185	Copper awl with spirally twisted shank	(Peltenburg *et al.* 2000)

Hacınebi Phase B

Context	Items (Object number)	Notes
Phase B2	Conical headed pin	(Stein 1999b)
Op 16 Loc. III Lot 308 Area C	Fragment of oval-headed pin with incised grooves on the shaft (HN 15882.1)	(Squadrone 2000b; Stein *et al.* 1998)
	Malachite adhering to BRB (HN 12285)	Analysis showed this ore sample had 2.98% nickel content (Özbal *et al*. 2000)
Both local and Uruk areas	Open faced casting moulds	(Stein 1999b)
Both local and Uruk areas	Crucible	(Stein 1999b)
	Crucible fragment (HN 8061)	Özbal *et al*. (2000)
	Polymetallic copper ore, with 43% lead and 30.2% copper (HN 12939)	Özbal *et al*. (2000)
	Copper pin (HN 13211)	Özbal *et al*. (2000)
	Oxidised copper piece (HN 14762)	Özbal *et al*. (2000)
	Pin fragment (HN 14145)	Özbal *et al*. (2000)

	Oxidised copper piece (HN 15533)	Özbal *et al*. (2000)
	Crucible fragment (HN 8051)	Özbal *et al*. (2000)
	Crucible fragment (HN 16012)	Özbal *et al*. (2000)
	Crucible fragment (HN 16002)	Özbal *et al*. (2000)
	Crucible fragment (HN 16013.1)	Özbal *et al*. (2000)
	Crucible fragment (HN 16013.2)	Özbal *et al*. (2000)
	Crucible fragment (HN 16013.3)	Özbal *et al*. (2000)
	Slag (HN 12097)	Özbal *et al*. (2000)
	Crucible fragment (HN 12264)	Özbal *et al*. (2000)
	Crucible fragment (HN16017.1)	Özbal *et al*. (2000)
	Crucible fragment (HN 16017.2)	Özbal *et al*. (2000)
	Crucible fragment (HN 16912.1)	Özbal *et al*. (2000)
	Slag (HN 16911)	Özbal *et al*. (2000)
	Slag (HN 16010)	Özbal *et al*. (2000)
	Slag (HN 15533)	Özbal *et al*. (2000)
	Slag (HN 15534)	Özbal *et al*. (2000)

Kurban Höyük VI A

Context	Items (Object number)	Notes
Area C01, level VI A	Poorly preserved pin with bird-like head	Similar to examples from Chagar Bazar 5 in Syria (Mallowan 1936) and Susa in Iran (Le Breton 1957) Cast in a mould and almost pure copper (Algaze 1990; Algaze *et al.* 1986)
Area C01, level VI A	Conical-headed pin with loop near head	Almost pure copper (Algaze 1990)
Area A Locus A07:085 exterior pebble surface	Pin, head not preserved (MRN 11474)	(Algaze 1990)

Samsat

Context	Items (Object number)	Notes
Level XX, 2 room building in the SW part of the mound	Pin	(Özgüc 1988)

Hassek Höyük

Context	Items (Object number)	Notes
Domestic buildings Level 5	4 Copper Pins (HSK. I. 80-42; HSK. I. 81-24; HSK. I. 82-11; HSK. I. 85-11)	(Schmitt-Strecker *et al*. 1992)

Arslantepe VI A

Context	Items (Object number)	Notes
Floor of temple cella, Building IV complex	Gold disc (clothing ornament or seal?)	-only mentioned once in Frangipane (1996) and no further mention of this object, therefore it is not included in the count
D9 (2) A206, 15 Grave[179]	Silver ring	(Caneva and Palmieri 1983)
C8 (8) K1091 (Pit)	Pendant/Ornament (ARSL 3655) Copper-lead-arsenic alloy	(Palmieri *et al*. 1999; Squadrone 2000b)
Attached to wooden doorframe/threshold on west wall leading to temple in Building IV	Arsenical copper-nickel alloy bowl socket with 4 nails	(Frangipane 1996)
A113 cache, Temple B Building III A113, 12	9 swords, including 3 with silver inlay (ARSL 2333; ARSL 2317; ARSL 2316; ARSL 2326; ARSL 2334; ARSL 2322) 12 spearheads (ARSL 2321; ARSL 2330) 1 quadruple spiral plaque[180] Silver pin (2366)	(Frangipane and Palmieri 1983a) (Caneva and Palmieri 1983)
A44	Rolled-head pin (ARSL 2080)	(Squadrone 2000b)
A181	Fragment	(Caneva and Palmieri 1983)
A162, 11a C9 (16) A162, 4 C9 (16) From outside the gateway of Building IV	Chisel Needle or Pin	(Caneva and Palmieri 1983)
C9 (11-12) A162, 2	Fragment	(Caneva and Palmieri 1983)

[179] The TAY site report lists this object as being from a grave located under the floor of a house
[180] This parallels a stamp sealing impression of quadruple spiral from a pit (K680) dating to the earliest VI A phase that was found near top of west part of the mound (Frangipane 1991).

D9 (9) A181, 7	Needle (2562)	(Caneva and Palmieri 1983)
D9 (2) 9d (layer U)	Chisel (from hallway A209) Fragment Fragment	(Caneva and Palmieri 1983)
C8 (15) A77, Building I	Lead Bead	(Caneva and Palmieri 1983)
C8 (8) A134, 19 A134, 17	Fragment Fragment	(Caneva and Palmieri 1983)
VI A	Ores and Slags	(Caneva and Palmieri 1983; Palmieri *et al*. 1999)

Tepecik

Context	Items (Object number)	Notes
Tripartite building, Phase 3c	A double spiral headed pin (T 74-30)	(Esin 1976a)
Tripartite building, Phase 3a	Ores Slags	(Esin 1976a)
Tripartite building, Phase 3c	Slags	(Esin 1976a)
	Chisels[181]	(Squadrone 2000b: 175)

Tülintepe

Context	Items (Object number)	Notes
Near domed oven in courtyard-possible metal workshop Tr 54 L-M	Slags Crucible remains	(Erarslan 2006; Esin 1976c, 2000)

Korucutepe

Context	Items (Object number)	Notes
on the floor of the Strata XXXII-XXXIII unburned house, 2nd half of the 4th millennium	Spiral copper bead (KRC 70-473)	(van Loon 1978)
J 12 no. 1 (level XXXVI or XXXIV)	No grave goods	Poor preservation of partial skeleton (van Loon 1978)
Double mud brick tomb K 12 no. 5 Female (?) age unknown	1 solid silver stamp seal;	(Brandt 1978)

[181] Squadrone (2000b: 175) mentions that there were several chisels found at Tepecik in the Chalcolithic levels, though she does not give a specific quantity or context for these items and so they are not counted

K 12 no. 4 Male age 24-35	Button Beads Ceramics: 1 grey burnished jar and 1 slipped orange pot stand Mace head weighing approx.390 grams; possibly made of iron or iron ore based on bluish-black lustre of the object 1 dagger (KRC 70-146) 1 Silver bracelet ending in spirals- possibly a wrist guard (KRC 70-501) Beads	
Single mud brick tomb K 12 no. 3, female adult 18-21 years old	Silver headband/diadem decorated with bone beads (KRC 70-232) 2 pairs of silver earrings (4 total) 2 silver hair rings (KRC 70-231) 1 silver crescent-shaped gorget 2 silver sheet metal beads 16 pieces of silver 'thread' possibly part of a bracelet 1 bent silver pin with silver thread and a red bead Thousands of small beads as dress decoration Ceramics: 1 gray scraped beaker and 1 orange burnished bowl	(Brandt 1978)
K 12 no. 2 Adult age 18-24 years old, sex unknown	Broken Pot	The skull of this individual was the only part to survive, though the body would originally have been interred on top of the covering stones of K 12 no. 3
Jar burial K 12 no. 1, infant less than one year old	Ceramics: 1 whole pot and 1 broken pot Copper ore	Association of grave goods with this burial is uncertain and therefore not included in the count

A Summary of Metalworking Evidence in the Fourth Millennium

Early-Mid 4th Millennium

Site	Site Size (ha)	Context	Evidence
Hacınebi	3.3	Phase A Phase A area C building Phase A industrial area outside of enclosure wall Phase A area A building	Ingot mould Ceramic tuyere 4 bowl furnaces; crucible fragments; vitrified slag; piece of copper Ceramic mould
Arslantepe	2	Room A617	Copper ore
Fatmalı-Kalecik	< 1	Sounding	Copper fragment; vitrified slag; ore; crucible fragments
Norşuntepe	3.2	Level IX, western area	Crucibles; smelting furnaces

Mid-Late 4th Millennium

Site	Site Size (ha)	Context	Evidence
Hacınebi	3.3	Local and Uruk areas	Open-faced moulds; crucibles; ore; slag; malachite on BRB
Arslantepe	2	Temple/Palace complex	Ores and slags
Tepecik	2.1	Tripartite Building Phase 3a Tripartite Building Phase 3c	Ores and slag Slag
Tülintepe	1.6	Near domed oven in a courtyard	Slag, crucible fragments

Appendix II: Metal Objects and Metalworking Evidence in the EB I and II

Carchemish Sector

Qara Quzaq

Context	Items (Object number)	Notes
Locus 12-E, 'Princess of Qara Quzaq'	11 ceramic vessels 5 copper spearheads 25 pins (14 bronze, 1 copper, 1 copper-arsenic, 9 copper/ bronze)- included 1 'lentil' headed pin; 1 hemispherical-headed pin; 2 disc-headed pins 2 'cuentas' (?) of copper/bronze Approximately 700 beads- including rock crystal beads which formed a bracelet	(Montero Fenollós 2004)
Locus 12-W, juvenile	12 ceramic vessels 2 copper spears (1 of which was tripartite) Approximately 11,800 beads; worked bone	(Montero Fenollós 2004)

Shiukh Tahtani

Context	Items (Object number)	Notes
EB I-II T.109 pithos burial	Ceramics: *cyma recta* and champagne cups, Metal pins Stone beads	(Falsone and Sconzo 2008)

Shiukh Fawqani

Context	Items (Object number)	Notes
Phase B, Building 3	Spouted crucible with copper droplets	Associated with wall niche (Bonacossi 2000)

Carchemish

In cases where the older (Woolley 1952) and more recent accounts (Falsone and Sconzo 2007) do not match up, both are listed below.

Context	Items (Object number)	Notes
Pot Burial 1, 1 child	No objects	
Pot Burial 2	No objects	
Pot Burial 3, 1 individual	No objects	
Pot Burial 4, 1 adult	No objects	
Pot Burial 5, 1 individual	No objects	
Pot Burial 6, 1 adult	No objects	
Pot Burial 7, 1 child	No objects	
Pot Burial 8, 1(?) individual	No objects	
Pot Burial 9, 1 child	1 champagne cup	
Pot Burial 10, 1 adult	No objects	
Pot Burial 11, 1 child	No objects	
Pot Burial 12, 1 individual	1 champagne cup Beads/necklace	
Pot Burial 13, 1 adult	1 bowl; 1 miniature *aryballos*	
Pot Burial 14, 1 adult	Ceramics: 2 champagne cups, 1 chalice and 1 globular jar	
Pot Burial 15, 1 individual	1 bowl 2 bronze bracelets	Noted as looted in antiquity by Woolley (1952) See Falsone and Sconzo (2007: 76) in regards to this burial being Iron Age rather than Chalcolithic. Not included in the EBA metal count
Pot Burial 16, 1 individual	Ceramics: 1 champagne cup, 1 bowl and 1 jar Beads/necklace	

Pot Burial 17, 1 child	Ceramics: 3 champagne cups and 1 reserved slip jar Beads/necklace	
Pot Burial 18	3 champagne cups 1 bronze pin	
Pot Burial 19	1 champagne cup	
Pot Burial 20	1 jar	
Pot Burial 21, 1 individual		Field notes lost
KCG 1, 1 child Same context as Pot burials 16 and 17	Ceramics: 4 champagne cups, 1 bowl and 1 miniature *aryballos* 2 ball-headed pins 2 poker-butted spearheads	(Woolley 1952)
KCG 2, 1 child	Ceramics: 5 champagne cups, 1 bowl and 1 *cyma recta* Beads/necklace 4 ball-headed pins One double goat-headed pin 1 'other' object described as a short cylinder with a loop handle flanked by 2 doves (in the skeleton's hands)	
KCG 3	Ceramics: 19 champagne cups, 3 bowls and 2 jars	Noted as looted in antiquity (Woolley 1952)
KCG 4	9 champagne cups	
KCG 5	6 'other' sherds (Falsone and Sconzo 2007) Woolley (1952) reports fragments of a small 'black ware' pot	Uncertain date (Falsone and Sconzo 2007)
KCG 6[182]	Ceramics: 16 champagne cups, 1 *cyma recta* and 1 miniature *aryballos*; Beads/necklace 4 pins	
KCG 7	Ceramics: 22 champagne cups, 4 chalices, 5 bowls, 4 jars, 3 miniature *aryballos* and 1 'other' vessel	3? individuals

[182] The information for KCG 6 and 7 was taken from Lawrence's notes, and Woolley questioned the accuracy of Lawrence's findings as this was the first tomb T.E. Lawrence excavated and he admits in the report that it was not very well done (Woolley 1952: 219). See Woolley's footnotes.

	Beads/necklace 3 pins 1 bronze mace head 2 daggers Woolley (1952) mentions an axe blade though Falsone and Sconzo (2007) do not	
KCG 8, 2? individuals	Ceramics: 16 champagne cups and 3 jars Pins- number unknown though Woolley (1952) mentions 'a few'	
KCG 9, 1 individual	Ceramics: 58 champagne cups, 1 jar and 1 miniature *aryballos* Beads/necklace 4 pins 4 bronze bracelets 2 bronze mace heads 1 chisel 1 dagger Woolley (1952) also mentions 2 bronze axes and 4 spearheads	
KCG 10	19 vessels 2 pins Woolley (1952) mentions 2 flint knife cores	
KCG 11, 1 individual	4 champagne cups Beads/necklace 1 pin	
KCG 12	27 champagne cups Beads/necklace 1 pin 1 leaf-shaped spearhead (not mentioned by Woolley)	
KCG 13	1 reserved slip chalice Beads/necklace	Notes for this burial were lost

	1 silvery eyeleted pin 4 bronze pins 4 bronze bracelets 1 leaf-shaped spearhead 1 dagger 2 other metal objects Woolley (1952) mentions a solid mace head	
KCG 14	Ceramics unknown; 4 metal bracelets 4 metal mace heads 1 chisel 1 dagger	
KCG 15	Ceramics unknown 1 metal bracelet 2 poker-butted spearheads 1 metal mace head 1 dagger	

Zeytinli Bahçe

Context	Items (Object number)	Notes
Sounding CG	Pin with conical head	(Frangipane *et al.* 2002)
Sounding CG	Bronze chisel	(Frangipane *et al.* 2002)
	19 objects and 3 crucibles[183]	"Only 19 metal artefacts have so far been collected from these EBA levels, all of them in good contextual conditions. They consist of pins, awls and needles, as well as laminae whose fragments cannot be attributed to specific tools" (Palmieri and di Nocera 2004: 377).

[183] These objects are noted here but not included with the data as there is no published contextual information for these objects or a numeration of how many of each type of object there are.

Hacınebi

Context	Items (Object number)	Notes
Operation 12, Jar burial 128 Loosely flexed adult facing SE	No grave goods	(Stein *et al*. 1997)
Operation12, Infant Jar burial 129	Probable grave goods[184]	(Stein *et al*. 1997)
Operation12, Infant Jar burial 135 Locus 140 Lot 295	Conical-headed copper pin (HN 12038). Probable other grave goods. See note to Jar burial 129.	(Squadrone 2000b; Stein *et al.* 1997)
Operation 12, Infant Jar burial 140	Probably grave goods. See note to Jar burial 129.	(Stein *et al*. 1997)
Operation 12, Pit burial 141 Adult, extended position oriented NNW-SSE on its stomach. The body may have been tossed into the grave.	Mandible of an onager/donkey[185]	(Stein *et al*. 1997)
Operation 12, Cist burial 145 The skull was the only skeletal material left	Robbed in antiquity	(Stein *et al*. 1997)
Operation 12 Infant Pit burial 201	Probable grave goods. See note to Jar burial 129.	(Stein *et al*. 1997)
Operation 12, Cist burial 153 Lined with limestone slabs on E, W and S sides with mud brick at N side. Top sealed with 2 large slabs. Poorly preserved adult skeleton oriented NE-SW	2 beaded rim bowls and 1 broken pedestalled goblet	(Stein *et al*. 1997)
Operation 18, Cist burial 4	Robbed in antiquity	(Stein *et al*. 1997)
Operation 18, Cist burial 5	Ceramics: 7 champagne cups, 4 small pedestal bowls, 3 small jars, 3 small bowls Hundreds of small frit beads 2 conical headed pins (HN 12789 and HN 12297); 1 'normal' size pin with rams heads[186] (HN 12294)	(Squadrone 2000b; Stein *et al*. 1997)

[184] The contents for the infant jar burials are listed together as including frit beads, a single copper/bronze pin and small ceramic vessels. Of these items, only the pin (HN 12038) was associated with a specific burial number.
[185] Probably not intended for the same use as the jawbone of an ass as mentioned in Judges 15:15-17, which Samson used to slay 1,000 men.

	1 large[187] pin with rams heads (HN 12788); Silver wire coil (HN 12784) 1 unknown item	
Operation 18, Cist burial 6	Robbed in antiquity	(Stein *et al*. 1997)
Operation 18, Cist burial 10	Robbed in antiquity	(Stein *et al*. 1997)

Tilbeş Höyük

Context	Items (Object number)	Notes
E4b tomb below EB I building	Ceramics: goblets and champagne cups with reserved slip A bronze pin Beads	1 individual
East side of E4aE3E8 tomb under 'Burned Building'	Poorly preserved metal fragments	Skeleton poorly preserved
West side of E4aE3E8 tomb	A few beads 2 bronze pins 40 vessels (including 9 'tall goblets')	No skeleton Possible EB III date
AE1-5 tomb	3 bronze pins Beads Ceramics: 15 'tall goblets', 6 pedestal bowls and 12 small bowls and jars- many with reserved slip	Radiocarbon date from the tomb shaft was 3351-2920 (calibrated)
AE 1-5 pit in open work area	Evidence of metal smelting	(Rainville 2005)
Square E4bE2E7E10EF1 'firing' pit	Slag remains	(Rothman and Fuensanta forthcoming)

[186] A double goat-headed pin from Chagar Bazar was found in Grave 67 (Mallowan 1936 fig. 8:2 or 8:7).
[187] The size of the pin in the pictures as well as when the scale on the drawing (Stein 1998b: 207) was used to measure the pin as it was drawn (ca. 23 cm long) indicate that this 'pin' is inordinately large if it is a pin.

Birecik Dam Cemetery

The following information is based on Sertok and Ergeç (1999: Table 1) and Squadrone (2000a, 2000b, 2007). The full list of metal objects excavated from the cemetery have still not been published; Squadrone's (2000b) thesis is the most complete listing of objects thus far, though she only provides an incomplete list of the pins, pendants and weapons- leaving out torques and chisels and some of the pins and axes that are listed in the other publications listed above.

Context (Tomb Number)	Items (Object Number)	Notes
M1	Poker-butted spearhead (M1/1) 'Tool'	
M3	Loop-headed pin (BTM3/2)	
M6		1 adult, 1 infant
M7		1 (male?)
M10	Conical-headed pin with incised grooves on the shaft (BTM10/1) Conical-headed pin with incised grooves on the shaft (BTM10/2)	
M11	Bent pin (BTM11/3) Tripartite spearhead (BTM11/1)	
M12	Oval/tapered-headed pin with incised grooves on the shaft (BTM12/7) Oval/tapered-headed pin with incised grooves on the shaft (BTM12/5) Conical-headed pin with incised grooves on the shaft (BTM12/6) Conical-headed pin with incised grooves on the shaft (BTM12/8) Perforated pin with animal head (BTM12/1)	
M14	Perforated pin	
M17		1 adult (male?); 1 infant
M18		1 infant
M20	Conical-headed pin with incised grooves on the shaft (BTM20/2)	
M21	Conical-headed pin with incised	

	grooves on the shaft (BTM21/1)	
M23	Conical-headed pin with incised grooves on the shaft (BTM23/1)	
M25	Bent pin (BTM25/1) Bent pin (BTM25/2)	
M26	1 Oval-headed pin (M26/2)	
M30	Conical-headed pin with incised grooves on the shaft (BTM30/1)	
M32	Pendant (BTM32) Pendant (BTM32) Conical-headed pin	1 infant
M37	Conical-headed pin with incised grooves on the shaft (BTM37/1F)	1 adult (female?)
M38	Conical-headed pin with incised grooves on the shaft (BTM38/1)	1 unknown
M43	Double spiral-headed pin (BTM 43/1)	
M44	Chisel	1 unknown
M48	Conical-headed pin with incised grooves on the shaft (BTM48/2B) Conical-headed pin with incised grooves on the shaft (BTM48/2C) Animal topped seal/ pendant (BTM48/1A)	
M49	Conical-headed pin with incised grooves on the shaft (BTM49/1)	1 unknown
M55		1 male
M57	Hemispherical-headed pin (BTM57/7) Spherical-headed pin (BTM57/6) Perforated pin	1 adult
M82		1 male, 1 female adult
M83	Flat axe	1 adult
M85	Pin with a rolled head (BTM85/3)	
M86		2 adults
M87		1 unknown
M88		1 unknown
M92		1 unknown

M95		1 adult
M96		2 adult male; 1 infant
M97	Poker-butted spearhead (M97/3) 'Tool'	
M102		1 adult (female?)
M104	Oval-headed pin with incised grooves on the shaft (BTM104/2)	
M105	Hemispherical-headed pin (BTM105/1)	
M106	Poker-butted spearhead (M106/6) Perforated pin Crescentic pendant	
M107	Disc-headed pin (BTM107/2C) Disc-headed pin (BTM107/1C) Twisted neck torque	
M108		1 adult
M109	Hemispherical-headed pin (BTM109/2)	
M112	Animal-headed pin (BTM112/1)	1 adult
M115	Tripartite spearhead (BTM115/1)	
M117	Oval-headed pin with incised grooves on the shaft (BTM117/3) Double/quadruple spiral-headed pin (BTM117/2) Seal/pendant (BTM117/1) Conical/hemispherical headed pin	
M127		1 unknown
M128		1 unknown
M130		2 adult males (?); 2 adult females (?); 1 adult
M132	Oval-headed pin with incised grooves on the shaft (BTM132/1)	
M136		1 adult (female?)
M137	Poker-butted spearhead (M137/1)	1 adult
M143		4 adult males (?); 2 adult females; 1 unknown adult; 1 infant
M144	Bent pin with a snake head at the end	2 adults

	(BTM144/1)	
M145		1 male adult; 1 female adult; 1 unknown adult; 1 infant
M146		1 adult male; 1 adult female; 1 unknown adult
M149	Disc-headed pin	
M150	'Fountain'- headed pin	
M152	Disc-headed pin (BTM152/1)	
M 153	Conical-headed pin	
M155	Oval-headed pin with incised grooves on the shaft (BTM155/1C) Oval/tapered- headed pin with incised grooves on the shaft (BTM155/1E) Conical-headed pin with incised grooves on the shaft (BTM155/1A)	
M 156	Oval/tapered- headed pin with incised grooves on the shaft (BTM156/2A) Conical-headed pin with incised grooves on the shaft (BTM156/2D)	
M159	Oval-headed pin with incised grooves on the shaft (BTM 159/1)	
M160	Oval/tapered- headed pin with incised grooves on the shaft (BTM160/1)	
M162	Oval-headed pin with incised grooves on the shaft (BTM 162/1)	
M167	Oval/tapered- headed pin with incised grooves on the shaft (BTM167/2D) Conical-headed pin with incised grooves on the shaft (BTM167/2C) Animal-headed pin (BTM167/2B) Seal/pendant	
M168	Conical-headed pin with incised grooves on the shaft (BTM168/2)	
M169	Conical-headed pin with incised grooves on the shaft (BTM169/2)	
M179	Oval/tapered- headed pin with incised grooves on the shaft (BTM179/2) Conical-headed pin with incised grooves on the shaft (BTM179/3) Seal/pendant (BTM179/1)	

M180		1 adult (male?)
M184	Tripartite spearhead (BTM184/1B)	
M188		1 adult
M191	Conical-headed pin with incised grooves on the shaft (191/2)	
M201		1 infant
M202	Oval-headed pin with incised grooves on the shaft (BTM202/1A) Flat axe (M202/1B) Flat axe (M202/1C) Flat axe (M202/1E)	
M207	Conical-headed pin with incised grooves on the shaft (BTM207/1C) Animal-headed pin (BTM207/1B)	1 adult female
M208		1 adult male
M214	Conical-headed pin with incised grooves on the shaft (BTM214/1A)	
M219	Oval/tapered- headed pin with incised grooves on the shaft (BTM219/2)	
M220	Spherical-headed pin (BTM220/1) Disc-headed pin (BTM220/3)	1 adult female; 2 unknown adults; 1 infant
M243	Flattened-headed pin	
M244	Disc-headed pin; spherical-headed pin	
M247	2 Conical-headed pins	
M251	Hemispherical-headed pin	
M252	Oval-headed pin (M252/3)	
M265	Poker-butted spearhead (M265/6)	
M270	Conical-headed pin	
M282	Poker-butted spearhead (M282/3) Poker-butted spearhead (M282/2)	
M285	Double/quadruple spiral headed pin (BTM285/2)	
M286	Double/quadruple spiral headed pin (BTM286/1) Poker-butted spearhead (M286/3)	

	'Tool'	
M287	Pin with a rolled head (BTM287/5) Quadruple spiral-headed pin	
M291	Dagger with triangular blade and a long shank without rivets (M291/4) Flat axe (M291/1)	
M302	Double spiral ornament (BTM302/5)	
M308	Oval-headed pin (M308/12) Oval-headed pin with incised grooves on the shaft (BTM308/5) Conical-headed pin	
M309	Oval-headed pin with incised grooves on the shaft (BTM 309/4) Bent pin with a snake head at the end (BTM309/5) Flat axe	
M311	Poker-butted spearhead (M311/1)	

Samsat-Lidar Sector

Kurban Höyük

Context	Items (Object number)	Notes
Fill deposit in C01 phase 9 Period V (Early EB)	Pin	(Algaze 1990)
Inside hearth in C01 phase 7 Period V	Mushroom-shaped pin	(Algaze 1990)

Titris Höyük

Context	Items (Object number)	Notes
Locus 79 stone cist burial	Bronze pin; A bronze nail 6 vessels	EB I-II (Algaze and Mısır 1995)

Lidar Höyük

Context	Items (Object number)	Notes
'Elite' cemetery graves	Pins and toggle pins Ceramics including reserved slip and black burnished wares	EB III-IV and so not included in the data set
Northern graves	"…beads and rings of limestone, bronze pins and two stone axes" (Hauptmann 1983a: 255) "Gifts like bronze arm-rings, pins, limestone or mussel pendants, are rare" (Hauptmann 1982a: 18) 'A few bronze pins and bracelets were preserved' (Hauptmann 1987: 206)	Unknown quantities and contexts so not included in the dataset
Early EBA levels in step trench	'deep layers of ash, clay, slag and potsherds'	(Hauptmann 1985: 205)

Hassek Höyük

Objects from non-mortuary contexts:

Context	Items (Object number)	Notes
A group of finds, 'In the youngest level' of the EB occupation- may be part of a grave good deposit for a burial beneath this structure (Behm-Blancke 1987)	Cyma-recta cups A bronze knife with a whet stone A flat axe A large pin A chisel	Behm-Blancke (1980, 1987)
EB I Domestic Contexts	Copper pin (HSK. I. 79-147) Copper pin (HSK. I. 80-41) Lead wire (HSK. I. 80-104) Copper pin (HSK. I. 81-23) Copper pin (HSK. I. 81-25) Lead 'whorl' (HSK. I. 83-01) Copper awl (HSK. I. 83-26) Copper pin (HSK. I. 84-01)	Schmitt-Strecker, Begemann and Pernicka (1992)

	Copper R-pin (HSK. I. 84-02) Copper-arsenic awl (HSK. I. 84-06) Copper spatula (?) (HSK. I. 84-35) Copper tube (HSK. I. 84-76) Copper-arsenic awl (HSK. I. 84-88) Copper-arsenic pin (HSK. I. 85-15) Copper dagger (HSK. I. 85-18) Copper pin (HSK. I. 85-28) Copper pin-like object (HSK. I. 86-03)	
EB II domestic contexts	Tin-bronze toggle pin (HSK. I. 85-16)	Schmitt-Strecker, Begemann and Pernicka (1992)

Objects from mortuary contexts[188]:

Context	Items (Object number)	Notes
Necropolis Grave 1- large pithos with an adult	Copper-arsenic pin (HSK. W. 80-01) Copper pin (HSK. W. 80-02)	
Necropolis Grave 4- pit grave with a 30-40 year old female	Lead mace head (HSK. W. 81-42)	
Necropolis Grave 8- large pithos with an adult	Copper pin (HSK. W. 81-15)	
Necropolis Grave 11- small pithos with an infant	Copper pin (HSK. W. 81-16)	
Necropolis Grave 13- small pithos with an infant	Copper pin (HSK. W. 81-17) Copper-arsenic pin (HSK. W. 81-18)	
Necropolis Grave 14- large pithos with an infant	Copper pin (HSK. W. 81-19) Copper pin (HSK. W. 81-20)	
Necropolis Grave 16- small pithos with an infant	Copper bird-headed pin (HSK. W. 81-21)	
Necropolis Grave 19- small pithos with an infant	Copper pin (HSK. W. 81-22)	

[188] There should be 101 objects altogether from the cemetery, with about 50 from the west cemetery. The majority of the objects listed here are from Schmitt-Strecker, Begemann and Pernicka (1992), but these are only the analysed materials. It should also be noted that the skeletal analysis and burial typology only goes up to grave 68 (Parsche and Ziegelmayer 1992).

Necropolis Grave 31- large pithos with an unknown individual	Copper chisel (HSK. W. 81-43) Copper knife (HSK. W. 81-44)	
Necropolis Grave 41- large pithos with an unknown individual	Copper pin (HSK. W. 81-23)	
Necropolis Grave 42- large pithos with an unknown individual	Copper pin (HSK. W. 81-24)	
Necropolis Grave 43- stone cist with a 18-20 year old male	Copper pin (HSK. W. 81-25) Knife	
Necropolis Grave 70	Copper pin (HSK. W. 81-26a); Conical-headed pin with incised shaft (HSK. W. 81-26b) (HSK. W. 81-26c); (HSK. W. 81-26e); (HSK. W. 81-26f); (HSK. W. 81-26g) Copper-arsenic pin (HSK. W. 81-26d) Copper cylinder seal with zoomorphic attachment (HSK. W. 81-49)	(Behm-Blancke 1984)
Necropolis Grave 71	Copper pin (HSK. W. 81-27)	
Necropolis Grave 80	Copper pin (HSK. W. 81-28)	
Necropolis Grave 88	Copper pin (HSK. W. 81-34)	
Necropolis Grave 91	Copper pin (HSK. W. 81-35)	
Necropolis Grave 99	Copper R-pin (HSK. W. 81-29) Copper bracelet (HSK. W. 81-47)	
Necropolis Grave 104	Copper-arsenic pin (HSK. W. 81-30) Copper pin (HSK. W. 81-36) Copper pin (HSK. W. 81-37)	
Necropolis Grave 106	Copper-arsenic flat axe (HSK. W. 81-48)	
Necropolis Grave 108	Copper pin (HSK. W. 81-38) Copper pin (HSK. W. 81-39)	
Necropolis Grave 117	Copper pin (HSK. W. 81-40)	
EB I-II domestic burial Grave 2	Conical-headed pin with incised shaft (HSK. I. 80-40)	(Behm-Blancke 1981)

EB I-II domestic burial 12/ Cist grave 5- stone cist with a 35 year old male	Copper-arsenic mace head (HSK. I. 81-27) Copper dagger (HSK. I. 81-28) Copper-arsenic chisel (HSK. I. 81-29) Copper spearhead (HSK. I. 81-30) Copper spearhead (HSK. I. 81-31) Copper flat axe (HSK. I. 81-32) Conical-headed pin with an incised shaft (HSK. I. 81-33) Copper-arsenic flat axe (HSK. I. 81-34)	
EB I-II domestic burial 12a	Oval-headed pin (HSK. I. 79-34) Copper flat axe (HSK. I. 79-37) Copper knife with a triangular blade and 1-2 rivets on a long shank (HSK. I. 79-38) Copper chisel (HSK. I. 79-39)	(Behm-Blancke 1981) (Squadrone 2000b)
Necropolis 'bought'	Copper pin (HSK. W. 80. 03) Copper-arsenic conical-headed pin with an incised shaft (HSK. W. 80-04) Copper-arsenic pin (HSK. W. 80-05)	(Behm-Blancke 1981) These items are not included in the count as their context is unknown
Necropolis stray find	Copper-arsenic pin (HSK. W. 81-32) Copper pin (HSK. W. 81-33) Copper pin (HSK. W. 81-41)	These items are not included in the count as their context is unknown

Hassek Höyük metalworking evidence

Context	Items (Object Numbers)	Notes
EB I pit in settlement	Several limestone tool moulds	(Behm-Blancke 2003; Di Nocera and Palmieri 2000)

Malatya Sector

Arslantepe

Context	Items (Object number)	Notes
T1- 'Chief's' burial	9 spearheads divided into 7 foliate blades[189] and 2 elliptical shaped with elongated blades (ARSL 3763; ARSL 3754; ARSL 3709; ARSL 3710; ARSL 3756) These were all made of copper/ arsenical copper 4 knives (ARSL 3760), made of copper/arsenical copper; 2 swords (ARSL 3713); both made of copper/ arsenical copper 3 daggers (ARSL 3684); 2 of which were made of copper/ arsenical copper; one was made of copper-silver alloy 4 axes, all of which were made of copper/ arsenical copper 3 chisels made of copper/ arsenical copper 3 gauges; all of which were made of copper/ arsenical copper 1 diadem made of copper-silver alloy 2 quadruple spiral headed pins made of silver (ARSL 3714; ARSL3715) 15 bracelets made of copper-silver alloy 9 spirals- One of which is made of gold; one is made of silver; seven were made of copper-silver alloy	(Frangipane *et al.* 2001; Palmieri and Di Nocera 2000; Palumbi 2008b; Squadrone 2000b)

[189] This includes the two decorated spearheads whose decorations parallel types found in EB I burials at Hassek, the Birecik Dam cemetery (Squadrone 2007) and Carchemish in addition to the earlier spearhead from Arslantepe VI A (Palumbi 2008).

	4 rings made of copper-silver alloy 1 necklace made of a biconical bead and 3 pairs of gold, silver and carnelian beads, 28 rock crystal disc beads and 16 calcareous disc beads 1 necklace with a strand of 42 silver beads and 64 calcareous beads and a strand of 23 silver beads and 36 calcareous beads 1 metal basin made of copper/ arsenical copper 1 metal beaker made of copper/ arsenical copper	
S150, H223	1 diadem (ARSL 3764) of silver-copper alloy 1 copper double spiral-headed pin (ARSL 3718) 1 copper loop-headed pin with beads (ARSL 3719) 2 hair spirals of copper-silver alloy	(Squadrone 2000b)
S150, H224	1 diadem (ARSL 3761) of copper-silver alloy 2 double spiral-headed copper pins (ARSL 3716; ARSL 3717) 2 hair spirals of copper-silver alloy	
C 7(16) K1127, str. 1	Conical-headed pin with incised grooves on shaft (ARSL 3780)	VI B2 (Squadrone 2000b)
C 8 (8) A226	Chisel- made of copper/silver alloy	VI B2 (Caneva and Palmieri 1983)
C 8 (8) A 242, 2	2 Pins- arsenical copper	VI B2 (Caneva and Palmieri 1983)
D8 (7-11) 13d	Oval-headed pin with incised grooves on shaft (ARSL 3523)	VI B2 (Squadrone 2000b)
D8 (9) A200, 1	Punch (2561)	VI B2 (Caneva and Palmieri 1983)
D8 (10) 13b2 R154	Oval-headed pin with incised grooves on shaft (ARSL 3213)	VI B2 (Frangipane 1993:81)
D8 (14), A170	Loop- headed pin (ARSL 2534)	VI B2 (Palmieri 1981)
D8 (15) str. 10a	Conical-headed pin with incised grooves on shaft (ARSL 3254)	VI B2 (Frangipane 1993b)

D8 (12), 24b	Conical-headed pin with incised shaft (ARSL 3516)	VI B2 (Squadrone 2000b)
D9 (2-3) D8 (14-15) A170	Awl (3142)- arsenical copper	VI B2 (Caneva and Palmieri 1983)
D9 (2) A170, 3	Chisel (2529)	VI B2 (Caneva and Palmieri 1983)
D9 (7) K 416	Punch (3143)	VI B2 (Caneva and Palmieri 1983)
D9 (7-8) Str.16a	Rolled-head pin (ARSL 3287)	VI B2 (Squadrone 2000b)
D9 (3) Str. 9d	Rolled-head pin (ARSL 3255)	VI B2 (Squadrone 2000b)
D9 (10), A153 D9 (10) 6c	Conical-headed pin with incised shaft (ARSL 2535) Punch (2555)	BI B2 (Palmieri 1981)
D9 (11) 10a	Chisel (3146)	VI B2 (Caneva and Palmieri 1983)
D9 (7) A186 2a	Awl (3153)	
D9 (7), A326 rM1f	Oval/tapered- headed pin with incised grooves on shaft (ARSL 3155)	VI B2 (Frangipane and Palmieri 1983b)
D9 (13), A130 y.1 D9 (13) A130, 6 D9 (13) A130, y.2	Conical-headed pin with incised grooves on shaft (ARSL 2430) Chisel (2344) Chisel (2438)	VI B2 (Palmieri 1981) One of the chisels here was likely used to work stone due to deformations at chisel end (Frangipane and Palmieri 1983b; Squadrone 2000b)
D9 (6) A186	Knife (2556)	VI B2 (Caneva and Palmieri 1983)
A736	Pendant (ARSL 3518) Pendant (ARSL 3517)	VI C (Frangipane and Palmieri 1994-1995) Frangipane (1994: 214) described one ornament as: made of four rings of thin metal wire with the ends intertwined and curled up to make transversal spiral coils Squadrone (2000b) noted two pendants though she did not describe them in detail. The ornament described by Frangipane above is likely one of the pendants listed by Squadrone, however.
A607	Earring (ARSL 3476-3478) Small coils Chain links (hair spirals?)	VI C (Frangipane 1992; Squadrone 2000b) Room destroyed by fire; room had grain and legume store EB II period

	1 Oval-headed pin with incised grooves on shaft (ARSL 3475)	

Arslantepe metalworking evidence

Context	Items (Object number)	Notes
Burned houses	A large piece of 'altered' copper ore	(Palmieri and Frangipane 1990)
Metalworking area	Stone pestles and 2 fragments of copper ore	VI B2 period
Metalworking area; pit	Crucible fragment	VI B2 period
D 8(15) A397rP2	Mould fragments	VI B2 (Squadrone 2000b)
D 8(14) Str4N	Crucible	VI C (Squadrone 2000b)
Street construction material	Large amount of slags	(Frangipane 1993)

Gelinciktepe

Context	Items (Object number)	Notes
C, 11	Oval-headed pin with incised grooves on shaft	(Palmieri 1967)

Taşkun Mevkii

Context	Items (Object number)	Notes
K 10c	Double spiral ornament (part of an earring or pendant?) (Tas.M. 70-4)	(Sagona 1994; Squadrone 2000b)
K 11	Ribbon of copper shaped like a snake (Tas. M. 71/2)	(French 1974; Helms 1973; Sagona 1994)
Phase 2b	Conical-headed pin with incised/grooved shaft (Tas. M. 71-19)	(Helms 1973; Sagona 1994; Squadrone 2000b)
Trench 601 Level 8	Oval-headed pin with incised/grooved shaft (Tas. M. 70.6)	(Helms 1973; Sagona 1994; Squadrone 2000b)
Phase 1-3	Loop-headed pin	(French 1974; Sagona 1994; Squadrone 2000b)

Taşkun Kale

Context	Items (Object number)	Notes
Building in Trench S9	Chisel	Sagona (1994)

Aşvan Kale

Context	Items (Object Numbers)	Notes
Step trench, G2b area	Small bronze ring with overlapping ends Bronze earring Bronze pin with flattened rolled head	(Sagona 1994)

Pulur-Sakyol

Context	Items (Object Numbers)	Notes
Level XI	4 sided mono valve mould- 2 sides for daggers/knives and 2 sides for flat axes	Labelled as 'Bronze Age' (Koşay 1976)
Level X	Ingot (1059) More than two pins Chisel More than two spearheads Slags	(Koşay 1976)
Level IX	Pin with hemispherical head (S570TMKC69.2.4)	(Koşay 1976)

Han Ibrahim Şah

Context	Items (Object Numbers)	Notes
Phase 1, level X stone building	Bronze dagger (359) with two holes to affix handle	
Phase 2, level VIII stone building	Sword-like 'pin' (267)	This building is related to the level X building

Tepecik

Context	Items (Object Numbers)	Notes
2nd pit near abandoned tripartite building (13 HK level 6)	Crucible fragments Slag Bivalve mould for a spearhead	(Esin 1976c; Müller-Karpe 1994; Squadrone 2000b)

Norşuntepe- EB I, Levels XXX – XXV

Context	Items (Object number)	Notes
J 19 I/II Ha (EB I)	Pin- missing head (652) 'club-headed' pin with incised decorations (915) Ring with over-lapping ends (983)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
K 18 I/II (EB I)	Conical-headed pin (941) Conical-headed pin with 'profiled neck' (946)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
J 18 I/II Ha (EB I)	Carchemish type pin with line decorations on the head and neck (947) 'Club-headed' pin with line decorations (913); Double spiral-headed pin, corroded (963) Double spiral-headed pin, corroded (962)	(Hauptmann 1972, 1976; Schmidt 2002; Squadrone 2000b)
J 18 (EB I)	Lead ring (747.16)	(Schmidt 2002)
K 18 (EB I)	Lead 'shell' (747.15)	(Schmidt 2002)
K 18 I/II Hang. (EB I)	Projectile point (608.1)	(Schmidt 2002)
J 18 III/IV Gr. (EB I)	'Square Tip' chisel (632)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
L 19c R S (Level 25)	Narrow broken knife handle with plate, tip and end (689.1)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
L 19c Gr. (Level 25/24)	Bent lead wire (742)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
L 19c Gr 24b (Level 25)	Awl (648.2)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
Level 25- pits L 19; K 19d Gr. 28	Slags Crucible fragments (587; 591.3)	(Palumbi 2008)

EB II, Levels XXIV-XXI

Context	Items (Object number)	Notes
L 19a Gr. (Level 24)	'Club-headed' pin with indistinct decorations on the head, corroded (912)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
L 19c Gr. (Level 24)	Conical-headed pin (935)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)

L 19a Gr. 16 (Level 24)	'Club-headed' pin, corroded (915.1)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
L 19a (Level 23)	Pin with biconical head with a peg-top (955)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
L 19c Str. (Level 23)	Hair spiral (1010)	(Hauptmann 1972; Schmidt 2002; Squadrone 2000b)
Level 24 L 19c Gr. 24 K 19d Gr. 28	Series of pits with copper slag and crucible fragments (589, 588), suggesting a possible metalworking area	(Schmidt 2002)
Level 22 L 19a R N	Mould fragment	(Schmidt 2002)
Level 21 L 19a/b R H K/L 19	Fragment of a possible clay crucible (578) Smelting furnace(s)	(Schmidt 2002) (Squadrone 2000b)

Summary of EB I-II Metalworking Evidence

Site	Site Size (ha)	Context	Evidence
Shiukh Fawqani	1.5	Phase B, Building 3	Crucible with copper droplets associated with wall niche
Tilbeş Höyük	1.1	AE 1-5 pit in open work area Square E4bE2E7E10EF1 'firing' pit	Micromorphological evidence of metal smelting Slag remains
Lidar Höyük	3	Early EBA levels in step trench	'deep layers of ash, clay, slag and potsherds' (Hauptmann 1985: 205)
Hassek Höyük	1.0	EB I pit	Limestone tool moulds
Arslantepe	2.0	Courtyard metalworking area Pit in metalworking area Burned house Street paving material	Stone pestles and 2 fragments of copper ore Crucible fragments Large piece of copper ore Slag
Pulur-Sakyol	1	Level X	Slags
Tepecik	2.1-2.7	2nd pit near abandoned tripartite building	Crucible fragments; Stone mould; Slag
Norşuntepe	3.2	Level XXV pits Level XXIV pits Level XXII Level XXI Level XIX Level XVIII Level XVII Level XV	Slags; crucible fragments Slag; crucible fragments Mould fragment Crucible fragment Grinding stones; stone hammer; slag; crucible fragments; shaft-hole axe mould and possible tuyeres Crucible fragments Crucible fragments Crucible fragments

Appendix III: Metal Objects from Comparative Sites

Tepe Gawra

Note that only the metal grave goods are listed in the mortuary data. See Peasnall (2002) for a complete listing of all of the grave goods and types of graves.

Level XI/XA Non-Mortuary Objects

Context	Items	Notes
8M 6Q c3	Gold pin (1265)	
9M 9M e7	Copper pin (1288)	
9M 9M e7	Copper pin (1289)	
8M 6Q	Copper adze (1314)	
9M 6O	Copper adze (1315)	
10N 5M i7	Copper pin (1317)	
11 R 3K a4	Copper nail (1318)	
11N 5K- over oven near temple	Copper object (1319)	
11N 5K b10	Copper needle (1320)	With pieces of sealing
8Q 8Q c4- on room floor	Copper point (1321)	
9M 9M e7	Copper pin (1322)	With obsidian blade
10M 10M i2	Copper celt (1323)	In ash with 2 sealings
8M 8M a4	Copper pin (1325)	Out of pavement
9M 9M c/d 2/3	Copper pin (1326)	
10M 6M i10	Copper pin (1754)	
11L 7K h/i 2/3	Gold and lapis pendant (1757)	Under walls of Temple X niche XA
7K 7K j10	Gold on bitumen bead (1761)	
10N 5M c8	Copper adze (1771)	
9R 3O	Copper nail (1772)	
8K 8K c9	Copper adze blade (1773)	

Level XI/XA Grave Goods

Grave Number	Metal Items	Notes
Tepe Gawra 122	0	infant
Tepe Gawra 123	0	unknown
Tepe Gawra 125	0	infant
Tepe Gawra 126	0	child
Tepe Gawra 127	0	infant
Tepe Gawra 128	0	infant
Tepe Gawra 129	0	child
Tepe Gawra 130	0	infant
Tepe Gawra 134	0	child
Tepe Gawra 136	0	infant
Tepe Gawra 137	0	infant
Tepe Gawra 140	0	infant
Tepe Gawra 141	0	infant
Tepe Gawra 144	0	child
Tepe Gawra 145	0	adult
Tepe Gawra 146	0	child
Tepe Gawra 151	0	infant
Tepe Gawra 154	0	child

Tepe Gawra 158	0	infant
Tepe Gawra 159	0	infant
Tepe Gawra 160	0	child
Tepe Gawra 161	0	child
Tepe Gawra 163	0	child
Tepe Gawra 164	0	infant
Tepe Gawra 166	0	child
Tepe Gawra 168	0	child
Tepe Gawra 170	0	infant
Tepe Gawra 175	0	infant
Tepe Gawra 176	0	child
Tepe Gawra 178	0	infant
Tepe Gawra 179	0	infant
Tepe Gawra 180	0	child
Tepe Gawra 184	0	youth
Tepe Gawra 186	0	infant
Tepe Gawra 187	0	infant
Tepe Gawra 189	0	infant
Tepe Gawra 191	0	child
Tepe Gawra 192	0	infant
Tepe Gawra 193	0	infant
Tepe Gawra 215	0	infant
Tepe Gawra 218	0	infant
Tepe Gawra 221	0	youth
Tepe Gawra 222	0	child
Tepe Gawra 223	0	infant
Tepe Gawra 224	0	infant
Tepe Gawra 225	0	infant
Tepe Gawra 226	0	infant
Tepe Gawra 227	0	child
Tepe Gawra 228	0	child
Tepe Gawra 229	0	child
Tepe Gawra 230	0	infant
Tepe Gawra 231	0	child
Tepe Gawra 233	0	adult
Tepe Gawra 234	0	infant
Tepe Gawra 235	0	infant
Tepe Gawra 239	0	child
Tepe Gawra 242	0	child
Tepe Gawra 244	0	infant
Tepe Gawra 246	0	infant
Tepe Gawra 249	0	child
Tepe Gawra 252	0	infant
Tepe Gawra 253	0	infant
Tepe Gawra 263	0	infant
Tepe Gawra 270	0	infant
Tepe Gawra 278	0	infant
Tepe Gawra 290A	0	child
Tepe Gawra 315	0	infant
Tepe Gawra 318	0	infant
Tepe Gawra 36-027	0	child
Tepe Gawra 36-030	0	infant
Tepe Gawra 36-038	0	infant
Tepe Gawra 36-039A	0	youth
Tepe Gawra 36-039B	0	child

Tepe Gawra 36-041	0	infant
Tepe Gawra 36-042	0	infant
Tepe Gawra 36-046	0	infant
Tepe Gawra 36-048	0	child
Tepe Gawra 36-052	0	infant
Tepe Gawra 36-068	0	unknown
Tepe Gawra 36-080	0	child
Tepe Gawra 36-081	0	adult
Tepe Gawra 36-083	0	child
Tepe Gawra 36-084	0	child
Tepe Gawra 36-086	0	child
Tepe Gawra 36-088	0	infant
Tepe Gawra 36-089	0	infant
Tepe Gawra 36-100	0	child
Tepe Gawra 36-104	0	adult
Tepe Gawra 36-105	0	unknown
Tepe Gawra 36-110	0	adult
Tepe Gawra 36-111	0	adult
Tepe Gawra 36-129	0	old adult
Tepe Gawra 36-137	0	child
Tepe Gawra 36-144	0	child
Tepe Gawra 36-146	0	unknown
Tepe Gawra 36-168	0	infant
Tepe Gawra 7-010	0	child
Tepe Gawra 7-012	0	child
Tepe Gawra 7-014	0	child
Tepe Gawra 7-015	0	adult
Tepe Gawra 7-018	0	youth
Tepe Gawra 7-023	0	infant
Tepe Gawra 138	1 gold disc ornament	infant
Tepe Gawra 142	1 gold rosette ornament	child
Tepe Gawra 36-135	1 copper double spiral pendant	adult
Tepe Gawra 181	1 gold rosette ornament, 1 gold disc ornament, gold beads	child
Tepe Gawra 266	Copper beads from a bracelet, 1 gold earring	child

Level X Non-Mortuary Objects

Context	Items	Notes
8H 10O	Copper nail (1918)	On edge of tepe
8M 8M d8	Copper objects (1919)	

Level X Metal Grave goods

Grave Number	Metal Items	Notes
Tepe Gawra 269	0	Infant
Tepe Gawra 36-013	0	Youth
Tepe Gawra 36-014	0	Child
Tepe Gawra 36-016	0	Child
Tepe Gawra 36-026	0	Child
Tepe Gawra 36-031	0	Infant
Tepe Gawra 36-034	0	Child
Tepe Gawra 36-035	0	Child
Tepe Gawra 36-037A	0	Unknown
Tepe Gawra 36-037B	0	Unknown
Tepe Gawra 36-044	0	Child

Tepe Gawra 36-047	0	Infant
Tepe Gawra 7-001	0	Adult
Tepe Gawra 7-005	0	Child
Tepe Gawra 7-009	0	Child
Tepe Gawra EE	0	Child
Tepe Gawra 100	0	Infant
Tepe Gawra 101	0	Child
Tepe Gawra 102	0	Youth
Tepe Gawra 107	0	Adult
Tepe Gawra 108	0	Child
Tepe Gawra 111A	0	Adult
Tepe Gawra 111B	0	Adult
Tepe Gawra 113	0	Child
Tepe Gawra 119	0	Infant
Tepe Gawra 177	0	Child
Tepe Gawra 182	0	Infant
Tepe Gawra 190	0	Infant
Tepe Gawra 201	0	Infant
Tepe Gawra 202	0	Child
Tepe Gawra 205	0	Child
Tepe Gawra 206	0	Child
Tepe Gawra 207	0	Infant
Tepe Gawra 208	0	Child
Tepe Gawra 210	0	Child
Tepe Gawra 216	0	Infant
Tepe Gawra 217	0	Infant
Tepe Gawra 219	0	Infant
Tepe Gawra 220	0	Infant
Tepe Gawra 256	0	child
Tepe Gawra 36-040	0	Infant
Tepe Gawra 36-079	0	infant
Tepe Gawra 36-020	1 gold bead	Child
Tepe Gawra 111C	4 gold beads, 1 gold hoof pendant, 1 gold spatula pendant, 1 gold spiral ornament	Adult
Tepe Gawra 124	1 gold ribbon rosette ornament	Unknown
Tepe Gawra 110	5 gold rosette ornaments, 1 gold ribbon rosette ornament, 18 gold cylindrical beads	Youth
Tepe Gawra 114	1 electrum wolf head figurine; 1 stone with gold band honing stone; 2 mace heads; 1 gold & bone hair ornament; 33 gold beads; 29 gold beads; 1 gold & lapis ornament; lapis stamp seal; 2 gold beads	Adult
Tepe Gawra 109	1 gold rosette ornament, 1 gold ribbon rosette ornament, 2 gold rosette ornaments, 1 gold rosette ornament, 50 gold studs, 3 gold ornaments, 3 gold ornaments, 1 gold ferrule, 20 gold crescent ornaments, 3 gold and lapis eye shaped ornaments, 90 gold bangles, 125 gold beads, 34 large electrum beads, 76 small	Adult

	electrum beads, 2 electrum spherical beads, 2 gold beads, 9 electrum beads, 1 gold lapis and fly figurine, 1 bone gold lapis and turquoise hair ornament.	

Level IX/VIII Non-Mortuary Objects

Context	Items	Notes
10 L 7M	Gold bead on copper wire (2136)	
10H 10M	Copper nail (2213)	
10M 6M	Copper chisel (2215)	
5K L88	Bronze pin with lapis bead (2205)	
9O room 826	Bronze bracelet (2509)	
Me 9M	Gold bead (2510)	
Me 9M	Gold pendant (2511)	
5K	Bronze wire (2722)	
IM 6M	Bronze needle (2723)	
Kc 8K	Bronze disc (2724)	
Kc 8K	Bronze disc (2725)	
9O	Bronze dagger (2726)	
9O	Bronze needle (2727)	
Kc 8K	Bronze arrowhead (2728)	
IIO 5O	Bronze needle (2729)	
IIO 5O	Bronze nail (2730)	
Kc 8K	Bronze needle (2731)	
Ke 9K	Bronze chisel (2732)	
Ma 7M	Bronze hook (2733)	
Ke 9K	Bronze needle (2734)	
Ke 9K	Bronze chisel (2735)	
Kc 8K	Bronze hook (2736)	
Jc 8J	Bronze hook (2737)	
Jc 8J	Bronze ring (2738)	
Jc 8J	Bronze wire fragment (2739)	
Ja 7J	Bronze chisel (2740)	
Kc 8K	Bronze ring (2741)	
Oc 8O	Bronze needle (2742)	
Me 9M	Bronze needle (2743)	
Me 9M	Bronze needle (2744)	
Og 10O	Bronze tool (2745)	
Ke 9K	Bronze sickle (2746)	Silo
IIIm 4M	Bronze ferrule (2747)	Dump
Ja 7J	Bronze pin (2748)	Silo
Ja 7J	Bronze ring (2749)	Silo
Ja 7J	Bronze tool (2750)	
Kc 8K	Bronze chisel (2751)	
Og 100	Bronze ornament (2752)	
Me 9M	Bronze object (2753)	
	Bronze sickle (2754)	Dump
Ki 11K	Bronze tool (2755)	
L47 W7- shrine	Bronze chisel (2756)	
11L 7K	Copper spearhead (2757)	Broken in two
10M 6M	Raw copper lump (2758)	

Level IX/VIII Mortuary Objects

Grave Number	Items	Notes
Tepe Gawra 1	0	Infant
Tepe Gawra 2	0	Child
Tepe Gawra 3	0	Infant
Tepe Gawra 4	0	Infant
Tepe Gawra 5	0	Child
Tepe Gawra 6	0	Infant
Tepe Gawra 7	0	Infant
Tepe Gawra 9	0	Infant
Tepe Gawra 10	0	Infant
Tepe Gawra 11	0	Infant
Tepe Gawra 14	0	Child
Tepe Gawra 16	0	Infant
Tepe Gawra 17	0	Youth
Tepe Gawra 24	0	Adult
Tepe Gawra 29B	0	Adult
Tepe Gawra 30A	0	Adult
Tepe Gawra 30B	0	Child
Tepe Gawra 40	0	Infant
Tepe Gawra 50	0	Infant
Tepe Gawra 51	0	Infant
Tepe Gawra 52	0	Infant
Tepe Gawra 53	0	Infant
Tepe Gawra 54	0	Infant
Tepe Gawra 55	0	Infant
Tepe Gawra 56	0	Infant
Tepe Gawra 58	0	Infant
Tepe Gawra 59	0	Child
Tepe Gawra 60	0	Infant
Tepe Gawra 61	0	Infant
Tepe Gawra 62	0	Child
Tepe Gawra 63	0	Infant
Tepe Gawra 64	0	Infant
Tepe Gawra 65	0	Child
Tepe Gawra 67	0	Infant
Tepe Gawra 68	0	Infant
Tepe Gawra 69	0	Infant
Tepe Gawra 70	0	Adult
Tepe Gawra 171	0	Child
Tepe Gawra 199	0	Youth
Tepe Gawra 200	0	Child
Tepe Gawra 203	0	Child
Tepe Gawra 204	0	Infant
Tepe Gawra 209	0	Child
Tepe Gawra 211	0	Child
Tepe Gawra 212	0	Child
Tepe Gawra 213	0	Child
Tepe Gawra 214	0	Child
Tepe Gawra 267	0	Infant
Tepe Gawra 36-036	0	Infant
Tepe Gawra 7-007	0	Infant
Tepe Gawra A	0	Infant
Tepe Gawra AA I	0	Infant
Tepe Gawra B	0	Unknown

Tepe Gawra C	0	Infant
Tepe Gawra CC I	0	Infant
Tepe Gawra CC II	0	Infant
Tepe Gawra D	0	Unknown
Tepe Gawra E	0	Unknown
Tepe Gawra FF	0	Infant
Tepe Gawra GG	0	Infant
Tepe Gawra HH	0	Infant
Tepe Gawra KK	0	2 adults
Tepe Gawra 25	Gold pendant	Infant
Tepe Gawra AA II	Small copper fragment	Child
Tepe Gawra JJ	Copper pin	Youth
Tepe Gawra 29A	2 gold ornaments	Child
Tepe Gawra 37	2 copper pins	Youth/adult
Tepe Gawra 46	1 gold bead and 1 gold ornament	Child
Tepe Gawra 47	1 gold headband and 2 bronze beads from a necklace	Infant
Tepe Gawra 12	3 gold ornaments	Adult
Tepe Gawra 31	3 objects composed of 16 gold beads from a necklace; 1 gold ornament and 11 gold decorative studs	Infant
Tepe Gawra 13	4 bronze band rings and 3 gold ornaments	

Habuba Kabira

Context	Items	Notes
	2 copper fishhooks	Strommenger (1980)
	Copper pins	Strommenger (1980)
	Copper beads	Strommenger (1980)
	Copper cosmetic spatula	Strommenger (1980)
	Lead adhering to bundle of copper pins	Kohlmeyer (1994)
	Coiled lead wire	Kohlmeyer (1994)
	2 lead rod fragments	Kohlmeyer (1994)
	Lead pendant fragment	Kohlmeyer (1994)
	Lead cramp	Kohlmeyer (1994)
	Lead nozzle	Kohlmeyer (1994)
	Small lead tile	Kohlmeyer (1994)
	Small square piece of lead	Kohlmeyer (1994)
	Lead fragments and melted lumps of lead	Pernicka *et al*. (1998)
	6 litharge cakes	Pernicka *et al*. (1998)

Godin Tepe

From Young (1969), Young and Levin (1974) and Gopnik and Rothman (2011)

Context	Items	Notes
Room 18 in Oval	1 spear point	
Room 18 in Oval	1 metal object	

Room 22 in Oval	1 metal object	
Area 1 by door to room 14 in Oval	1 metal figurine fragment	
Room 22 in Oval	Chisel	
Level 22 Operation B	Copper awl or needle	
Period VI	6 other objects	Noted by Gopnik and Rothman (2011) but not described

Tell Brak

From Matthews (2003)

Context	Items	Notes
Trench HS2 Level 9, adjacent to room 1	Copper alloy	In courtyard
Trench HS2, Level 8	Copper alloy fragments	In courtyard
Trench HS2, Level 8	Copper alloy hook	Open area
Trench HS2, Level 8	Point of copper alloy blade	Open area
Trench HS2	Fragment of copper alloy tool	
Trench HS2	Copper alloy pin	
Level 3 HF3	Fragment of copper alloy tools	Found in ashy rubble
Level 3 HF3	Copper alloy pin- bent	

Tell Karrana 3

From Wilhelm and Zaccagnini (1993)

Grave Number	Metal Items	Notes
Burial 1	None	Late Uruk neonate pot burial
Burial 10	1 copper pin (85-18) and 1 copper cylinder seal (85-17)	Early Ninevite V burial of 5-7 year old child
Burial 11	None	Late Uruk neonate pot burial
Burial 12	None	Late Uruk neonate pot burial
Burial 13	None	Late Uruk mud brick child wall burial (on south wall) and covered with several layers of bricks
Burial 14	None	Early Ninevite V child burial
Burial 15	None	Late Uruk child burial possibly had 2 upright stone markers north of the body

Ur

Jemdet Nasr Cemetery- From Woolley (1952)

Period A- Early

Period B- Intermediate

Period C- Late

Grave Number	Items	Notes
Pit W Grave 1	Lead tumbler, stone and ceramic vessels	Period C
Pit W Grave 2	Ceramic and stone vessels	Period C
Pit W Grave 3	Ceramic and stone vessels	Period B
Pit W Grave 4	Ceramic vessels, beads	Period B
Pit W Grave 5	Ceramic and stone vessels	Period C
Pit W Grave 7	Ceramic and stone vessels	Period C
Pit W Grave 8	Ceramic vessels	Period C
Pit W Grave 9	Ceramic vessels	Period C
Pit W Grave 10	Ceramic and stone vessels	Period C
Pit W Grave 10a	Ceramic vessels, beads	Period C
Pit W Grave 11	Ceramic vessels	Period C
Pit W Grave 14	Ceramic and stone vessels	Period C
Pit W Grave 15	Ceramic vessels and beads	Period C
Pit W Grave 16	Ceramic and stone vessels	Period C
Pit W Grave 17	Ceramic and stone vessels, beads	Period C
Pit W Grave 18	Ceramic and stone vessels, beads	Period C
Pit W Grave 19	Ceramic vessels	Period C
Pit W Grave 20	Ceramic and stone vessels	Period C
Pit W Grave 21	Shell bead, ceramic vessels flint core	Period C
Pit W Grave 22	Ceramic and stone vessels	Period C
Pit W Grave 24	Stone vessel	Period B
Pit W Grave 25	Beads and stone vessels	Period B
Pit W Grave 27	Stone and ceramic vessels	Period C
Pit W Grave 30	Ceramics	Period C
Pit W Grave 31	Ceramics	Period C
Pit W Grave 33	Beads and ceramic vessel	Period C
Pit W Grave 34	Stone and ceramic vessels	Period C
Pit W Grave 35a	Stone and ceramic vessels	Period C
Pit W Grave 35b	Beads and ceramic vessel	Period B
Pit W Grave 36	Stone and ceramic vessels	Period C
Pit W Grave 37	Stone and ceramic vessels, flint flakes	Period C
Pit W Grave 38	Beads, stone and ceramic vessels, 2 cockle shells and a flint knife and core	Period C
Pit W Grave 40	Lead tumbler, copper pin, beads, ceramic vessels	Period C
Pit W Grave 41	Ceramic vessels	Period C
Pit W Grave 42	Lead tumbler, copper chisel (?) and copper bowl, beads, stone and ceramic vessels, conch shell lamp, ‘button seal’ and shell bowl	Period C
Pit W Grave 43	Stone and ceramic vessels,	Period C

	carnelian flake	
Pit W Grave 44	Beads, stone and ceramic vessels	Period C
Pit W Grave 45	Beads, stone and ceramic vessels	Period C
Pit W Grave 46	Stone and ceramic vessels	Period C
Pit W Grave 47	Stone and ceramic vessels	Period C
Pit W Grave 48	Copper pin and stone vessels	Period B
Pit W Grave 49	Carnelian bead, stone and ceramic vessels	Period C
Pit W Grave 50	Ceramic vessels	Period C
Pit W Grave 51	Stone and ceramic vessels	Period C
Pit W Grave 52a	Ceramic vessels	Period C
Pit W Grave 52b	Stone and ceramic vessels	Period C
Pit W Grave 53	Stone and ceramic vessels	Period C
Pit W Grave 54	Lead bowl, ceramic vessels	Period C
Pit W Grave 55	Stone and ceramic vessels	Period C
Pit W Grave 56	Ceramic vessels	Period C
Pit W Grave 57	Lead tumbler, ceramic vessel	Period C
Pit W Grave 58	Stone and ceramic vessels	Period C
Pit W Grave 59	Stone and ceramic vessels	Period C
Pit W Grave 60	Copper pin and ceramic vessels	Period C
Pit W Grave 61	Stone and ceramic vessels	Period C
Pit W Grave 62	Beads, stone and ceramic vessels	Period C
Pit W Grave 63	Ceramic vessel	Period B
Pit W Grave 65	Beads and ceramic vessel	Period C
Pit W Grave 66	Beads and ceramic vessels	Period C
Pit W Grave 67	Ceramic vessels	Period C
Pit W Grave 68	Ceramic vessels	Period C
Pit W Grave 70	Ceramic vessels	Period C
Pit W Grave 71	Ceramic vessels	Period C
Pit W Grave 72a	Stone and ceramic vessels	Period C
Pit W Grave 72b	Stone and ceramic vessels	Period C
Pit W Grave 73	Beads and stone vessel	Period B
Pit W Grave 74	Beads, stone and ceramic vessels	Period C
Pit W Grave 75	Stone and ceramic vessels	Period C
Pit W Grave 76	Stone and ceramic vessels	Period C
Pit W Grave 78a	Lead tumbler stone and ceramic vessels	Period C
Pit W Grave 78b	Copper pin, ceramic vessels, cylinder seal	Period B
Pit W Grave 80	Stone and ceramic vessels	Period B
Pit W Grave 81	Stone and ceramic vessels	Period C
Pit W Grave 82	Beads, stone and ceramic vessels	Period C
Pit W Grave 84	Beads, stone and ceramic vessels	Period C
Pit W Grave 86	Stone and ceramic vessels, bone button	Period C
Pit W Grave 87	Carnelian beads, stone and ceramic vessels, bone button	Period C
Pit W Grave 88	Beads and ceramic vessel	Period B
Pit W Grave 90	Beads, stone and ceramic vessels, cockle and cowrie shell	Period C
Pit W Grave 91	Stone and ceramic vessels	Period C
Pit W Grave 92	Stone and ceramic vessels	Period C
Pit W Grave 93	Beads, stone and ceramic vessels	Period C
Pit W Grave 94	Stone and ceramic vessels	Period C
Pit W Grave 95	Stone and ceramic vessels	Period C
Pit W Grave 96	Ceramic vessels	Period C

Pit W Grave 97	Stone and ceramic vessels	Period C
Pit W Grave 98	Ceramic vessel	Period C
Pit W Grave 100	Beads, ceramic vessels, clay roundel	Period C
Pit W Grave 101	Shell beads, stone and ceramic vessels	Period C
Pit W Grave 102	Stone and ceramic vessel	Period C
Pit W Grave 103	Beads and ceramic vessels	Period C
Pit W Grave 104	Lead tumbler, stone and ceramic vessels	Period C
Pit W Grave 105	Stone and ceramic vessels	Period C
Pit W Grave 109	Lead tumbler, stone and ceramic vessels	Period C
Pit W Grave 110	Lead tumbler and ceramic vessels	Period C
Pit W Grave 111	Ceramic vessels	Period C
Pit W Grave 112	Beads, stone and ceramic vessels	Period C
Pit W Grave 113	Stone and ceramic vessels, pot with clean sand	Period C
Pit W Grave 116	Stone and ceramic vessels	Period C
Pit W Grave 118	Ceramic vessels	Period B
Pit W Grave 119	Beads, stone and ceramic vessels	Period C
Pit W Grave 120	Copper pin, stone and ceramic vessels	Period C
Pit W Grave 122	Stone and ceramic vessels	Period B
Pit W Grave 123	Bead, stone and ceramic vessels	Ceramic vessels
Pit W Grave 124	Copper bowl, stone and ceramic vessels	Period C
Pit W Grave 128	Copper pin, stone and ceramic vessels	Period B
Pit W Grave 129	Beads, stone and ceramic vessels	Period C
Pit W Grave 130	Beads, stone and ceramic vessels	Period C
Pit W Grave 132	Stone and ceramic vessels	Period C
Pit W Grave 133	Stone and ceramic vessels	Period C
Pit W Grave 135	Stone and ceramic vessels	Period B
Pit W Grave 136	Stone and ceramic vessels	Period C
Pit W Grave 137	Stone and ceramic vessels	Period C
Pit X Grave 141	Stone vessels	Period B
Pit X Grave 142	Stone vessels	Period B
Pit X Grave 143	Ceramic vessels	Period C
Pit X Grave 144	Stone and ceramic vessels	Period B
Pit X Grave 145	Stone vessels	Period C
Pit X Grave 146	Stone and ceramic vessels	Period C
Pit X Grave 147	Stone vessels	Period B
Pit X Grave 148	Stone and ceramic vessels	Period C
Pit X Grave 149	Beads and ceramic vessel	Period B
Pit X Grave 150	Stone and ceramic vessels	Period C
Pit X Grave 151	Stone and ceramic vessels	Period C
Pit X Grave 152	Stone and ceramic vessels	Period C
Pit X Grave 153	Stone and ceramic vessels	Period B
Pit X Grave 154	Lapis beads, stone and ceramic vessels, shell	Period C
Pit X Grave 155	Copper needle, beads, stone and ceramic vessels, conch shell lamp	Period C
Pit X Grave 156	Stone and ceramic vessels	Period B

Pit X Grave 157	Copper bowl, stone and ceramic vessels	Period C
Pit X Grave 158	Beads, stone and ceramic vessels, shell	Period C
Pit X Grave 159	Stone and ceramic vessels	Period B
Pit X Grave 159b	Beads and stone vessels	Period B
Pit X Grave 160	Stone and ceramic vessels	Period B
Pit X Grave 161	Beads, stone and ceramic vessels	Period C
Pit X Grave 162	Beads, stone and ceramic vessels	Period C
Pit X Grave 173	Stone and ceramic vessels	Period C
Pit X Grave 174	Stone and ceramic vessels	Period B
Pit X Grave 175	Stone and ceramic vessels	Period B
Pit X Grave 176	Stone and ceramic vessels	Period B
Pit X Grave 177	Copper bowl and 'razor', stone and ceramic vessels	Period B
Pit X Grave 178	Ceramic vessel	Period B
Pit X Grave 179	Beads and stone vessels, conch shell	Period B
Pit X Grave 180	Stone and ceramic vessels	Period B
Pit X Grave 181	Stone and ceramic vessels	Period B
Pit X Grave 182	Stone and ceramic vessels	Period C
Pit X Grave 183	Stone and ceramic vessels	Period C
Pit X Grave 184	Lead tumbler and copper bowl, stone and ceramic vessels	Period B
Pit X Grave 185	Copper bowl and ceramic vessel	Period B
Pit X Grave 186a	Stone and ceramic vessels	Period C
Pit X Grave 186b	Stone and ceramic vessels	Period B
Pit X Grave 187a	Lead tumbler, stone and ceramic vessels	Period B
Pit X Grave 187 b	Stone and ceramic vessels	Period B
Pit X Grave 188	Beads, stone and ceramic vessels	Period B, infant bones inside of a clay bowl placed above the first body
Pit X Grave 189	Copper bowl and 'bidens' stone vessel	Period B
Pit X Grave 190	Beads, stone and copper vessels	Period C
Pit X Grave 191	Shell and carnelian beads, stone and ceramic vessels	Period B
Pit X Grave 192	Stone and ceramic vessels	Period A
Pit X Grave 193	Copper bowl, stone and ceramic vessels	Period B
Pit X Grave 194	Copper bowl and lead tumbler, stone vessel	
Pit X Grave 195	Stone and ceramic vessels	Period B
Pit X Grave 196	2 Lead tumblers, stone and ceramic vessels	Period B
Pit X Grave 197	Beads, stone and ceramic vessels	Period C
Pit X Grave 198	Beads, stone and ceramic vessels	Period B
Pit X Grave 199	Stone and ceramic vessels	Period B
Pit X Grave 200	Copper pan, stone vessels	Period B
Pit X Grave 201	Copper bowl, beads and stone and ceramic vessels ; in copper pan was an animal jaw bone	Period B
Pit X Grave 202	Copper bowl	Period B
Pit X Grave 203	Stone and ceramic vessels	Period B
Pit X Grave 204	2 lead tumblers, beads, stone and	Period B

	ceramic vessels	
Pit X Grave 205	Stone and ceramic vessels	Period C
Pit X Grave 206	Lead tumbler, stone and ceramic vessels	Period B
Pit X Grave 207	Lead tumbler, ceramic vessel	Period A
Pit X Grave 208	Copper bowl, stone and ceramic vessels	Period A
Pit X Grave 209	Stone and ceramic vessels	Period A
Pit X Grave 210	copper bowl, stone and ceramic vessels	Period A
Pit X Grave 211	Stone and ceramic vessels	Period A
Pit X Grave 212	Beads	Period A
Pit X Grave 213	Stone and ceramic vessels	Period A
Pit X Grave 214	Stone and ceramic vessels	Period A
Pit X Grave 215	Metal fragment, ceramic vessels, shell	Period A
Pit X Grave 216	Beads	Period A
Pit X Grave 217	Stone and ceramic vessels	Period A
Pit X Grave 218	Lapis, crystal and carnelian beads, stone vessels, conch shell lamp	Period B
Pit X Grave 219	2 silver earrings, beads, stone vessels	Period C
Pit X Grave 220	Copper tumbler, copper 'spoon', beads, stone and ceramic vessels	Period C
Pit X Grave 221	2 copper bowls and 2 copper pins, beads and many stone vessels and ceramic vessels	Period B
Pit X Grave 222	Stone and ceramic vessels	Period B
Pit X Grave 223	Stone vessels	Period B
Pit X Grave 224	Frag. Copper bowl, stone vessels	
Pit X Grave 225	Copper bowl, beads and stone and ceramic vessels	Period C
Pit X Grave 226	Carnelian beads, stone vessels	Period B
Pit X Grave 227	Stone vessels	Period B
Pit X Grave 228	Stone vessels	Period B
Pit X Grave 229	Copper bowl, carnelian beads, stone and ceramic vessels	Period C
Pit X Grave 230	Stone and ceramic vessels	Period C
Pit X Grave 231	Stone and ceramic vessels	Period B
Pit X Grave 232	Beads, stone and ceramic vessels	Period C
Pit X Grave 233	Stone and ceramic vessels	Period C
Pit X Grave 234	Stone vessels	Period B
Pit X Grave 235	Stone and ceramic vessels	Period B
Pit X Grave 236	Beads and stone vessels	Period B
Pit X Grave 237	stone and ceramic vessels	Period B
Pit X Grave 238	Shell beads, stone and ceramic vessels	Period B
Pit X Grave 239	2 silver earrings, shell beads, stone and ceramic vessels	Period C
Pit X Grave 240	stone and ceramic vessels	Period B
Pit X Grave 241	stone and ceramic vessels	Period C
Pit X Grave 242	stone and ceramic vessels, conch shell lamp	Period B
Pit X Grave 243	stone and ceramic vessels	Period B
Pit X Grave 244	beads, stone and ceramic vessels	Period C

Pit X Grave 245	stone and ceramic vessels	Period C
Pit X Grave 246	stone and ceramic vessels	Period B
Pit X Grave 247	stone and ceramic vessels	Period B
Pit X Grave 248	stone and ceramic vessels	Period C
Pit X Grave 249	stone and ceramic vessels	Period C
Pit X Grave 250	stone and ceramic vessels	Period C
Pit X Grave 251	Beads, stone and ceramic vessels	Period B
Pit X Grave 252	Stone and ceramic vessels	Period B
Pit X Grave 253	Beads, stone and ceramic vessels	Period B
Pit X Grave 254	Stone and ceramic vessels	Period B
Pit X Grave 255	Copper bowl, stone and ceramic vessels	Period B
Pit X Grave 256	Beads, stone and ceramic vessels	Period B
Pit X Grave 257	Stone vessels	Period B
Pit X Grave 258	Stone vessels	Period B
Pit X Grave 259	Beads, stone vessels	Period B
Pit X Grave 260	Stone and ceramic vessels	Period B
Pit X Grave 261	Beads, stone vessels	Period B
Pit X Grave 262	Lapis and carnelian beads, stone vessels	Period B
Pit X Grave 263	Lead tumbler, stone and ceramic vessels	Period B
Pit X Grave 264	Stone and ceramic vessels	Period B
Pit X Grave 265	Stone and ceramic vessels	Period A
Pit X Grave 266	Beads, stone and ceramic vessels	Period C
Pit X Grave 267	Stone vessels	Period B
Pit X Grave 268	2 copper bowls, stone and ceramic vessels	Period B
Pit X Grave 269	Copper fish hook, beads, stone and ceramic vessels	Period B
Pit X Grave 270	Lead tumbler, stone and ceramic vessels, shell lamp	Period B
Pit X Grave 271	Stone and ceramic vessels	Period B
Pit X Grave 272	Stone and ceramic vessels, shell lamp	Period C
Pit X Grave 273	Stone and ceramic vessels	
Pit X Grave 274	Stone and ceramic vessels	Period C
Pit X Grave 275	Stone and ceramic vessels	Period B
Pit X Grave 276	Beads, stone and ceramic vessels	Period B
Pit X Grave 277a	Stone and ceramic vessels	Period A
Pit X Grave 278	Stone and ceramic vessels	Period B
Pit X Grave 279	Beads, stone and ceramic vessels	Period B
Pit X Grave 279a	Carnelian beads, stone and ceramic vessels, shell lamp	Period B
Pit X Grave 280	Stone and ceramic vessels	Period C
Pit X Grave 281	Copper bowl and pot, stone and ceramic vessels	Period A
Pit X Grave 282	Stone and ceramic vessels	Period A
Pit X Grave 283	Lead tumbler, beads, stone and ceramic vessels	Period B
Pit X Grave 284	Lead tumbler, beads, stone and ceramic vessels	Period B
Pit X Grave 285	Beads, stone and ceramic vessels	Period B
Pit X Grave 286	Carnelian beads, stone vessels	Period B
Pit X Grave 287	Beads, stone and ceramic vessels	Period A
Pit X Grave 288	Lead tumbler stone and ceramic	Period A

	vessels	
Pit X Grave 289	Stone vessels	Period B
Pit X Grave 290	Stone vessels	Period B
Pit X Grave 291	Stone and ceramic vessels	Period B
Pit X Grave 292	Lead tumbler stone and ceramic vessels	Period C
Pit X Grave 294	Copper bowl, vessel and lead tumbler, stone and ceramic vessels	Period A
Pit X Grave 295	Beads, ceramic vessels	Period B
Pit X Grave 296	Copper bowl, beads and stone vessels	Period B
Pit X Grave 298	Beads, stone and ceramic vessels	Period B
Pit X Grave 299	Stone and ceramic vessels	Period B
Pit X Grave 300	Beads, stone and ceramic vessels, shell lamp	Period B
Pit X Grave 301	Bead, stone and ceramic vessels	Period C
Pit X Grave 302	Stone and ceramic vessels	Period B
Pit X Grave 303	Stone and ceramic vessels	Period C
Pit X Grave 304	Ceramic vessels	Period C
Pit X Grave 305	Lead tumbler, copper 'spoon', stone and ceramic vessels	Period A
Pit X Grave 306	Stone and ceramic vessels	Period A
Pit X Grave 307	Stone and ceramic vessels	Period A
Pit X Grave 308	Stone vessels	Period B
Pit X Grave 309	Beads, stone and ceramic vessels	Period C
Pit X Grave 310	Stone and ceramic vessels	Period A
Pit X Grave 311	Lead tumbler, beads, stone and ceramic vessels	Period C
Pit X Grave 312	Stone and ceramic vessels	Period A
Pit X Grave 313	carnelian beads, stone and ceramic vessels	Period A
Pit X Grave 313a	stone and ceramic vessels	Period A
Pit X Grave 314	Lead tumbler, stone and ceramic vessels	Period B
Pit X Grave 315	Carnelian and lapis beads, stone and ceramic vessels	Period B
Pit X Grave 316	Stone and ceramic vessels	Period B
Pit X Grave 317	Ceramic vessels	Period A
Pit X Grave 318	Stone and ceramic vessels	Period A
Pit X Grave 319	Stone vessels	Period A
Pit X Grave 320	Lead dish, stone and ceramic vessels	Period A
Pit X Grave 321	Stone vessels	Period B
Pit X Grave 322	Beads, stone vessels	Period B
Pit X Grave 323	Beads, stone vessels	Period A
Pit X Grave 324	beads, stone vessels, stamp seals	Period A
Pit X Grave 325	Lead tumbler, lapis and carnelian beads, stone and ceramic vessels	Period A
Pit X Grave 326	Ceramic vessels	Period A
Pit X Grave 327	Carnelian and lapis beads, stone vessels	Period B
Pit X Grave 328	Stone and ceramic vessels	Period B
Pit X Grave 329	Stone and ceramic vessels	Period A
Pit X Grave 330	Beads, stone and ceramic vessels	Period A
Pit X Grave 331	Stone and ceramic vessels	Period A

Pit X Grave 332	Lead tumbler, stone and ceramic vessels	Period A
Pit X Grave 333	Lead tumbler, stone and ceramic vessels	Period A
Pit X Grave 334	Beads and ceramic vessel	Period A
Pit X Grave 335	Lead tumbler, beads, stone and ceramic vessels	Period B
Pit X Grave 336	Beads, stone and ceramic vessels	Period A
Pit X Grave 337	Beads, stone and ceramic vessels, two clay sling bullets	Period A
Pit X Grave 338	Lead tumbler, beads, stone and ceramic vessels	Period A
Pit X Grave 339	Beads, stone and ceramic vessels	Period B
Pit X Grave 340	Stone and ceramic vessels	Period A
Pit X Grave 341	Stone and ceramic vessels, pebble hammer	Period B
Pit X Grave 342	Stone and ceramic vessels	Period A
Pit X Grave 343	Lead tumbler and copper bowl, stone and ceramic vessels	Period A
Pit X Grave 344	Stone and ceramic vessels	Period A
Pit X Grave 345	Ceramic vessels	Period A
Pit X Grave 346	Ceramic vessels	Period A
Pit X Grave 347	Carnelian and lapis beads, Stone and ceramic vessels	Period A
Pit Y Grave 348	Stone and ceramic vessels	Period B
Pit Y Grave 349	Lead tumbler, carnelian beads, stone and ceramic vessels	Period A
Pit Y Grave 350	Beads, stone and ceramic vessels	Period B
Pit Y Grave 351	Beads, stone and ceramic vessels	Period C
Pit Y Grave 352	Stone vessels	Period B
Pit Y Grave 353	Beads, stone and ceramic vessels, shell lamp	Period B
Pit Y Grave 354	Stone vessels	Period B
Pit Y Grave 355	Beads and stone vessels	Period B
Pit Y Grave 356	Stone vessels	Period B
Pit Y Grave 357	Stone vessels	Period B
Pit Y Grave 358	Stone vessels	Period B
Pit Y Grave 359	Beads and ceramic vessels	Period C
Pit Y Grave 360	Stone and ceramic vessels	Period C
Pit Y Grave 361	Ceramic vessels	Period A
Pit Y Grave 362	Ceramic vessels	Period A
Pit Y Grave 363	Lead tumbler and copper mirror, stone and ceramic vessels	Period C
Pit Y Grave 364	Lead tumbler and ceramic vessels	Period A
Pit Y Grave 365	Stone and ceramic vessels	Period B
Pit Y Grave 366	None	Period B
Pit Y Grave 367	Stone and ceramic vessels	Period C
Pit Z Grave 368	Stone and ceramic vessels	Period C
Pit Z Grave 369	Stone and ceramic vessels	Period B
Pit Z Grave 370	Stone vessel	Period B

Transcaucasian Sites

Kvatskhelebi non-mortuary metal objects

Context	Items	Notes
Phase C 'Shrine building'	Copper arrowhead	Sagona (1984)
Phase C	Spearhead	Kushnareva (1997); Sagona (1984)
Phase B	Knife blade	Kushnareva (1997); Sagona (1984)
Phase B	Several hair spirals	Kushnareva (1997); Sagona (1984)

Metal from mortuary contexts

Grave Number	Items	Notes
Horum Collective Cist Burial		
Kiketi 14		
Kiketi 1		
Kiketi 6		
Kiketi 10		
Kiketi 8		
Kiketi 7		
Kiketi 9		
Kiketi 12		
Kiketi 13		
Kiketi 2	2 bracelets	bracelets
Kvatskhelebi Tomb 1		
Kvatskhelebi Tomb 4		
Kvatskhelebi Tomb 6		2 young individuals buried on top of tomb & 2 individuals buried inside
Kvatskhelebi Tomb 9		
Kvatskhelebi Tomb 10		
Kvatskhelebi Tomb 11		
Kvatskhelebi Tomb 12		
Kvatskhelebi Tomb 13		
Kvatskhelebi Tomb 14		
Kvatskhelebi Tomb 15		
Kvatskhelebi Tomb 3	1 knife blade	Tomb 3 cuts Tomb 8
Kvatskhelebi Tomb 7	1 silver spiral and 1 jade pendant	
Kvatskhelebi Tomb 8	1 copper bracelet, copper beads (1 object), 1 double spiral pin, copper spiral	
Kvatskhelebi Tomb 2	upside down diadem, bracelet with copper beads, necklace with copper beads, 4 silver hair spirals	Stone cist with 2 individuals
Kvatskhelebi Tomb 5	1 double spiral pin, 3 silver spirals, 2 frag silver spirals, copper beads (1 object)	
Tulepia Tomb 4	12 metal beads	
Tulepia Tomb 1	Fan-shaped pendants and copper slag	1 individual
Tulepia Tomb 3	1 copper spearhead, 15 copper	Possible human sacrifice

	beads (1 object), fragments of 1 copper spiral, 1 whole copper spiral	
Tulepia Tomb 2	7 copper pendants, 15 copper beads (1 object)	Grave contained at least 3 individuals
Aradetis Orgora Tomb 23		
Aradetis Orgora Tomb 25		
Aradetis Orgora Tomb 27		
Aradetis Orgora Tomb 28		
Aradetis Orgora Tomb 31		
Aradetis Orgora Tomb 32		2 individuals
Aradetis Orgora Tomb 24	1 hair spiral	
Aradetis Orgora Tomb 30	1 copper hair spiral	
Aradetis Orgora Tomb 22	1 copper hair spiral and three copper beads	3 individuals
Aradetis Orgora Tomb 34	2 copper hair spirals	
Aradetis Orgora Tomb 26	1 silver hair spiral, 2 copper hair spirals	
Aradetis Orgora Tomb 35	1 pin, 11 copper beads (1 object), 1 copper awl	2 individuals, but grave goods mainly with 1st individual
Aradetis Orgora Tomb 29	26 spirals, 6 copper beads (1 object), copper awl, copper double spiral pendant, 9 copper pendants	5 individuals

Gazetteer of Sites

The sites below are listed by location from south to north and feature a brief description of the survey or excavation data available for the occupation dating to the Late Chalcolithic through the beginning of the Early Bronze Age. This information is provided in order to supplement the information in Chapters 3 and 4 as space restrictions allowed only those sites with metal objects or metalworking detritus to be mentioned. In cases where there is insufficient published evidence of excavation at a site, these sites are listed but not described.

† Qara Quzaq- See Chapter 4

† Hammam Kabir- Surveyed by Copeland and Moore (1985)

† Tell Khamis

This is a small, one hectare conical tell that rises 8 metres above the surrounding hills. Several seasons of excavation revealed that this was a multi-period site that was known to be occupied from the Early Bronze II through the Islamic period with several instances of hiatus throughout this span of time. The oldest remains (EB II) were found in a sounding only due to time constraints and the remains consisted of three linked walls and two hearths with evidence of cooking activities. The limited evidence from this sounding suggests that the structure was hastily abandoned, though not destroyed (Séiquer 1999).

† Hammam Saghir

† Tell Ahmar

Located at the edge of a terrace overlooking the floodplain of the Euphrates River, Tell Ahmar is a multi-period site extending back to the Ubaid period[190] (Bunnens 1989, 1999; Thureau-Dangin and Dunand 1936). Situated as it was both at the edge of the Euphrates River and at the edge of the floodplain, Tell Ahmar would

[190] While the site was extensive in the Middle and Late Bronze Ages and the location of a palace in the Neo-Assyrian period, it seems that only the Acropolis area was occupied in the earliest periods (Akkermans and Schwartz 2003; Bunnens 1989). Ceramics with bevelled rims were also found in Areas A and S suggesting that there may have been contact with the Uruk population prior to the Early Bronze Age settlement (Roobaert and Bunnens 1999).

likely have served as a river crossing point as well as a local centre for those who cultivated the floodplain. Thus far the early third millennium evidence suggests that Tell Ahmar would have been a small village concentrated in the Acropolis area of the site which seems to be confirmed by the limited archaeological evidence from this period at other areas of the site. The early third millennium occupation was first identified in Area A by the abundance and concentration of Amuq G and H reserved slip wares during the course of the more recent excavations (Bunnens 1989) with additional EB I and II remains consisting of a small one or two room domestic structures and an open area with a cooking installation underneath of a slightly later building with a paved floor were found in Areas A and S and (Roobaert and Bunnens 1999). The majority of the Early Bronze Age remains at Tell Ahmar date to the middle and late third millennium and were excavated as part of the earlier work carried out by the French expedition in 1928 – 1931 which revealed the famous 'Hypogeum' tomb with its rich grave goods (Akkermans and Schwartz 2003; Thureau-Dangin and Dunand 1936).

There has been more recent archaeological work at the site, though the amount of later Bronze Age overburden, the architecture and artefact rich Neo-Assyrian palace as well as the empty, but still standing remains of the modern village located on the tell makes it quite difficult to reach the early third millennium remains. These difficulties are further compounded by the fact that the site is being steadily eroded by the Euphrates River due to the damming of the river. All of this means that the Early Bronze Age I and II occupation of Tell Ahmar will probably never be fully understood before the site erodes into the Euphrates River.

† Tell 'Abr

As well as being better known as an Ubaid period site with a long lived occupation, the excavations at Tell 'Abr also revealed occupation phases from the mid-late fourth millennium. These were described by the excavators as one Middle Uruk phase (level 1C) and two Late Uruk phases (Levels 1B and 1A) (Hammade and Yamazaki 2006). The Middle Uruk level 1C ceramics included: conical cups, red-slip, gray ware and combed ware while the Late Uruk 1B and 1A ceramics included: large storage jars, conical cups, reserved-slip jars and bevelled rim bowls, including

an intact bevelled rim bowl found *in situ* in trench R1-1 (Hammade and Yamazaki 2006). Unique to the last phase of the Late Uruk occupation of the site are the open bowls with beaded rims in the ceramic repertoire of level 1A. These bowls parallel those at the contemporaneous Uruk settlement at Hassek Höyük in the Samsat-Lidar sector (Helwing 2000, 2002). In terms of other remains at the site, level 1B has architecture with characteristic Late Uruk features, though unfortunately much of the information of the later level 1A occupation at the site is fragmentary at best because modern interference. This destruction has extensively damaged the Late Uruk/EB I transitional phase which was identified by ceramic forms such as open bowls with beaded rims and a fragment of a coarse 'flower pot' that were found in level 1A (Hammade and Yamazaki 2006).

† Gumluk

Gumluk is located 5.5 kilometres north of Tell Ahmar on a terrace overlooking the floodplain. A survey of the site provided an estimate of 250m x 200m (Copeland and Moore 1985) and the ceramic evidence suggests an EBA occupation and possibly earlier.

† Beddayeh

This site is located on the left bank of the Euphrates south of Carchemish at the eastern edge of a wide flood plain. The site is estimated to be between 10 and 13 hectares in size by the end of the EBA, though it is not known to what extent this size reached in the first half of the third millennium or earlier (Cooper 2006a).

† Tell Amarna

This small site (250m x 100m) was first explored by Woolley in his survey and excavation of the region leading him to suggest that Tell Amarna had great potential:

> Much more informative was the outlying cemetery in the village of Amarna, eight miles south of Jerablus, where a rich haul of pottery and bronze objects was made by Arab plunderers (Woolley 1952: 214).

However, despite Woolley's 'rich haul' (see Tubb 1982) there is little known about the graves[191] or to what period the materials date to (Pereiro 2010; Tunca 1992, 1993, 1999). Woolley dated this cemetery to the Late Bronze Age, but his information is suspect at best. A possible date for these graves may relate to the 'fortified' EBA phase of Jerablus Tahtani where a zoomorphic rattle was found that is almost completely identical to one reportedly from the Amarna graves which is now housed in the British Museum (BM 115887 and 116255A) (Peltenburg *et al.* 1996).

The more recent excavations at the site revealed several confirmed periods of occupation including Halaf, Late Bronze Age and Byzantine, and by chance a pit was excavated in the northeastern area of the site that was found to be full of Late Ubaid and Late Uruk sherds, which is quite a perplexing situation (Pereiro 2010). Future work at this site should reveal further Late Chalcolithic and Early Bronze Age remains that will significantly improve upon Woolley's early work.

† Shiukh Tahtani- See Chapter 4

† Shiukh Fawqani

This small site is located on a Pleistocene river terrace and was founded in the remaining few centuries of the fourth millennium and had a mixed local and Uruk ceramic assemblage. These early ceramics are primarily comprised of the Amuq F wares, though there are also a minority of Uruk ceramics typical to the northern Syrian and southeastern Anatolian ceramic repertories (Bachelot and Fales 2005; Bonacossi 2000). The ceramic evidence suggests that Shiukh Fawqani was inhabited by a local population who had contact with the southern Mesopotamians, or at the very least with their pottery. Rather than being an Uruk colony or trading post, it is quite likely that the close proximity of Jerablus Tahtani (1 kilometre away on the opposite bank) and Carchemish slightly further upriver contributed to the mixed ceramic assemblage found at Shiukh Fawqani. Both Jerablus Tahtani and Carchemish are thought to have had a high degree of Uruk influence or Uruk settlements at the sites, especially at Carchemish which may have played host to an

[191] More recent work at Tell Amarna has not revealed any burials, throwing Woolley's easy acceptance of the provenance of this material into question (Tunca 1992, 1993, 1999).

Uruk settlement (Algaze 1993b). Occupation continued into the Early Bronze Age, which is detailed in Chapter 4.

† Jerablus Tahtani

The majority of this 16 metre high tell is composed of EBA remains that Peltenburg (1999) has broadly grouped into pre-fortified and fortified phases, though the early third millennium occupation is described as Period 2A. In Area III of the site, a structure dating to the 2A period was built in the same location as the previous Building 2185, albeit nearly a metre on top of it (Peltenburg *et al*. 2000). This later building, 2242, was built of mud brick on a stone foundation and had two square rooms. It is likely that another building once stood nearby, though later occupation at the site caused heavy disturbance.

Of the pre-fortified remains, Room 1006 gives a fairly clear picture of the building's history as the building was abandoned following a fire. Underneath of this building was a jar burial (T. 1610) that had several disc beads and can be dated to the EB II period. The room itself included a horseshoe-shaped hearth against the south wall and the lower portion of a champagne cup, a jar and several other pots which were associated with the hearth (Peltenburg *et al*. 1997). Later buildings were constructed on top of this burnt building with no regard to topography or earlier architectural orientation allowing an easy delineation of phases. This rebuilding marks the beginning of the fortified phase at the site.

Of note in the fortified phase is a jar fragment from the EB III stratigraphy with a cylinder seal impression which had a horned quadruped, snake, a rosette (partially destroyed) and a quadruple spiral on a register of triangles (Peltenburg *et al.* 1996, fig. 4). The quadruple spiral is an intriguing motif as it is a very common design in metal ornaments in the Upper Euphrates Valley from the late fourth millennium onwards and appears even earlier as relief or painted decoration on Transcaucasian ceramics. Seal impressions with quadruple spirals occur in EB III-IV contexts in the Middle Euphrates Valley, though an earlier example from the Late Uruk period was found on a sealing at Jebel Aruda (McCarthy 2007; Peltenburg 1996; Van Driel and Van Driel-Murray 1983).

† Carchemish- See Chapter 4

† Tiladır Tepe

Tiladır Tepe is located 3.5 kilometres north of Carchemish (on the opposite side of the river) on a ridge overlooking the east bank of the Euphrates River and is one of the several local satellite settlements that surrounded Carchemish in the Late Chalcolithic. A survey of the site showed that at its greatest extent Tiladır measured 600 by 200 metres (approximately 12 ha) and sherds of southern Mesopotamian wares were found across the full extent of the site (Algaze 1993b; Algaze *et al*. 1991, Algaze *et al.* 1994). Its proximity to Carchemish and the vast quantity of Uruk ceramics has prompted the interpretation that Tiladır was a large Uruk enclave north of the larger site of Carchemish, at least until the end of the fourth millennium when the site was abandoned and not reoccupied until the late Early Bronze Age/beginning of the Middle Bronze Age[192] (Algaze 1993b; Algaze *et al*. 1994; Kozbe and Rothman 2005).

† Harabe Bezikan

Bilgen (2001) reports that there *may* have been Early Bronze Age graves at Harabe Bezikan; however, the evidence came from heavily disturbed and looted graves and Bilgen could only base the assertion of graves on the presence of ceramics that are frequently found in EBA burials in the Euphrates Valley. See also Alp and Tekinalp (2001) for a brief site description.

† Kum Ocağı

Kum Ocağı is another proposed Uruk settlement or enclave included in the Late Chalcolithic Carchemish catchment area. Unfortunately, but all too common, this site has been destroyed by modern disturbance caused by extensive gravel quarrying on the low river terrace that the site sits on (Mellink 1991, 1992). Among the little that is known about Kum Ocağı is its extant dimensions (420m x 150m) and that the site was founded on virgin soil (Algaze 1993b; Algaze *et al*. 1991). Because of the short duration of occupation at the site, the gravel quarrying removed almost

[192] But see Peltenburg (2007b) for a discussion of Tiladır being reoccupied in the mid-third millennium.

all of the cultural remains, which were fairly close to the current ground surface level. The ceramics that were recovered during a survey of the site included Late Uruk types, one of which was an incised sherd with diagonal hatching within horizontal bands and diagonally hatched triangles below the bands. Similar sherds were also found at Akarçay Höyük (slightly upriver) and at Jerablus Tahtani (downriver) (Deveci and Ensert 2011).

† Şadi Tepe

Two kilometres north of Kum Ocağı was another large (8 ha) southern Mesopotamian site situated on the west bank of the Euphrates River on a rocky outcrop that rose above the surrounding terrain. The survey recovered large numbers of bevelled rim bowl sherds and other typical Uruk ceramics along with flint tools and bitumen coated wall cones, similar to those found at Hacınebi (Algaze 1993b; Schwartz *et al*. 1999). Like the other proposed mid-late fourth millennium Uruk enclaves, Şadi Tepe seems to have been abandoned at the end of the fourth millennium (Algaze 1993b). The occupation deposits were fairly shallow (2 – 3 metres deep) and were heavily disturbed by modern quarrying activities leaving many unanswered questions regarding the role of Şadi Tepe in the Carchemish sector socio-political and economic dynamic (Algaze *et al*. 1991).

† Şaraga Höyük

Seventeen kilometres south of modern Birecik is the conical mound of Şaraga Höyük, which measures just 150 metres in diameter but 22 metres in height. Apart from the conical summit, the mound has a broad area to the south which features a small tributary stream running past it on its way to the Euphrates River (Sertok *et al*. 1998). The west side of the site was heavily truncated for agricultural purposes while the northeast side was naturally eroded by the Euphrates River over time. The Birecik Dam reservoir flooding destroyed all remains prior to the Late Bronze Age levels, which sit at the top of the conical summit. This means that the Late Chalcolithic evidence is limited to the traces of occupation found in one limited sounding (K/21) in the 1999 season of excavation (Sertok and Kulakoğlu 2001).

Due to the extensive damage caused by modern ploughing and the rising waters of the dam's lake, only limited excavations could be undertaken at Şaraga Höyük. The true extent of the site and its stratigraphy is largely unknown, but the four sherds of reserved-slip, BRB sherds, vessels featuring spouts with down-turned ends, and large storage jar sherds that were decorated with diagonal bands or a horizontal line on the shoulder and bands split by vertical lines on the interior found at the main mound implies a Late Uruk and/or EB I occupation of the site (Sertok and Kulakoğlu 2001, 2002a, 2002b; Sertok *et al*. 1998, 2005). More information about the site is known from its cemetery which is located 800 metres southwest of the mound, though it was heavily damaged and mostly destroyed by extensive levelling for cultivation that was carried out in the 1980s.

It is unknown how many graves were lost as a result of the levelling, but a limited excavation was carried out in a 5 metre by 5 metre test area and two graves were found only 20 – 30 centimetres below the current ground surface (Sertok and Kulakoğlu 2002a, 2002b). Both graves were covered by limestone blocks, or possibly a single slab that had broken later, and were heavily damaged by modern irrigation and ploughing. Grave 1 had vessels, including champagne cups, in front of the entrance to the grave while inside there were more champagne cups and other pottery fragments (Sertok 2007; Sertok and Kulakoğlu 2002a). The second grave was more heavily disturbed and had the remains of several champagne cups (Sertok 2007; Sertok and Kulakoğlu 2002a). Altogether, the Şaraga Höyük graves closely resemble other local burials from Carchemish, Hacınebi and the extensive Birecik Dam cemetery.

† Akarçay Höyük

The site of Akarçay Höyük was first noted by Algaze's Euphrates Survey (Algaze 1989a; Algaze *et al*. 1986; Algaze *et al*. 1991) Though Akarçay Höyük has been excavated for several seasons, the available information regarding the Akarçay excavations is scarce and is primarily limited the *Carchemish Dam Reservoir* volumes (Deveci 2004; Deveci and Ensert 2011; Mergen and Deveci 2002). Of the two sites, Akarçay Höyük had a Late Chalcolithic settlement and the evidence from this period comes from trench I 8a where a large number of bowls with curved rims,

bevelled rim bowls, incised sherds and other grit tempered wares of the typical Late Uruk variety led the excavators to interpret the Late Chalcolithic occupation of the site as a probable Uruk colony (Deveci and Ensert 2011).

Beyond the scant published evidence for the Late Chalcolithic occupation of the site, the available information for the Early Bronze Age settlement is just as scarce and is mainly represented by the ceramic assemblage. Fragments of vessels similar to the so-called 'Western Ninevite 5/Euphrates' ware were found, a type of vessel also found at the Birecik Dam cemetery, Hassek Höyük and Arslantepe, confirming that the site was occupied in the Early Bronze Age (Deveci and Ensert 2011).

† Komeçlı Höyük

Komeçlı Höyük was located just one kilometre north of Şadi Tepe and based on the recovered ceramic evidence, it is thought to have been one of the satellite sites of Şadi Tepe along with Kum Ocağı. Komeçlı was about half of the size of the other satellite site, at just 250m x 110m, though it too was located close to the Euphrates River and was also a short-lived site. Unfortunately, Komeçlı was bulldozed into oblivion to make a cotton field, so no further information will be forthcoming from this site (Algaze 1993b; Algaze *et al*. 1991).

† Sara Mezar Harabe

† Gre Virike

Though perhaps more well-known for its mid-third millennium cult complex (Periods II A and B), Gre Virike's history extends back to the beginning of the third millennium (Period I) when it appears the purely ritual use of this site was confirmed. Gre Virike is unique to the entire Euphrates Valley because it was a purely cultic site without a permanent settlement, an interpretation that is based on the monumental platform, installations and lack of domestic architecture (Ökse 1999, 2001, 2002, 2006, 2007). The predominant architectural feature is a mud brick terrace built on a pre-existing pebble terrace, and in Period I two plastered pools were built in the northeastern area in addition to a basalt channel that led to four

circular pits leading east from the channel (Ökse 1999, 2001, 2002, 2007; Ökse and Bucak 2001, 2002, 2003). The pits and the associated channel are thought to have been used for sacrifices based on the quantity of grain, animal bones and figurines found associated with the channel and four circular pits (Ökse 2007). The southwest terrace at Gre Virike was the result of a stairway made of basalt with a mud brick superstructure being built from the grotto in the southwestern area of the terrace to an underground spring, creating a tunnel (Ökse 2006, 2007).

The excavation of the site confirmed that the mud brick terrace was built in one construction event, likely from the building detritus of an abandoned Halaf site that was once located close to where Gre Virike is now (Ökse 2007). An analysis of the ceramic evidence shows a homogeneity of ceramic types representative of the region, the Carchemish sector in particular, with champagne cups with incised decorations and *cyma recta* cups being quite common (Engin 2007).

While it is not known what ritual events occurred at the Gre Virike terraces, it seems that, at least in the early use of the site, the pools and pits on the terrace were key elements with grain and animals serving as the primary offerings. The lack of domestic buildings at the site is quite interesting, and it may be that Gre Virike was an established cultic place for nomadic pastoralists or a central ritual place for the inhabitants of the entire region; what Cooper described as "communal places of worship" (Cooper 2006a: 143), though Porter (2012) explicitly ties these places to ancestor worship.

† Şavi Höyük

A survey conducted in 1999 found seven archaeological areas that were excavated under the single site name of Şavi Höyük in the area east of the modern village of Adacık located 11 kilometres south of Birecik (Dittmann *et al*. 2001, 2002). These areas were labelled I through VII, with I being the southernmost and VII the northernmost. Areas II through VII were heavily disturbed by modern agriculture but the survey was able to determine that the oldest settlement remains from the entire site came from area II and include the Palaeolithic, late Halaf and Late Chalcolithic periods. The only marginally extant remains of Late Uruk architecture were from a building that had been largely destroyed by recent

ploughing, though there were numerous bevelled rim bowl sherds associated with this building (Dittmann 2003; Dittmann *et al.* 2002).

Little information is known about the third millennium occupation of the site as like so many sites in the Euphrates Valley north of Carchemish, Şavi Höyük was extensively damaged in recent history because of quarrying and agricultural activities (Dittmannn 2003; Dittmannn *et al*. 2001, 2002). The extremely limited excavations and even more limited publication of this site prevent all but the most basic intra-site comparisons. The main mound, Area I, had late EBA deposits equivalent to Kurban III while earlier EBA phases were found in Area II. Here there were early EBA graves and ephemeral traces of a poorly preserved EB I structure (Dittmannn *et al*. 2002) Şavi Höyük II was abandoned after the brief EBA occupation, meaning that there was little to no overburden to protect the site from the modern ploughing or grave looting prior to the excavations.

† Kirmizi Tepe

This small site was surveyed as part of the Harran Plain survey by Yardimci (1993), and while EBA remains were reported, no other information is available save the scant summary on the TAY website[193].

† Elifoglu Höyük

This site is located on the Roman route towards the Euphrates River (Comfort and Ergeç 2001), and while it is identified as being an EB I and II site (Peltenburg 2007a), little is known about its pre-Classical occupation.

† Mezraa Höyük

This site was surveyed multiple times[194] and excavated for several seasons as part of the dam rescue and salvage excavations. The late fourth and early third millennium occupation of the site seems to have been concentrated on the southeast slope (levels III, IV and V), which was heavily damaged by erosion and modern agricultural practices. The EB I and II ceramics at Mezraa are typical for the region with close parallels to Hayaz Höyük 3, Birecik Dam cemetery, Hassek Höyük EB I

[193] http://tayproject.org/TAYages.fm$Retrieve?CagNo=4610&html=ages_detail_e.html&layout=web
[194] 1987 and 1990 surveys conducted by Algaze; 1998 and 1999 surveys by METU

and II levels, Kurban IV, Arslantepe VI B2 and Taşkun Kale (Yalçıklı and Tekinalp 2002a, 2002b, 2003, 2011).

Beyond the brief preliminary reports there is little published information regarding the excavations, and adding to the difficulties is the fact that a recent publication for the site (Yalçıklı and Tekinalp 2011) has since changed the level numbers that were used in the previous publication (Yalçıklı and Tekinalp 2002a, 2002b, 2003) leading to a degree of confusion. Late Chalcolithic material was found in the southeastern slope of the site in level IX (formerly level VII), and the ceramics from this level are primarily chaff-faced wares that included handmade 'bell-shaped Uruk bowls' made of yellow-green clay and pots that featured banded relief decorations (Yalçıklı and Tekinalp 2011). Comparable ceramics were found at Habuba Kabira, Kurban Höyük and Hacınebi while the relief banded pots parallel those from Habuba Kabira, Hacınebi, Sheikh Hassan and Arslantepe (Yalçıklı and Tekinalp 2011).

† Yarim Höyük

The small 90 x 80 metre (0.72 ha) site of Yarim Höyük is situated on a natural hill between two gullies. Like many other sites located on the Pleistocene terraces, Yarim was cut quite significantly by the Euphrates River in antiquity. It is thought that Yarim Höyük was a small village of about a dozen houses that was founded at some point in the mid-late fourth millennium during the Uruk expansion and lasted into the EB I period (Rothman *et al*. 1998; Kozbe and Rothman 2005). The short span of occupation meant that the archaeological deposits were only two metres deep and later building activities and pit digging severely disturbed the Late Chalcolithic architectural remains.

Of the three architectural levels recorded, only the lowermost (level 3) escaped the worst of the damage. In Operation 1, a probable Late Uruk building was found in this lower level below a later EB I building. The Late Uruk building featured a platform or bench and two rooms that were separated by a dividing wall. Outside of the structure was an external surface made of rocks similar to those used in the building's foundations, and it is thought that these rocks may have formed the base for an external surface that no longer exists. A similar building was found in

Operation 2, though this building did not have a platform like that in level 3 of Operation 1 (Rothman *et al*. 1998).

Ceramics found at Yarim Höyük were primarily composed of Uruk wares (though only one piece of a bevelled rim bowl was found), plain simple wares and reserved slip wares with the Amuq F chaff faced wares being a fairly rare occurrence. Of the total ceramic assemblage, plain simple wares dominate the assemblage (Rothman *et al*. 1998). Other finds were minimal and consisted of stone loom weights and chipped stone items associated with the Operation 1 level 3 building and ground stone and chipped stone artefacts associated with the building in Operation 2 (Kozbe and Rothman 2005). An analysis of the plant and animal remains showed that of the botanical remains, cereals were most common with lentils less so, and that the animal remains were primarily comprised of sheep, goat, cattle and pig remains with several bones of either an onager or an ass (Rothman *et al.* 1998).

Yarim continued to be occupied into the Early Bronze Age following the Late Chalcolithic settlement - at least for part of the EB I period. The remains of a small EB I structure were found in level 2 in Operation 1 and seem to be a second phase of the preceding late fourth millennium level 3 building. Only two walls of this structure were preserved, with one featuring a stone platform adjacent to it. It was noted that this structure resembles the plan of an early EBA house found at Jerablus Tahtani, and the ceramics found in the associated fill date it firmly to the EB I period (Rothman *et al.* 1998). In Operation 2, directly underneath the Hellenistic disturbance, was a pot burial of a child aged 6 or 7. The pot itself was reserved slip ware and the only grave good was a small bead. Based on the stratigraphy, it is thought that the child was buried underneath of an EB I house (Rothman *et al*. 1998). Further EB I remains were found in Operations 5 and 6 where pits were found underneath of the Hellenistic level at the surface. These pits measured 1.30 and 1.55 metres in diameter and were approximately 1.5 metres deep. These pits were lined with plaster to keep moisture out and the pit fill contained a high content of botanical material suggesting that these pits were used for agricultural storage (Kozbe and Rothman 2005). Altogether, it seems that Yarim continued to last for a short period at the end of the fourth millennium as a small community with a subsistence economy based on cereal production and animals such as sheep, goat, cattle and pig.

† Megara

† Zeytinli Bahçe

Zeytinli Bahçe is an extremely visible site that consists of a distinctive conical mound on top of a larger flat mound so that together they rise approximately 30 metres above the surrounding plain and had a total area of approximately 2.6 ha (Frangipane 2007; Restelli 2006). The ceramics and architectural remains from the two earliest phases at the site are purely local Late Chalcolithic 3 in origin (these were found in a trench with 48 square metres of exposure on western slope of the mound) and are fairly consistent over time with notable features including a cobbled courtyard, a path or road leading towards the structure, and an overwhelming majority of chaff-tempered wares in the ceramic repertoire. The material remains continue to be fairly typical of the local Late Chalcolithic until roughly the middle of the fourth millennium when Middle Uruk ceramics begins to appear in the ceramic repertoire (Restelli 2006). It has been suggested that there was a crisis prior to the appearance of the southern population as the last remains of the LC 3 occupation included a burnt level that was overlaid by a layer of building rubble and sterile soil before reoccupation (Frangipane and Balossi 2006, 2009; Restelli 2006). This serves as a clear separation of the former local Late Chalcolithic settlement of the site to the following Uruk influenced phase of occupation.

Zeytinli is one of a handful of sites in the Upper Euphrates that had a continuous occupation history from the early centuries of the fourth millennium through to the third millennium and beyond. In the mid-late fourth millennium, the southern Mesopotamian culture is much more noticeable at Zeytinli; both the architecture and ceramics show a greater alignment towards Uruk styles (Deveci and Mergen 1999; Frangipane and Bucak 2001; Frangipane *et al*. 2002; Frangipane *et al*. 2011). One building in particular stands out as evidence of the Mesopotamian influence following the local Late Chalcolithic occupation; this Middle Uruk building featured multiple side rooms that measured 1m x 1.25m and has strong parallels to the architecture at Sheikh Hassan (Restelli 2006). Like the Sheikh Hassan building, the Zeytinli Middle Uruk building had been meticulously cleaned of any material within it, including material that could be used to date the structure, and

then covered with a layer of sterile soil. In fact, the only remains found inside of the building were traces of bitumen. Further investigation of this building showed that it had been built on top of an earlier domestic structure that contained Middle Uruk pottery and a limestone eye idol (Frangipane 2010b). Overall, the ceramics from the later Uruk-influenced levels were typical to many of the Euphrates Valley sites (i.e. a mix of local and Uruk wares) with Hacınebi B2 the closest parallel (Frangipane *et al*. 2002; Frangipane *et al*. 2011).

† Surtepe Höyük

Based on survey estimates, the site of Surtepe reached a maximum size of 20-50 ha, though the Late Chalcolithic 5 occupation is estimated as being a fraction of this (6 ha) by Wossink (2009), though even at 6 hectares Surtepe would have been the biggest mound between Carchemish and Samsat. Work at the site showed that Surtepe had a long period of occupation[195]; following a hiatus after the Ubaid occupation, the site was reoccupied in the Late Chalcolithic on top of a one metre thick hiatus deposit. The two periods of the Late Chalcolithic occupation at Surtepe were very similar to the remains at Zeytinli Bahçe, Hacınebi and Tilbeş Höyük where Uruk material was first found in the Late Chalcolithic 3 and 4, or the Middle Uruk, levels, and continued through the Late Chalcolithic 5, or terminal phase of the Late Uruk period (Fuensanta *et al*. 2002; Fuensanta *et al*. 2003; Fuensanta *et al*. 2007).

The Late Chalcolithic 5 deposits at Surtepe included wall foundations on a monumental scale that can be securely dated by the typical southern Mesopotamian pottery associated with it. Perhaps the most telling piece of evidence associated with the Late Uruk remains was a fragment of a terracotta model (St 4068) that depicted several buildings including a ziggurat- a completely unique item in the Upper Euphrates River thus far (Fuensanta *et al*. 2003). Complementing the find of the ziggurat model was the discovery of a large mud brick platform or tower-like structure in square B3 that was at least 10 metres deep. The mud bricks used to build this structure were a standard 40x40 cm shape (Fuensanta *et al*. 2003) and a stack of 60 mud bricks at the foot of this platform had LC 5/EB I sherds inside of them,

[195] This included the: Halaf, Ubaid, Late Chalcolithic, Early Bronze Age, Late Iron Age/Achaemenid, Hellenistic and Seleucid (Fuensanta *et al*. 2002).

giving a rough date for the platform. While the excavators initially thought that this platform might relate in some degree to the ziggurat in the model (Fuensanta *et al*. 2002), this idea has since been discarded and instead the platform has been related to a contemporaneous example from Tell Hazna in the Syrian Khabur (Fuensanta *et al.* 2003). A second large platform-like structure was found in the central area of the site in area C, and ceramics date it to the same period as the platform in square B3. The platform in area C was also constructed using the standardised 40x40 cm mud bricks and when in use it would have covered a large area of the centre of the site in the LC/EB I period (Fuensanta *et al*. 2003).

In terms of ceramics, the Uruk wares seem to have been made locally based on the fabric (Fuensanta 2007), while other Uruk artefacts included a terracotta eye idol (similar to the Zeytinli example) that was found in the early levels of square E41 as well as several fine seal impressions. One impression[196] was of a human with the:

> ..characters of an EN, the king-priest of Uruk times, holds an arch with a ready arrow. To his right there is a boat (a possible representation of the Sumerian pictogram KAC, strong, powerful) and up a sign, the possible pictogram RI (to leave). The left register, back to the archer, shows another figure, a possible deity touching the leaves of a big tree; a scene in connection with fertility iconography (Fuensanta *et al*. 2007: 462).

Several fragments of unbaked clay pieces with impressions were found in the same area as this one- one of which shows an EN with a bow attacking enemies who are approaching from the right (Fuensanta *et al*. 2007). These seal impression styles are in the Uruk IV/Susa 18 style and have parallels to the impressions from the Late Uruk at Choga Mish (Fuensanta *et al*. 2007) and closer to Surtepe at Hacınebi (Stein and Mısır 1995). These warfare scenes may not be too far removed from events at Surtepe at the end of the Late Chalcolithic 5 occupation; the excavation of this level revealed evidence of a massive conflagration and a complete realignment of architectural plans in the following EB I phase, though the ceramic assemblage shows continuity between the LC 5 and EB I.

The EB I occupation at Surtepe shows a reduction in settlement size from the Late Chalcolithic occupation to an estimated at 3 – 12 hectares, with Wossink (2009)

[196] Charvat's interpretation of this scene is that "…the representation was done with the target to expand the ideology of 'leave the political and war matters into the hands of the EN' " (Fuensanta *et al*. 2007: 462).

giving a conservative estimate of 4 ha. This is likely related to the Late Chalcolithic 5 conflagration, as Surtepe was immediately reoccupied with structures built directly on top of a thick ash layer (Fuensanta *et al*. 2002; Fuensanta *et al*. 2003; Fuensanta *et al*. 2007). The EB I settlement featured two large mud brick platforms of a similar construction to those found at multiple sites in the Middle and Upper Euphrates Valley at this time including Gre Virike (Ökse 2007) and Tilbeş Höyük (Fuensanta *et al*. 2004), and earlier sites such as Hacınebi (Stein 1999d; Stein *et al*. 1996, 1997). Finds included multiple seals and seal impressions and reserved slip wares (Fuensanta *et al*. 2002). Surtepe's proximity to the Euphrates River and its location at a meander meant that Surtepe would have provided a safe haven for boats or rafts to dock, possibly accounting for its continued habitation after the Late Chalcolithic conflagration (Fuensanta *et al*. 2002).

† Tilöbür

Located 2.2 kilometres west of Tilmusa, this conical mound had six metres of stratigraphy and reached 1.44 ha in size. The modern occupation and the flooding of the site prevented any work beyond cursory excavations, meaning that the archaeological evidence from Tilöbür is not as complete as the evidence from Surtepe, Tilvez, Tilmusa or Tilbeş (Fuensanta *et al*. 2004; Rothman and Fuensanta 2003).

† Tilvez Höyük

Of the four sites in the Tilbeş excavation group, only Tilvez survived the flooding. The site is approximately nine metres in height and 3.5 ha at the base narrowing to 1.2 ha at the top and features a double conical top (Fuensanta *et al*. 2002; Fuensanta *et al*. 2003; Fuensanta *et al*. 2004). The EBI architectural remains from this site were heavily eroded on the northwestern slope of the mound, though excavation showed that there was a long hiatus between the EB I and the EB III occupation of the site (Fuensanta 2007). An EB I cemetery is mentioned in Fuensanta *et al*. (2002) with Sertok and Ergeç (1999) given as the reference. However, the cemetery mentioned in the reference is actually the Birecik Dam Cemetery rather than a cemetery specific to Tilvez. If there is, in fact, a cemetery at

Tilvez, there is no further information beyond the mention of vessels with reserved slip from the Tilbeş Cemetery being similar to those found at the Tilvez cemetery (Fuensanta *et al*. 2002).

† Birecik Dam Cemetery- See Chapter 4

† Tilmusa

Another of the five sites excavated as part of the main Tilbeş Höyük excavations, Tilmusa is a nine metre high conical mound covering 0.45 ha that was cut by the Euphrates River in antiquity (Fuensanta *et al*. 2002).

† Tilbeş Höyük[197]

Located at an ideal river crossing and stopping point for watercraft, Tilbeş had a fairly long period of occupation from the Late Chalcolithic through to the EBA/MBA transition and then later during the Achaemenid, Seleucid, Roman and Islamic periods (Fuensanta *et al*. 2002; Fuensanta *et al*. 2003; Fuensanta *et al*. 2004). The Late Chalcolithic levels at Tilbeş had a large number of administrative artefacts, with perhaps the best example being a clay bulla containing tokens. The surface of the bulla had a cylinder seal impression of a bound and fettered captive of the Uruk/Jemdet Nasr style[198]. Other administrative equipment includes a large token or an odd shaped numerical tablet[199].

While not in the same medium, two inscribed sherds were found in the A2-A6 square. The first and most spectacular had proto-cuneiform script (*ca*. 3500-2700 BC) reading:

"/EZ/EN INANNA SIG4 ?GI"

and at the right-hand side of the sherd:

"KALAG".

[197] Tilbeş was the central site of 5 archaeological projects on the East bank of the Euphrates and all located within a few kilometres of each other. The other sites included in this excavation permit area are: Surtepe, Tilöbür, Tilvez and Tilmusa.

[198] Parallels for this were found at Uruk/Warka and Susa and closer to Tilbeş at Hacınebi (Stein 1999: fig 7.12).

[199] Again, parallels to Hacınebi can be drawn; at Hacınebi, a cylinder seal impressed tablet broken in half and a blank tablet were found in the later contact Phase B in pit 54. These tablets were found in association with one stamp seal impression of the local style (Stein and Mısır 1996).

According to Charvat in Fuensanta *et al*. (2003), the first part means "a feast of the goddess Inanna as the evening star" and "return", while the second part literally means strong- as in reference to a workforce. Therefore, the whole inscription has been interpreted as reading:

> "Returned from the feast of Evening-star Inanna to the labourers" (Fuensanta *et al.* 2003: 370).

This was taken to mean that there was a system where the temple staff consumed the leftovers from sacrifices was in place at Tilbeş, was similar to the situation in southern Mesopotamia (Fuensanta *et al*. 2003). The second inscribed sherd is dated to the end of the third millennium and refers to the capacity of the vessel (Fuensanta *et al*. 2003).

Ceramics from the site show that there was a settlement here during the late 4th millennium Uruk expansion and Late Chalcolithic ceramics include pieces of bevelled rim bowls and chaff faced wares (Fuensanta *et al*. 2000; Fuensanta *et al*. 2004). The site continued to be occupied into the Early Bronze Age, which is outlined in Chapter 4.

† Horum Höyük

Horum was excavated over the course of four seasons after being noted in the Algaze survey (Algaze *et al*. 1994) as being a large site Marro (2007) and Wossink (2009) estimated Horum as being 10 hectares during the EB I – IV periods). Algaze (1993b) described Horum as being a cluster site in the late fourth millennium, and the ceramics included bevelled rim bowls associated with the Uruk population (Marro *et al*. 1997). The Middle and Late Chalcolithic material was mixed, making the Chalcolithic occupation at the site quite difficult to interpret stratigraphically. Because of this difficulty in interpreting the mixed layers from a limited excavation area, there is slightly more information regarding the occupation at Horum from the Early Bronze Age periods and later.

The later third millennium occupation remains were largely destroyed by the Middle Bronze Age occupation of the site, though the earlier third millennium architecture seems to have survived to some extent- especially in Trench B where EB I and II buildings were found (Marro *et al*. 1997). The ceramics that were found were

very similar to contemporary ceramics from the surrounding sites and include Ninevite 5 ware as well as plain simple ware and painted wares (Marro *et al*. 1997).

† Hayaz Höyük

Located at the edge of a naturally occurring hill near the confluence of the Euphrates River and Kalburcu stream, Hayaz was a small mound of approximately 90 metres in diameter and 9 metres in height with a low river terrace to the west of the mound that likely served as an agricultural area (Boerma 1989-1990; Roodenberg 1989). Its location on the terrace was likely a practical decision to avoid flooding of both the village and the agricultural area and nearby silex deposits would have provided ample resources for a chipped stone industry (Boerma 1989-1990).

The majority of the excavation work focused on the Pre Pottery Neolithic B (PPNB) settlement levels, but remains dating to the early fourth millennium were found in Level 5 and 4 at Hayaz. These ceramics included the chaff tempered wares of the Amuq F sequence and Coba bowls that can be related to examples dating to 3500 – 3000 BC from Korucutepe, Değirmentepe and Lidar (Özdoğan 1977; Thissen 1985). No Uruk ceramics were found at the site during survey or excavation work, which suggests that Hayaz was minimally affected by the Uruk expansion, unlike the nearby site of Kurban Höyük. Despite the Amuq F ceramics, the heavy disturbance caused by the site's later occupants and modern population brings the accuracy of some of the fourth millennium evidence into question (Boerma 1989-1990; Lupton 1996; Thissen 1985), though unfortunately the site has been destroyed by the flooding meaning that any further clarification of the Late Chalcolithic occupation is impossible.

Relatively little has been published on the Late Chalcolithic and Early Bronze Age levels as the focus of the excavations was on the Neolithic deposits (Roodenberg 1989). However, based on the reported ceramic assemblage, Level 3 at Hayaz signals the LC 5/EB I transition. This level shows a switch in the preference of chaff tempered wares to plain simple ware and Karababa painted ware with the majority of the ceramics being plain simple wares. Red-black burnished ware was also found at Hayaz, indicating a degree of contact with eastern Anatolia or an ETC population (Thissen 1985).

†Kurban Höyük- See Chapters 3 and 4

† Samsat- See Chapter 3

† Titris Höyük- See Chapter 4

† Gritille Höyük

Located on the west bank of the Euphrates almost directly across from Lidar Höyük, this 13 metre high, 1.5 ha site was heavily eroded by the Euphrates River on the east side of the mound. This erosion meant that the EBA settlement was almost completely destroyed and only scant remains were left on the west edge of the mound in addition to finds from the aceramic Neolithic, 'early historic', medieval and Ottoman periods (Ellis 1985; Stein 1988; Voigt 1988; Voigt and Ellis 1981).

† Lidar Höyük- See Chapter 4

† Karadut Mevkii

Ten kilometres upstream from Samsat and two kilometres upstream from Gritille Höyük, the small 2 hectare flat site of Karatut Mevkii was briefly excavated as part of the Gritille excavations and survey. Six small trenches were opened up during the short amount of time allotted for the excavation, with the majority of the trenches featuring pits or pit fill. This small and briefly occupied site was almost certainly a temporary pastoral nomad site and therefore the lack of permanent architecture at Karatut Mevkii fits well with its original use. Apart from the pits just mentioned, the only other evidence of occupation were two possible hearths, a group of stones above sterile soil and several complete vessels and many sherds (Schwartz 1988). An analysis of the ceramics showed that chaff tempered wares related to Kurban VI, plain simple wares and handmade sand/grit tempered wares possibly linked to Kurban VIA were common with fewer bevelled rim bowl sherds (Lupton 1996; Schwartz 1988).

† Tille Höyük

Upstream from Samsat near an almost 90° bend in the Euphrates River, Tille was advantageously located at a natural east – west trade route as well as at the location of a seasonal natural ford. The only evidence of a Late Chalcolithic period occupation of Tille comes from sherds that were recycled for mud brick temper in mud bricks that were used in the construction of a building dating to a much later period (Blaylock 1998).

Early Bronze Age sherds were found in the fabric of mud bricks that had been made later, which is highly suggestive of an EBA occupation at this site at one point. If there was a third millennium occupation at Tille it has since been obscured by the 15 metres of later occupation deposits, primarily those of the Achaemenid occupation (Blaylock 1998). Based on the great depth of the EBA levels at this site, it can be surmised that the Late Chalcolithic levels are more than 15 metres below the summit and therefore quite difficult to reach. As with the majority of the sites in this area, the flooding ended any further excavation of the site (Blaylock 1998).

† Hassek Höyük- See Chapters 3 and 4

† Arslantepe- See Chapters 3 and 4

† Gelinciktepe- See Chapter 4

† Fatmalı- Kalecik- See Chapter 3

† Suyatağı

Early Bronze I/II stone cist graves were uncovered at Suyatağı as a result of the rising flood waters and emergency excavations were possible for seven of the graves (Darga 1989). Though much closer geographically to Arslantepe, the tombs themselves are more similar to the quantity and quality of grave goods found in the Hassek stone cist burials (Behm-Blancke 1992) rather than the one example excavated at Arslantepe; the Suyatağı graves were relatively poor in grave goods and only contained Plain Simple Wares, Red-black burnished wares and ‘Dark-Faced Burnished Ware’ imitations rather than the rich array of metal items and possible human sacrifices that were found at Arslantepe (Darga 1989). Unfortunately, Suyatağı was flooded by the Karakaya dam shortly after its rescue excavation, so

these seven tombs are the only extant evidence of what could have been a larger EB I cemetery.

† Pulur-Sakyol- See Chapter 4

† Han Ibrahim Şah- See Chapter 4

† Taşkun Mevkii- See Chapter 4

† Taşkun Kale- See Chapter 4

† Aşvan Kale- See Chapter 4

† Değirmentepe

Değirmentepe's oldest Early Bronze Age level is Layer IV and roughly dates to the end of the EB II/beginning of EB III period (Palumbi 2008b). The severe erosion of the mud brick at the site meant that no complete architectural plans from this level were found beyond 2-3 courses of stone foundations. The ceramic assemblage from Layer IV had a high proportion of burnished wares, though there were also wheel-made imports. The following layer, III, had wattle and daub buildings- an occurrence that was fairly common to sites north of the Taurus by the early centuries of the third millennium (Persiani 2008). A square wattle and daub hut was fully excavated and showed that the interior was divided into two distinct areas by a 20 centimetre thick mud brick wall. The hearth was situated in the north area while a large quantity of horn needles and awls were found in the other half of the house (Duru 1979; Esin 1989). The ceramics from Layer III were similar to those from the previous layer- predominantly burnished ware- though there was an increase in the quantity of imported wares (Duru 1979).

† Tepecik- See Chapters 3 and 4

† Tülintepe- See Chapters 3 and 4

† Korucutepe

Cream Chaff Ware was found in Whallon's (1979) survey as well as in the later excavation of Korucutepe, which was taken to indicate early fourth millennium occupation of the site (Lupton 1996). Unfortunately, the main site report mentions

very little of the Late Chalcolithic 1-3 occupation of the site and instead focuses on the limited LC 4-5 remains that were excavated (van Loon 1971, 1978) which are detailed in Chapter 4.

According to van Loon (1978) there was not a definable EB I occupation at Korucutepe, however, he did not rule out the possibility of the site being occupied as other sites in the vicinity were occupied at this time. There did seem to be a later EB occupation at the site based on the 25 black burnished jars containing barley, intact andiron and grain processing equipment that were found associated with a burned domestic building (Kelly-Buccellati 1978; van Loon 1978), though the excavation report does not provide much more information than this.

† Norşuntepe- See Chapters 3 and 4

Comparative Sites

For most of the sites used for comparison purposes in Chapter 5, there is fairly thorough information published in well-known site reports and so the occupation history will not be re-hashed here. As the Transcaucasian sites are less well-known and published, a brief overview of the sites are mentioned below with references for further reading.

† Ur

See Woolley (1955), especially Appendix III

† Tell Karrana 3

See Wilhelm and Zaccagnini (1993)

† Tepe Gawra

See Rothman (2002a) for a very thorough site summary, but also Speiser (1935) and Tobler (1950)

† Godin Tepe

See Gopnik and Rothman (2011) for the most recent overview as well as Badler (2002), Rothman (2005b), Young (1969, 1986, 2004) and Young and Levine (1974)

† Tell Brak

See Matthews (2003b), Oates (2002) and Oates *et al*. (2001)

† Habuba Kabira

See Heusch (1980) for later site occupation, Kohlmeyer (1996), Strommenger (1980) and Sürenhagen (1978)

† Elar

Located in Armenia north of Yerevan, the settlement mound of Elar covered an area of 10 hectares and had a citadel built at its highest point. The upper area of the site was surrounded by a fortification wall and buttressed gate. Round, stone-built domestic structures were found inside of this wall as well as on the lower part of the mound. The cemetery is nearby the site and consisted of horseshoe shaped graves as well and stone cists covered with stone slabs (Kushnareva 1997).

† Horom

The rectangular stone cist collective burial was found on a terrace of the settlement. This collective burial included three individuals and three red-black burnished ware pots and two anthropomorphic figurines made of stone (Palumbi 2008b).

† Kiketi

This cemetery site is located in southern Georgia in the Kvemo Kartli area, and apart from the 14 graves the occupation remains were reported to be quite ephemeral at Kiketi, suggesting that this may have been a seasonal or temporary encampment. The 14 burials included stone cist, pit and horseshoe-shaped tombs and all but one (tomb 7) were collective burials. Grave goods were composed of

ceramics, stone beads, rings, spindle whorls, chipped stone blades. The only two copper objects were bracelets that were found in burial 2 (Palumbi 2008b).

† Samshvilde

The 35 rectangular cist tombs were all collective burials that used stone slabs for at least part of their construction. The skeletons were mostly disarticulated with older bones pushed to the side, suggesting that individuals were interred individually as they died rather than the deceased being exactly contemporaneous. Metal is rarely found in these tombs, with the most notable exception being Tomb 6 which included a double spiral-headed pin. Other metal grave goods included copper rings and hair spirals (Palumbi 2008b). None of these burials featured an obvious accumulation of grave wealth compared to the others and the few metal objects were all made of arsenical copper. These tombs can fairly convincingly be attributed to family tombs based on the continuation of ceramic styles found interred with the dead and the collective nature of these burials.

† Kvatskhelebi

See Chapter 5.

† Tulepia- located near Kvatskhelebi

† Aradetis Orgora

Located in north-central Georgia in the Shida Kartli region, the site was built 500 metres north of the Kura River and expands to five hectares over three hills. The main Kura-Araxes settlement was on the western hill, though the cemetery connected with this settlement (*ca*. 2800-2750) was located on the northern hill. Only twelve of the tombs were excavated, though it is thought that they are part of a larger cemetery that has not been fully excavated (Koridze and Palumbi 2008). The tombs range in shape from rectangular to oval and were typical to the Shida-Kartli mortuary architecture in that most were stone-lined and all were covered by a layer of stones.

There were both single and collective burials, with single burials being the most common. The collective burials had 2, 3, 5 and 6 people in them and show no

preference for a primary or secondary interment of the bones. With the collective burials, the general rule is that the more bodies there were in the grave, the more grave goods there would be. This holds true with Tomb 22 which had three individuals and Tomb 29 which had five individuals. It was Tomb 29 that had the most metal objects, which is in stark contrast to the single burials which were rich only in pots (Koridze and Palumbi 2008).

Of the grave goods associated with these burials, the ceramics had standard shapes but different sizes and were burnished wares of the red-black, monochrome and black burnished types. Of the metal objects, copper and silver hair spirals were the most common, followed by beads, pendants and loop-headed pins. The pins are of interest as they are not typical to the Kura-Araxes mortuary metal repertoire but instead seem to be an oddity at Aradetis Orgora.

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