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# Textiles and Staple Finance in the Near East and the Southern Levant

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*Textiles have long been recognized as a key feature in the economic and social development of early complex societies. Many comparative dimensions, however, remain unexplored, including within the ancient Near East. Unlike contemporary societies in Syria and Mesopotamia, wool was not used as a staple finance good in the Early Bronze Age southern Levant (c. 3700–2000 BCE) since the landscape could not permit adequately scaled production. In larger cultural regions wool was produced at vast scales and helped underpin royal institutions. But without a non-perishable, high-volume and high-value commodity like wool, staple finance in the southern Levant was restricted to seasonally produced grain, wine and oil, primarily used in exchange for local labour. Moreover, without wool there was little need in the southern Levant for the administrative and security technologies used elsewhere, namely seals and sealing, and later, writing. This limited the development of complex institutions and cognitive abilities.*

## Introduction

The role of textiles in the evolution of complex societies has been a longstanding issue (e.g. Barber 1991; Hirth 2020). The development of technologies for the production of fibres and textiles, related technologies such as basketry, and the position of textiles in the expanding range of storable surpluses complement the better-known development of foodstuffs. Other questions such as the relationship of secondary animal products to energy-intensive industries such as pottery production remain completely unexplored.

McCorrison (1997) proposed that flax played a key role as precursor to wool production. But a recent analysis suggested that flax was a specialized textile in the prehistoric southern Levant with little or no role in Syria and Mesopotamia (Joffe 2022). No evidence exists to posit flax cultivation and linen production as a precursor to wool production. The ‘Fibre Revolution’ as reconstructed by McCorrison must be rethought in terms of the products as well as the spatial, economic and social transformations, both in the primary centres of the ancient Near East and the southern Levant.

As in Syria and Mesopotamia, domesticated sheep and goats were utilized in the southern Levant since the Neolithic. But in sharp contrast, no evidence for wool exists in the southern Levant before the Middle Bronze Age. Some of this is explicable in terms of the carrying capacities of various landscapes; since only a few thousand sheep and goats could be grazed within the territory of any given region or polity, wool production was correspondingly lower. But since flax was not a factor, wool’s importance in Syria and Mesopotamia is greater than previously thought, while its role in the Levant is smaller.

The implications of textile production for understanding early complex society in the Near East and southern Levant during the fourth and third millennium BCE are enormous. Social-spatial reorganization—‘urbanization’—is one aspect, while staple finance by emergent institutions is another. Additional problems include the development of administrative and security technologies—writing and sealing. These technologies, or lack thereof, have important implications for cognitive categories and interactions.

## Wool and staple finance in Syria and Mesopotamia

Models for the emergence of social complexity in the ancient Near East necessarily place human use of domesticated plants and animals at the centre. New research continues to refine regional and site-specific sequences that will revise models further. Some dynamics, however, may be outlined in a generalized way for Syria and Mesopotamia.

After 5000 BCE, larger herds of sheep and goats were moved across increasingly specialized and territorialized agricultural landscapes associated with growing settlements in Syria, northern and then southern Mesopotamia (Stein 2010). Land claims by economic entities such as kinship groups and 'tribes' partitioned landscapes and necessitated new concepts of tenure and ownership.

Specialization within and between communities also created new categories of 'farmers' and 'herders', as well as new communal forms of political organization and leadership to coordinate and adjudicate relationships. Most communities hedged their economies with both farming and herding in various mixtures. But some locations such as steppe regions favoured herding, that led very much later to the development of pastoralism (Arbuckle & Hammer 2019).

The need to coordinate activities of farming and herding also intensified the need for managerial specialists. Herds degrading agricultural lands and increasing soil loss—and conversely, fertilizing and compacting soil—were impetuses for managerial innovations. So, too, was the problem of directing perishable agricultural surpluses and non-perishable wool surpluses.

The temporal and spatial dimensions of increasingly interrelated herding and farming also reshaped cognitive landscapes as new categories emerged with names for things, concepts and numbers. This instantiated 'Neolithization', which had previously reorganized the world into 'human' and 'natural' components and imagined expanded human control over nature (Cauvin 2000). It created new words and cognitive categories for property, ownership and territorialism, as well as for built space and the natural and human worlds (Mithen 2019).

All these factors in turn created pressures for more complex information and security technologies—writing and sealing. Textile remains help chart the emergence of these technologies. For example, the appearance of clay stamp seals at Neolithic Ulucak in contexts with textile tools such as loom weights, bone needles and spindle whorls suggests the stamps were used 'ritually' to decorate

fabric and possibly other surfaces (Çilingiroğlu 2009; Skeates 2007). Much later cordage impressions on sealings such as at Tell Brak demonstrate the shift from hair to wool during the fourth millennium (McMahon 2021). Managerial specialists then claimed a share of surpluses or became dependents of emerging institutions.

As the vast territories of the southern Mesopotamian alluvium were colonized in the millennia after c. 5000 BCE, a hierarchy of settled communities emerged based on irrigation agriculture and herding of cattle and sheep-goats, connected by waterways and sustained by wetlands and marshes. Similar processes took place in northern Mesopotamia, at different rates and scales, utilizing a different mix of the same resources; cattle and sheep-goat herding, secondary animal products, and rainfall rather than irrigation agriculture (Marchetti *et al.* 2019; McMahon 2020; Pournelle & Algaze 2014).

New categories of wealth, territory, ownership and social status were created as more land gradually came under the control of urban sites and presumably urban elites, the nascent 'Great Estates' of palaces, temples and family corporations, evidence for which remains vague but tantalizing before the third millennium. The gradual construction of an engineered landscape in the alluvium, building artificial irrigation systems off the slowly shifting macrostructures of the Tigris and Euphrates and their channels, created more pressure to control land and labour. Over time, the processes of partitioning and controlling the physical and social landscapes also created friction between communities, advantaging those with locational, organizational and conflict capabilities.

Conflict looms large in the urbanization process and later in the emergence of political leadership. One aspect of this is conflict between institutionally organized sheep herding and independent communities practising a mixture of agriculture and herding on common land. The analogy of eighteenth- and early nineteenth-century Britain is unexpectedly useful, since various methods of enclosing land and assuming ownership are richly documented. These included acquiring control through the systematic and piecemeal consent of owners or leaders acting in the name of groups; with encroachments such as squatting; classification of lands as non-productive 'wastes'; and various forms of political and legal manipulations, such as thousands of parliamentary acts. At their extreme, the 'clearances' involved direct violence and expulsions that removed entire communities to cities or far beyond, as emigrants or indentured servants in various colonies (Mingay 1997).

Active and passive resistance were widespread, but the process was effectively completed in less than 200 years. In Scotland, industrial-scale sheep raising and wool production was instituted, which helped underpin a new national economy based on trade and a new ruling class. The surrounding historiography, usually produced by urban writers, often emphasized how more 'rational' production was beneficially organized in regions occupied by 'anarchic' or 'primitive' populations (Richards 2007). Wool products famously became a symbol of the colonized and reinvented notions of group and 'national identity' (Cheape 2010).

Pre-industrial production of wool in Syria and Mesopotamia had similar effects in terms of the transformation of land, played out over a vastly longer time frame. The socio-spatial changes of 'urbanization' entailed creation of the 'countryside' and the gradual depopulation of lands surrounding centrally located site hierarchies focused on cities that became ever larger. Surrounding areas were more 'rationally' organized with irrigation agriculture and herding in mind. These difficult-to-map processes of urban agglomeration and densification, and especially rural reorganization, lasted from the fifth into the mid-third millennia, when a process of 'ruralization' began with the growth in the number of smaller settlements (Marchetti *et al.* 2019, 222–4, figs. 10, 11).

Power clearly accumulated in cities. In addition to the growth of urban institutions, most notably temples, documented social phenomena include institutional violence, such as warfare, slavery, dependency, control technologies, new concepts of ownership and management, including rationing, taxation and *corvée*, new categories of labour and social relations, such as an increase in craft and occupational specialization, changes in gender roles, sumptuary behaviour, and a decrease in local self-governance (Steinkeller 2015).

These variables played out in varying trajectories toward state formation in southern Mesopotamia, northern Mesopotamia and the upper Euphrates valley (Frangipane 2018). Wool production was key, along with cereals. This was the real 'Fibre Revolution'.

The growth of sheep and goat herding created opportunities for both urbanism and staple finance by emergent institutions. In staple finance systems, authorities mobilize wealth from subordinates in the form of commodities, utilitarian goods and attendant labour in order to finance projects such as monumental construction, ritual activities, or warfare (D'Altroy & Earle 1985). Classic discussions

focus on the evolutionary implications of staple finance as indicative of higher levels of organization on the path toward state-level systems.

But defining staple finance as opposed to wealth finance systems and distinguishing them archaeologically is difficult. Classic discussions see staple goods as 'obligatory payments in kind to the state of subsistence goods such as grains, livestock, and clothing', that is, wealth that is immediately deployable, storable and movable, and ultimately convertible but often subject to logistical constraints. But D'Altroy and Earle see wealth finance as comprising 'the manufacture and procurement of special products (valuables, primitive money, and currency)'. Such goods are more easily portable but must be understood as valuable within shared regimes of value in order to be convertible (D'Altroy & Earle 1985, 188). A processed animal product like wool is therefore a good that moves from one category to another, a vehicle that is wealth in itself and convertible into other, more typical wealth items, such as precious metals.

This ambiguity extends further, since animals have other primary and secondary product characteristics that are by definition movable and convertible (such as assignable labour) within a market- or exchange-based economy. Animals also have broad sorts of symbolic values that are often widely shared across cultures. In this latter sense, animals are 'complex capital' which are useful for 'strategic ambiguity' by emerging elites, what Grossman and Paulette (2020, 1–3) call 'wealth on the hoof'. This concept unites a varieties of processes or regimes: symbolic capital, the living representation of successful and ongoing accumulation and thus economic power; the conversion of staple goods into wealth goods; and assertion of abstract connections with mythological realms embodied by animal deities. This latter space is malleable and connects the quotidian with the transcendental and participation alone is itself a form of wealth.

The evidence for large-scale wool production by the Uruk period is clear. Algaze points to wool's particular advantages, namely thermal properties, ability to be dyed and thus used for visual expression and style, economies of scale unachievable with flax and linen, resulting reorganization of the agricultural landscape, and substantial labour availability for herding and weaving (Algaze 2008, 77–92).

During the Bronze Age and before, sheep were plucked by hand, a method called 'rooing', in which the entire fleece is peeled intact from the moulting animal. It has been estimated that an individual could pluck approximately 10–12 small sheep

per day (Andersson Strand 2012, 30; Potts 1997, 92–3; Waetzoldt 1972, 14–17; Wright 2013, 402–3). The wool was then processed and spun.

Late Uruk period textual evidence documents only parts of the cycle from herding to plucking to garment production (Bauer *et al.* 1998, 152). But it is clear that there were dedicated personnel, including dependent females, facilities under the supervision of administrators, and that wool was a key commodity that was controlled and rationed (Charvát 2011).

By the third millennium, state-controlled herds dominated the landscape around southern Mesopotamian sites. In northern Mesopotamia, the state and related elites controlled herds while the movements of nomadic herds were integrated into the local animal economies. Along with management of cereal storage (Casadei 2019; Paulette 2016), sheep and goats acted as real and symbolic sources of capital for emergent elites, anxious to project their domination, and the keystone of an expanding economy of exchangeable and convertible commodities (Grossman & Paulette 2020). The quantities of wool produced were often immense: at the site of Ur during the Ur III period, texts record the delivery of 8000 talents of wool—some 240,000 kg—which required approximately 320,000 sheep (Sallaberger 2014).

Staple finance systems based on large-scale sheep herding and wool production were thus key economic components in third-millennium BCE Syria and Mesopotamia (Breniquet 2014). Fink (2016) argues further that wool was a strategic and political commodity for third-millennium southern Mesopotamian states faced with the choice of acquiring foreign goods through warfare or through export of local commodities. High-value, non-perishable commodities such as woven textiles were more easily exported than bulk commodities such as grain or fish. The high exchange rates between wool and copper received by Akkadian traders in Dilmun show that wool was a highly desirable export commodity (Fink 2016).

The appearance of linen in elite burial contexts in Mesopotamia and the Gulf, including tombs at Ur and Tell Abraq, suggests it was an elite product (Reade & Potts 1993). Ebla texts also indicate linen items were distributed by the royal establishment, most frequently to itself and members of the court (Biga 2010). Less surprisingly, linen forms an important part of late fourth- and third-millennium funerary assemblages in Egypt (Jones 2010).

Dramatic drops in wool prices attested from the Sargonic to Ur III periods were due in part to competition from other regions (Foster 2014). Even so, Fink (2016, 90) observes that unlike contemporary

commodity export-dependent societies, Mesopotamia was not caught in a ‘resource trap’, since wool was renewable and the larger economy was open to innovation. That said, dependence on single commodities like wool, subject to climate and market fluctuations, was more problematic in rainfall agriculture areas such as Ebla than in southern Mesopotamian cities.

### The third-millennium southern Levant in the political economy of the Near East

Urbanization in the Early Bronze Age southern Levant (c. 3700–2000 BCE) has been discussed many times (e.g. Greenberg 2019; Joffe 1993). Most studies emphasize Mediterranean crops such as grapes and olives as commodities employed by emergent small-scale elites who competed for land and labour. Small-scale urbanism, or perhaps better, a walled town culture, developed craft specialization including in ceramics and chipped-stone industries, ‘palaces’ and ‘temples’ of various scales, and massive fortification systems by the middle of the EB I period.

In contrast, urbanism in the central and northern Levant emerged during the first centuries of the third millennium in a process more closely related to Mesopotamian-influenced societies in the upper Euphrates, inland Syria, and both northern and southern Mesopotamia. Southern Levantine sites reached their peak of size and complexity at the beginning of the Early Bronze III, c. 2900, and then began to recede (Greenberg 2017), just as the northern and central Levant were taking off (Wilkinson *et al.* 2014). Some features were shared between the three regions of the Levant but others not. Most notably the influence of the Ebla *chora* and emerging traditions of numeracy and literacy do not extend to the southern Levant. These third-millennium relationships are much debated (see Adams 2014; D’Andrea 2021; Vacca & D’Andrea 2020).

This discussion argues a minimalist view. One reason is the much earlier start to urbanism in the south, in tandem with Egypt, which created a unique series of local traditions and adaptations. Equally important are the environmental and scalar contrasts between the southern Levant and other regions, constraints that shaped agro-pastoral economies, risk and abatement strategies which underpinned socio-political development (see Wilkinson *et al.* 2014, 50–54). A third reason is the deep social and economic integration between settled and arid zones, relationships that stretched far into the Sinai and Arabian Peninsulas. For these reasons the southern Levant stands apart and should be considered



separately as a region with a distinct and contrasting trajectory.

Large walled sites with specialized institutions developed by 3500 BCE. Relations with Egypt are evident in the later fourth millennium with economic relations and a short-lived network of Egyptian settlements, outposts and enclaves, and in the first half of the third millennium with brief Egyptian campaigns and possibly diplomatic gift exchanges. Walled sites, however, rapidly evaporated after c. 2700–2500 BCE and were followed by a long period of town and village settlements during the EB IV.

Studies of the Early Bronze Age economy have centred on Mediterranean crops, along with ceramic production: the role of textiles remains completely unexplored. There are no fibre remains of wool until the Middle Bronze Age (Shamir 2015). By the fourth millennium, Mesopotamian and Syrian wool was being harvested by plucking, and it is unclear why this was not done in the southern Levant.

There is limited secondary evidence for textile production. There is only a small number of clay loom-weights in Early Bronze Age contexts (Boertien 2013, 104, 227; Spinazzi-Lucchesi 2018, 68–71) and a somewhat larger number of perforated stone rings and ceramic disks with uncertain association with weaving. These may have been loom-weights or simply spindle whorls (Rosenberg & Greenberg 2014, 200–202). Basalt examples were products of specialized production and trade networks and may have been prestige items (Levy 2020, 121; Savage 2011). The relatively small numbers of items reflect experimentation or perhaps small-scale production of wool or hair. In contrast, the number of second-millennium clay loom-weights is very large.

One obvious constraint on wool production is that southern Levant environments could not sustain herds as in Syria and Mesopotamia. For example, until the twenty-first century the area adjacent to the large EB centre of Tell Yarmouth contained approximately 2000 sheep and goats. Researchers estimated that the maximum carrying capacity of the region was only 30 per cent higher (Eitan 2011, 73).

The southern Levant was also subject to especially severe fluctuations in herd sizes. Early twentieth-century data indicate that in years of severe drought up to 90 per cent of an individual's or village's livestock could be lost. Sheep and goat enumerations are suspect due to endemic under-reporting as a means of tax avoidance, but usefully indicate changing scales of herding. For example, in 1926, 290,854 sheep and 571,289 goats were counted in the entirety of Palestine. In 1934 this dropped to 157,235 sheep and 307,316 goats (El-Eini 2004, 226,

table 26; cf. Hazell *et al.* 2003). In contrast, during the Ur III period, there were at least 320,000 sheep associated with the city of Ur alone (Sallaberger 2014).

Ebla's wool production was similarly large. Leading families oversaw immense herds, totalling in the hundreds of thousands of sheep, requiring an estimated grazing area of 34,000 sq. km (Wilkinson *et al.* 2014, 58), and as members of the court, contributed wool to the palace (Biga 2010). Wool was stored by the royal establishment and processed into hundreds of different types of items by dependent craftspeople such as weavers and dyers. These products, such as bolts of cloth and garments, were distributed to craftspeople, clients and specialists, merchants, soldiers, priests and temples, as funerary, wedding and birth presents, and as diplomatic gifts.<sup>1</sup>

As in both Syria and Egypt, linen was produced in the EB southern Levant for mortuary purposes, but it was not exported (Joffe 2022). Sheep and goats were raised for primary and secondary products, including skins and sheepskins, but wool was not a source of staple finance for elites. This raises the question of staple finance and the economic bases of complex societies in the third-millennium southern Levant.

### Staple finance and social organization in the southern Levant

If wool was not a staple finance commodity in the southern Levant, what was? Several sites with large-scale silos suitable for grain storage have been noted in the later EB I (c. 3500–3000 BCE) such as 'En Esur Area M (Elad *et al.* 2018) and Amaziya (Milevski *et al.* 2016). These are more plausibly interpreted as individual or communal facilities rather than centrally administered by regional or site-wide elites (Golani & Yannai 2016; Milevski *et al.* 2016). No sites have evidence of controlled access or accounting procedures and all are devoted to grain storage rather than dry goods or containers such as jars, baskets, or bundles.<sup>2</sup>

These storage facilities are roughly contemporary with other institutional structures, namely the enormous EB I Temple at Megiddo, smaller temples at Jericho, Arad and elsewhere, and a number of communal buildings used for both storage and community activities, including rituals, at Beth Shean, 'Ai, Bâb Edh-Dhrâ and Tell el-Far'ah North. With the exception of the Megiddo temple (Sapir-Hen *et al.* 2022), these structures, too, have no evidence for extensive social storage or animal consumption, or for administrative procedures such as controlled

access or accounting (Adams *et al.* 2014; Genz 2010; Mazar & Rotem 2009; Sala 2008).

Similarly, there is little evidence for EB systems of weights, as opposed to standardized volumes associated with vessels and linear measurements used in construction (Ascalone 2006; 2012; de Miroschedji 2001; Genz 2011; Massa & Palmisano 2018; Rahmstorf 2006). Measurement and associated architectural expression appear based on spatial templates rather than numerical calculation.

The lack of weights in particular would have limited the ability to exchange and convert values with reference to emerging interregional and intercultural standards based on precious metals (Marfoe 1987, 33; Milevski 2011, 235–6). By the mid-third millennium these networks stretched from the Euphrates to the Aegean and included shared styles of elite drinking vessels, decorative bone and ivory items, precious metals and semi-precious stones. Except for a few specific items, such as carved bone and ivory bull heads and tubes, southern Levant appears to have been largely excluded from this early or incipient phase of ‘globalization’ (Mazzoni 2020; Peyronel 2018; Peyronel & Vacca 2021; Zarzecki-Peleg 1993).

But despite the lack of luxury goods, the EB II–III (c. 3000–2500 BCE) ‘palaces’, ‘temples’ and other structures demonstrate means of mobilizing labour and moving commodities to support nascent or presumptive elites. This was done without large-scale production of wool or other durable goods, but rather with the procurement, storage and redistribution of oil, wine and grain, and possibly animals (Fig. 1).

The nature of elites associated with these facilities remains obscure, with only Tell Yarmouth and Megiddo having plausible claim for ‘royal’ establishments, as opposed to ‘elite residences’ (de Miroschedji 2020). Food provisioning and feasting were the central concepts, not centralized redistribution.

Tell Yarmouth is the paramount example, with storerooms containing over 150 pithoi (de Miroschedji 2006). At Khirbet al-Batrawy the ‘palace’ had one storeroom contained over 20 pithoi (Nigro 2013), while the ‘pantry’ at the Tell es-Saidieyh ‘palace’ had well-preserved remains of a variety of food-stuff and associated ‘table settings’ (Cartwright 2002; Tubb *et al.* 1997). At Beth Yerah—the only site in the southern Levant plausibly deemed ‘urban’ and whose political organization remains especially unclear—the famous ‘Circles Building’ may briefly have contained silos capable of holding at least 1700 tons of grain (de Miroschedji 2003; Mazar 2001; cf. Greenberg *et al.* 2017) (Figs 2 & 3).

In all these, and in the many EB I–III sites with fortification walls, local production of cash crops was applied locally for the generation of different sorts of social power, with limited storage and convertibility into other forms of wealth besides labour (Genz 2003; Shalev 2018). Crops were seasonal, perishable and could only be stored for a limited time and transported across a restricted geographic range. In turn, wealth could only be directed into limited types of projects such as site fortifications, which acted as displays and occasionally as defensive systems (Ashkenazi 2020; Paz 2011), and very limited sumptuary items.

EB fortified sites were thus centres for patrimonial elites who had reciprocal obligations with rural populations. Highly local politics and elite competitiveness created the need for community-level signalling and other services, such as the creation of redoubts. In return for labour, communities were rewarded with commodities that had been previously extracted (cf. Greenberg 2017, 46–8). In this scenario, little formal management was necessary beyond face-to-face relationships between elites and non-elites, effected without administrative technologies such as seals.

Feasting is difficult to document, but is reflected in the changing composition of EB ceramic assemblages, for example the rapid increase of drinking forms such as cups in the EB I and the presence of larger presentation shapes such as platters in the EB II–III. Given that platters emerge in the late EB I, their appearance in central and northern Levantine contexts may be a rare example of south-to-north diffusion (Joffe 2018; cf. Vacca & D’Andrea 2020, 134–7). It is worth noting again, however, that later drinking vessels such as *depos* and tankards that become part of a unified elite culture from the Euphrates to the Aegean are absent in the southern Levant.

Traditional explanations that exports of Mediterranean crops to Egypt substantially underpinned ‘urban’ and elite economies in the southern Levant, a consensus view for decades, should be discarded (Joffe 1993, 82–3; Stager 1985). Recent analyses demonstrate that wine and oil were being exported from the central, not the southern Levant in the early–mid third millennium (Genz *et al.* 2016; Jean & Badreshany 2023). A wide area of the central and northern Levant shared a ‘combed ware’ ceramic culture focused on vessels made from shale-rich and later calcareous fabrics, suggesting an integrated economy where agricultural products circulated in identifiable vessels, some of which were sealed as ‘brand indicators’ (Badreshany *et al.* 2020, 190). These networks extended into the northernmost regions of the southern Levant.

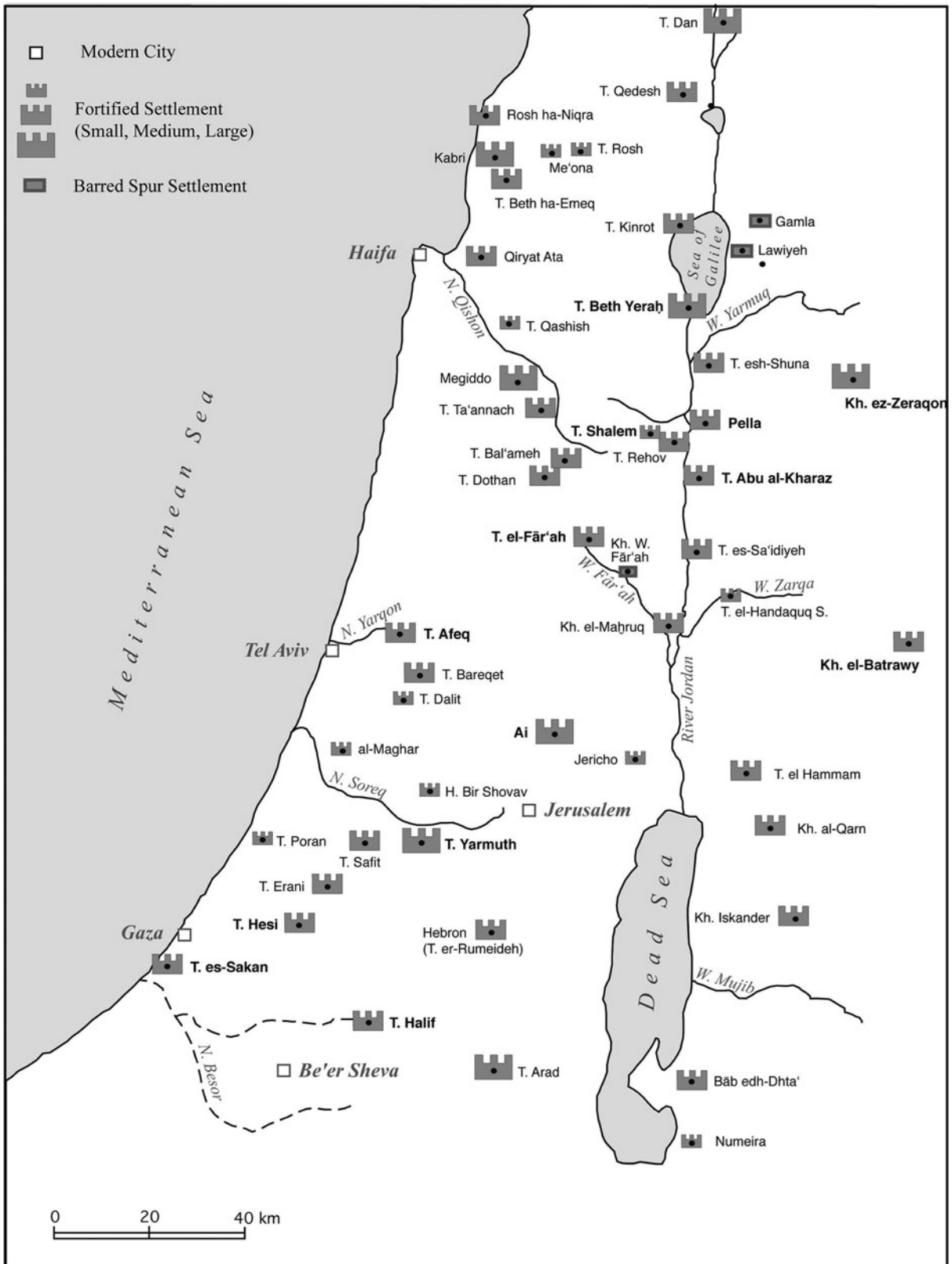
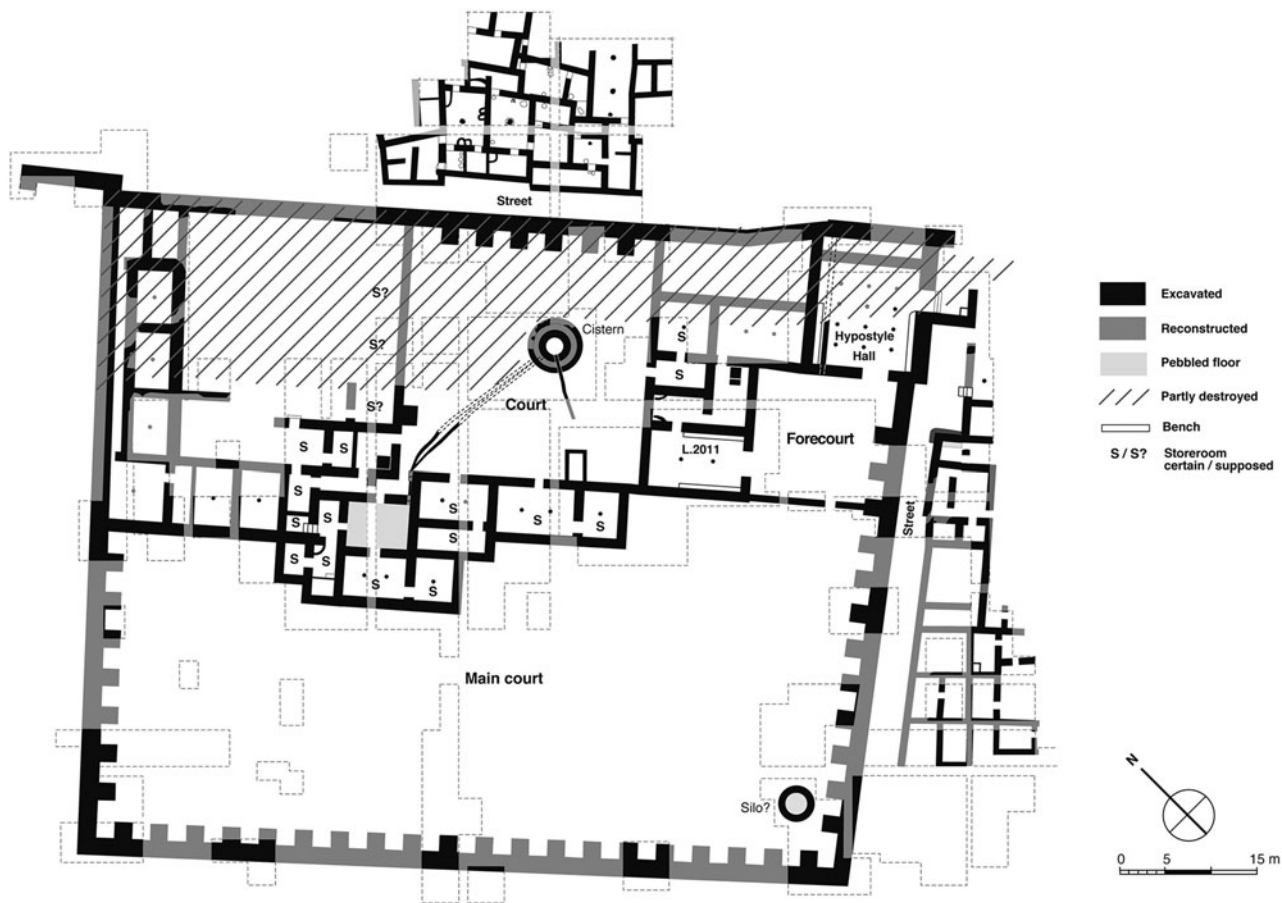


Figure 1. Map of Early Bronze Age sites. (After de Miroschedji 2020, fig. 9.4. Used by permission of Pierre de Miroschedji.)



**Figure 2.** *Tel Yarmouth B1 Palace.* (After de Miroschedji 2020, fig. 9.10. Used by permission of Pierre de Miroschedji.)

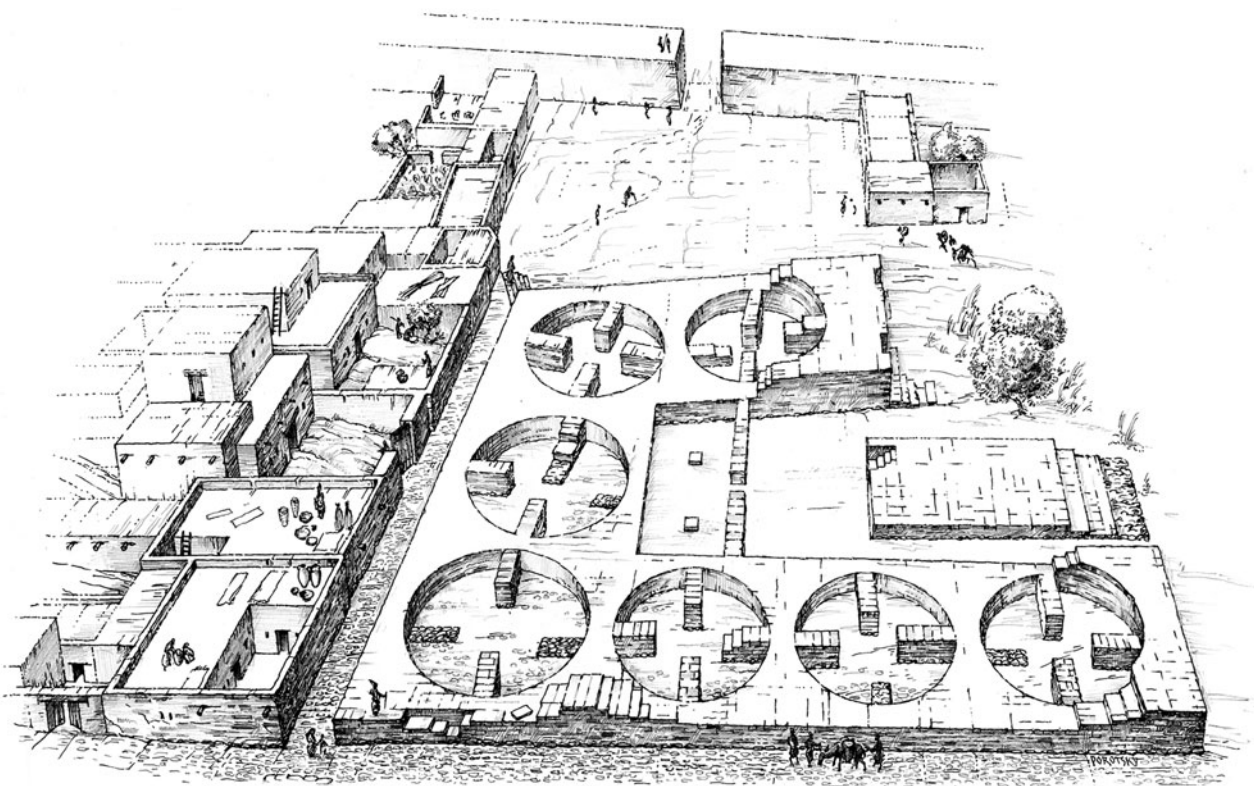
The organization of EB II–III central Levantine sites including Byblos, Tell Arqa, Tell Fadous Kfarabida and Tell Koumba remains difficult to discern but all share forms of planned ‘ritual monumentality’ including temples (de Vreeze & Badreshany 2023). There is also extensive evidence for sealing, inter-site specialization, and, at least at Tell Fadous Kfarabida, archaeozoological evidence for wool production but few tools for spinning or weaving (Genz 2016). Stronger links to Egypt and inland Syria and to international systems more than compensated for whatever lack of wool there may have been as a staple finance good.

In the southern Levant enormous EB I sites such as ‘En Esur (Paz & Elad 2022) also emerged outside the area of direct Egyptian contacts in the fourth millennium, suggesting that early exports to Egypt had only a modest impact on elites and economics. Wine and oil production in EB II–III was primarily for local consumption and political economics (Milevski 2011, table 7; cf. Stager 1985).

One other source of wealth existed in the EB: copper. Two phases of copper production in the Negev across EB II–III and EB IV BCE link southern Levantine networks to Early Dynastic and Old Kingdom Egypt, first via the town of Arad and then via Negev highland sites (Ben-Yosef *et al.* 2016; Finkelstein *et al.* 2018; Yamafuji 2023).

In neither phase, however, was copper distributed widely from production sites to sites in the southern Levant itself. Most copper objects are small and prosaic with little evidence for centralized distribution. A hoard of copper axes appear to have been specially produced symbols of power in the palace at Khirbet al-Batraway (Medeghini *et al.* 2016; Nigro 2015). Similar hoards were found at Tell el-Hesi and Pella in prosaic contexts (Montanari 2018) and most EB sites appear predictably stripped of valuable metals. Copper may have been circulated by locally elites through patronage mechanisms, but at low levels. The role of copper as a staple finance good thus appears unlikely.





**Figure 3.** Beth Yerah Circles Building. (Reconstruction by Dov Porotsky, the Tel Bet Yerah Project. Used by permission of Raphael Greenberg.)

Isotopic evidence dating to EB III also indicates that Egyptian animals including donkeys and ovicaprids were moved to the southern Levant (Arnold *et al.* 2016; Greenfield *et al.* 2020), while Egyptian reliefs suggest cattle from the southern Levant were moved to Egypt (Sowada 2018). The organization and scale of this trade is unclear, but the significance of donkeys as valued means of transportation ritually disposed of at the end of their use life implies considerable significance.

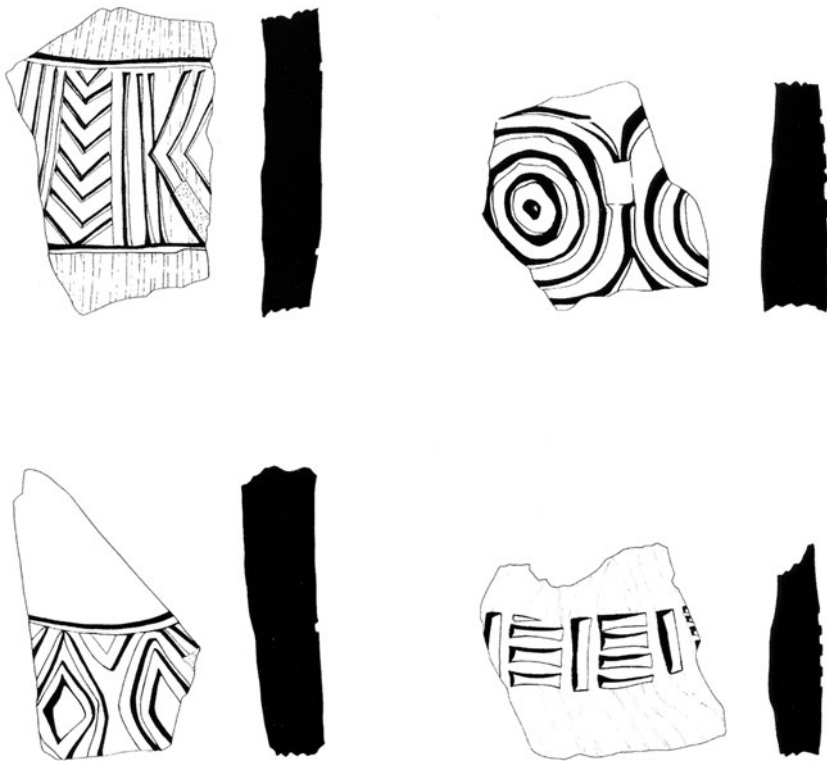
Animal bones at Tell es-Safi, however, show that most sheep and goats were raised in the immediate area of the city and were not imported from a distance (Arnold *et al.* 2018; Greenfield *et al.* 2020). The discovery of anthropogenic soils in close proximity suggests intensive exploitation of Tell Yarmouth's surroundings. Overall subsistence was a local affair (Ackermann *et al.* 2017) and there is no evidence the southern Levant export economy included textiles.

In return, the Egyptian goods received in the southern Levant throughout the Early Bronze Age were mostly random items gifted to local rulers. No meaningful quantities of high-value imported Egyptian commodities such as gold have been

identified rather than reused palettes, stone vessels and beads (Sowada 2009, 91–127). This is in contrast to the northern Levant where inscribed Egyptian materials were more common.

International contacts were specialized and limited, and during the EB II and early EB III surpluses were deployed to architectural displays and feasting. Another measure of the limited power of EB southern Levantine elites is the comparative lack of mortuary display; there are no hypogea, tumuli, or significant disposal of wealth (including humans, equids, and dogs), as was common in mid-third-millennium Syria and Mesopotamia (Baadsgaard *et al.* 2011; Wygnańska 2017). Outside of Bab edh-Dhra and Jericho there is puzzlingly little evidence for EB II–III burials at all (Ilan 2002).

The lack of wealth removed from circulation in burials reflects the economy as a whole. The complex fiscal and finance systems documented at Ebla (Benati & Bonechi 2020), with revenue, rents, tributes and fees, including from commodities passing through its territory, a carefully measured system of land ownership, and a complex structure of designated and enumerated elites and dependents, are difficult to perceive at any point in the Bronze Age southern Levant.



**Figure 4.** Seal impressions from Mizpe Zevulun. Scale 2:1. (After Joffe 2001, fig. 19.2.)

Whatever systems existed did so without writing, at least during the third millennium.

### Wool: economy, symbolism and cognition in the southern Levant

Despite the obvious ease of acquiring fleeces through roving, there is no significant wool weaving in the Chalcolithic or Early Bronze Age southern Levant. Instead, it appears leather and sheepskins were worn, products of an integrated animal economy that emphasized meat and other secondary products (Joffe 2022).

During the fourth and third millennia BCE there are no material remains suggestive of industrial-scale weaving, such as specialized buildings, or for such activities being attached to or controlled by emerging institutions, namely EB I–II temples, EB I–II communal buildings, or EB III palaces (de Miroschedji 2019).

There are no signs that a wool industry was ideologically or iconographically encoded into material culture. Only a single seal is comparable to the southern Mesopotamian ‘pigtailed women’ weaving scene seals (Ben-Tor 2016; Breniquet 2010; Dittmann 2018; Vila & Helmer 2014; cf. Kelley 2018, 71–3). Moreover, there are no weaving or craft scenes (or contest, banquet, or master of animal

scenes), which are common on contemporary Syrian and Mesopotamian seals (cf. Tumolo 2019a, 44).

In contrast, animal imagery on EB seals emphasized processions of wild animals with magical associations and bovines representing wealth displays (de Miroschedji 1993), but not sheep. An impression from ‘En Esur depicting an orant figure next to a bovine conveniently joins both categories of wealth and ceremony (Paz *et al.* 2018, 290, fig. 2d) (Figs 4 & 5). Scenes of lions and goats juxtapose the wild and tamed worlds (Thalman 2013), while ceremonial scenes of individuals holding hands, variously interpreted as religious dances or ‘sacred weddings’, provide a human context for animal scenes of magic and wealth (Paz 2017; Paz *et al.* 2013). Both scenes are also present in the central and northern Levant (Tumolo 2022: 72–4).

But outside the EB I Egyptian enclave, there are no bullae recording individual transactions. Seals were not used as security technologies to control access to facilities or stores, or as part of an accounting system for incoming or outgoing commodities. Instead, the bodies of storage vessels are sealed, a branding practice partially consistent with contemporary Syria and the central and northern Levant including Ebla and Hama (Genz & Ahrens 2021; Matthews 1996; Mazzoni 1992; Tumolo 2022).<sup>3</sup>

Overall, southern Levantine symbolism—heraldic, cultic (de Miroschedji 2011; Paz 2017), geometric, and naturalistic—was restricted to seals carried as personal totems, sealings on special function vessels (Thalmann 2013) as ‘brand indicators’ or manufacturer’s marks (Badreshany *et al.* 2020), and potmarks (Mazzoni 2017). Representative seals presented stock narratives and associations with little semantic or temporal content and offered few opportunities to transmit information to viewers.

EB figurines are also predominantly bovines or donkeys, representations of agricultural wealth and trade made at the household or village level (Milevski & Kolska Horwitz 2019). More elaborate ivory bull’s heads are notable prestige objects during EB II–III but in very small numbers (Al Ajlouny *et al.* 2012; Paz 2014; Tumolo 2019b). In contrast, sheep (and flax, juxtaposed with date palms) as well as bulls are found on many examples of Mesopotamian art such as the Warka Vase, and the ‘peace’ side of the Uruk Standard, encoding the concept of divinely provided abundance (Miller *et al.* 2016; Winter 2007). Even abstracted shapes in jewellery may represent roped sheep (Miller 2013).

Finally, there are no written records in the southern Levant. The appearance of EB potmarks has been suggested to represent the beginning of a rudimentary system for quantitative notation, but this has been disputed (Genz 2001; Greenfield *et al.* 2016; Helms 1987; Moreno García 2016). Without the need to record labour and products associated with textiles and managed cereal production—high-volume and high-frequency transactions with long storage horizons—the pathway toward writing in the southern Levant was dramatically slower than in Syria and Mesopotamia.

The lack of a system of economic sealing in the late prehistoric southern Levant is especially puzzling given the evidence for an early abortive local tradition of seals, tokens and bullae found at PPNB Munhata, Pottery Neolithic Sha’ar HaGolan and Ha-Gosherim, and Early Chalcolithic Tel Tsaf (Freikman & Garfinkel 2017). Late Chalcolithic seals exist in small numbers but do not form a coherent corpus in terms of motifs or usage. They appear talismanic (Fig. 6).<sup>4</sup> Southern Levantine practices contrast sharply not only with Mesopotamia and with the complex fourth-millennium administration systems of seals, cretulae, and bullae in the Upper Euphrates, epitomized by palatial Arslantepe (Frangipane 2016).

Southern Levant remained non-literate despite direct exposure to Egyptian writing systems at sites such as ‘En Besor and Nahal Tillah (Shulman 1995).



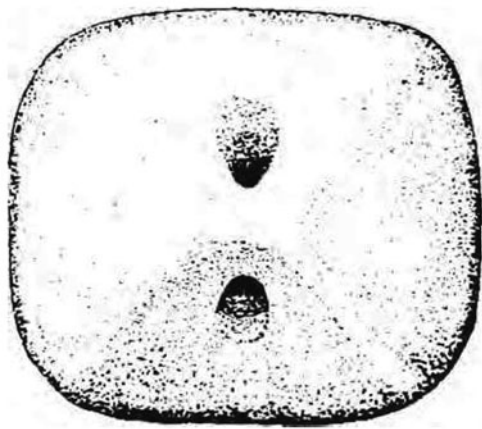
**Figure 5.** ‘En Esur seal impression depicting an animal and orant figure. (Used by permission of Yitzhak Paz. Photograph: Clara Amit, after Paz *et al.* 2018, fig. 2d.)

Later, as Ebla was adapting cuneiform for its West Semitic dialect and recording transactions in enormous detail, the southern Levant remained uninterested, or even unable, in recording individual transactions.

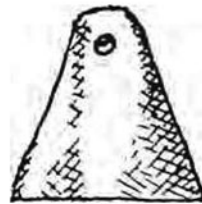
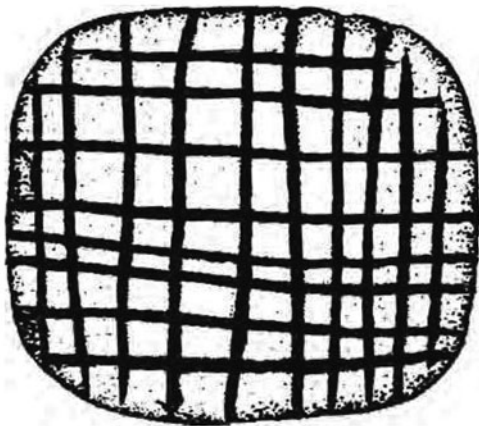
It is possible that some form of writing was done on perishable materials, such as on skins, but no evidence currently exists. No evidence exists for non-writing accounting systems such as *quipu* or tally sticks, although a drilled Chalcolithic bone figurine has been suggested as an unspecified mnemonic device (Levy & Golden 1996). The southern Levant’s lack of writing and numeracy, and generalized sense of seasonality and calendrics, has important implications for language, cognition and categorization (Overmann 2019).

The EB southern Levant could not record complex economic transactions such as land sales, loans and marriage contracts. Long-distance diplomatic and economic contacts similarly relied on memory and orality. The lack of evidence for calendrics (Greet 2021; Polcaro 2013) or mensuration meant that agricultural space could not be accurately charted, seasons predicted or planned, and surpluses and dispersals precisely recorded (cf. Sallaberger 2021). Older systems that relied on landmarks and natural signs such as lunar and solar cycles, recalled

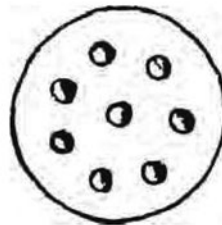




A



B



**Figure 6.** Ghassul seals. (A) Mallon et al. 1934, fig. 28.1; (B) Bourke et al. 2000, 71, 73, fig. 23:1. Used by permission of Stephen Bourke.

through rituals such as solstice or moon-naming ceremonies, or even more broadly with animal or bird migrations, sufficed, as did supporting ideologies and behaviours that sought to sustain productivity through supernatural intervention.

Similarly, without writing, neurofunctional abilities to conceptualize words as discrete signifiers, in contrast to faces, objects or descriptions, may not have developed. Without instantiation created by

recording systems, cognition associated with numbers was also limited; ambiguity and fluidity remained (Overmann 2022). Writing, when encountered, may even have been viewed as unnatural. And without language being centralized by bureaucrats, various linguistic communities retained far greater autonomy in dialectic and conceptual terms. The nature of things remained expansive, unconstrained and fluid.



In the absence of writing, cultural and political memory and politics as a whole were similarly moored by orality, ritual and supporting objects rather than fixed accounts. In a sense, performativity prevailed over precision. Performance as a means of maintaining balances between real and liminal realms, including the construction of time, was the basis of Chalcolithic culture. How EB patrimonial society managed its internal politics and external relations with more complex entities this way is unclear.

## Conclusions

Wool and woven animal hair were used at ever-increasing scales in Mesopotamia and Syria from the later fourth millennium and became the primary fabric in both regions. High cereal productivity allowed the development of specialized herding for wool at massive scales. Prior to this, skins and sheepskins were the primary sources of clothing, while animal hair was spun and woven for small items such as bags and then cordage. The Fibre Revolution did not involve flax, but rather a shift from mixed usage of hair and wool to industrial-scale production, which brought pervasive social and spatial transformations.

The lack of compact, high-value, non-perishable, easily stored and exported commodities such as wool, a condition imposed by the fragmented environment of the southern Levant, limited the amounts and variety of wealth that could be extracted from local society. Staple finance was only possible with seasonal commodities such as wine and oil that were subject to severe transport costs. Local patrimonial estates, rural elites and nascent 'palaces' thus had little need for security and accounting systems.

More broadly, the southern Levant could not produce adequate surpluses of any commodity, whether copper, oil, wine, grain, or wool, to permit accumulation at a scale for a generalized breakthrough to 'palatial'-level society that could support diverse specialists. Individual sites could marshal local resources for a time, but never enough for a long enough period to transcend patrimonial relations. Local elites of the EB II and III may have thought of themselves as kings and princes, but there is no evidence until the second millennium or later that anyone else did. There was, in short, too little wealth to produce much order or legitimacy (*sensu* Baines & Yoffee 1998).

During later periods, international trade passing through the southern Levant generated wealth for elites, albeit temporarily. But even then, inability to

generate meaningful quantities of non-perishable surpluses that could be banked and converted into something other than food and labour—and reciprocally into 'elite items' such as specialized vessels and their contents, or finished goods in precious materials—kept local political relations at the patrimonial level.

Generating convertible non-perishable surpluses of wool and linen textiles, and other fibres such as hemp, was not possible until larger-scale 'national' integration was achieved during the first millennium BCE. During this period larger territories were brought under the control of individual polities and 'nation-states' became commercial partners and then tributaries of empires. While textile production was largely organized at the household level (Mazar 2019), religious institutions also participated (Boertien 2014). The scale of elite or 'royal' participation in textile production remains unknown.

## Notes

1. *Contra* Schloen (2017) there is no evidence, not least of all toponymic, that links Ebla's vast wool economy with the southern Levant, where, as noted, weaving wool appears to have been unknown. See Biga & Steinkeller 2021.
2. In the Early Chalcolithic the only evidence for either community-level storage or administration comes from the northern-influenced (if not actually Halafian) site of Tel Tsaf (Freikman *et al.* 2021; Garfinkel *et al.* 2009; Rosenberg *et al.* 2017).
3. The practice of sealing vessels is also found in the early third-millennium Hamrin Valley (Renette 2014), later third-millennium northern Mesopotamia and western Syria (Gallego López 2011; Graff 2012;) and in the Aegean (Beeler 2018). These similarities remain unexplained.
4. One bulla from Gerar possibly sealed a basket (Ben-Tor 1995).

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## References

- Ackermann, O., Y. Paz, Y. Avni, *et al.*, 2017. An Early Bronze Age fertilized agricultural plot discovered

- near Tel Yarmouth, Ramat Bet Shemesh, Israel. *Journal of Archaeological Science: Reports* 15, 226–34.
- Adams, M.J., 2014. Egypt and the Levant in the Early/Middle Bronze Age transition, in *The Late Third Millennium in the Ancient Near East: Chronology, C14, and climate change*, ed. F. Höflmayer. Chicago (IL): Oriental Institute, 493–515.
- Adams, M.J., I. Finkelstein & D. Ussishkin, 2014. The Great Temple of Early Bronze I Megiddo. *American Journal of Archaeology* 118, 285–305.
- Al Ajlouny F., K. Douglas, B. Khrisat & A. Mayyas, 2012. Laden animal and riding figurines from Hirbet ez-Zeraqōn and their implications of trade in the Early Bronze Age. *Zeitschrift des Deutschen Palästina-Vereins* 128, 99–120.
- Algae, G., 2008. *Ancient Mesopotamia at the Dawn of Civilization. The evolution of an urban landscape*. Chicago (IL): University of Chicago Press.
- Andersson Strand, E., 2012. The textile chaîne opératoire: using a multidisciplinary approach to textile archaeology with a focus on the Ancient Near East. *Paléorient* 38, 21–40.
- Arbuckle, B.S. & E.L. Hammer, 2019. The rise of pastoralism in the ancient Near East. *Journal of Archaeological Research* 27, 391–449.
- Arnold, E.R., G. Hartman, H.J. Greenfield, I. Shai, L.E. Babcock & A.M. Maeir, 2016. Isotopic evidence for early trade in animals between Old Kingdom Egypt and Canaan. *PLoS ONE* 11(6), e0157650.
- Arnold E.R., H. Greenfield, G. Hartman, T. Greenfield, I. Shai, P. Carter-McGee & A. Maeir, 2018. Provisioning the Early Bronze Age city of Tell es-Safi/Gath, Israel: isotopic analyses of domestic livestock management patterns. *Open Quaternary* 4(1), 1. <https://doi.org/10.5334/oq.35>
- Ascalone, E., 2006. Distribution and archaeological context of the balance weights from Tell es-Sultan/Jericho, in *Weights in Contexts. Bronze Age weighing systems of Eastern Mediterranean. Chronology, typology, material and archaeological contexts*, eds M.E. Alberti, E. Ascalone & L. Peyronel. Rome: Università degli Studi di Roma 'La Sapienza', 161–84.
- Ascalone, E., 2012. Balance weights from Khirbet Al-Batrawy, in *Khirbet Al-Batrawy III*, ed. L. Nigro. Rome: 'Sapienza' Dipartimento di Scienze dell'Antichità, Sezione di orientalistica, 387–94.
- Ashkenazi, H., 2020. Sometimes defence is just an excuse: fortification walls of the southern Levantine Early Bronze Age. *Cambridge Archaeological Journal* 30, 45–67.
- Baadsgaard A., J. Monge, S. Cox & R. Zettler, 2011. Human sacrifice and intentional corpse preservation in the Royal Cemetery of Ur. *Antiquity* 85, 27–42.
- Badreshany, K., G. Philip & M. Kennedy, 2020. The development of integrated regional economies in the Early Bronze Age Levant: new evidence from 'Combed-Ware' jars. *Levant* 52, 160–96.
- Baines, J. & N. Yoffee, 1998. Order, legitimacy and wealth in ancient Egypt and Mesopotamia, in *Archaic States*, eds G. Feinman & J. Marcus. Santa Fe (NM): School of American Research Press, 199–260.
- Barber, E.J.W., 1991. *Prehistoric Textiles: The development of cloth in the Neolithic and Bronze Ages with special reference to the Aegean*. Princeton (NJ): Princeton University Press.
- Bauer, J., R.K. Englund & M. Krebernik, 1998. *Mesopotamien: Späturuk-Zeit und Frühdynastische Zeit* [Mesopotamia: Late Uruk Period and Early Dynastic Period]. Freiburg/Göttingen: Universitätsverlag/Vandenhoeck Ruprecht.
- Beeler, M., 2018. The Social Dynamics of Early Helladic Sealing Practices: Seal Use and Social Change in Early Bronze Age Greece. Unpublished PhD dissertation, Bryn Mawr College.
- Ben-Tor, A., 1995. A stamp seal and a seal impression of the Chalcolithic Period from Grar, in *Grar, A Chalcolithic Site in the Northern Negev*, ed. I. Gilead. Beer-Sheva: Ben-Gurion University of the Negev Press, 361–75.
- Ben-Tor, A., 2016. A fourth-millennium bce seal from Hazor, in *From Sha'ar Hagolan to Shaaraim, Essays in honor of Prof. Yosef Garfinkel*, eds S. Ganor, I. Kreimerman, K. Streit & M. Mumcuoglu. Jerusalem: Israel Exploration Society, 187–203.
- Ben-Yosef, E., A. Gidding, L. Tauxe, U. Davidovich, M. Najjar & T.E. Levy, 2016. Early Bronze Age copper production systems in the northern Arabah Valley: new insights from archaeomagnetic study of slag deposits in Jordan and Israel. *Journal of Archaeological Science* 72, 71–84.
- Benati, G. & M. Bonechi, 2020. The fiscal capacity of the Ebla state in the Early Bronze Age: taxation and political structure, in *Economic Complexity in the Ancient Near East. Management of resources and taxation (third–second millennium BC)*, eds J. Mynářová & S. Alivernini. Prague: Charles University, 37–68.
- Biga, M.G., 2010. Textiles in the administrative texts of the Royal Archives from Ebla (Syria, 24th century BC) with particular emphasis on coloured textiles, in *Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC*, eds C. Michel & M.-L. Nosch. Oxford/Oakville: Oxbow, 146–72.
- Biga, M.G. & P. Steinkeller, 2021. In search of Dugurasu. *Journal of Cuneiform Studies* 73, 9–70.
- Boertien, J.H., 2013. Unravelling the Fabric. Textile Production in Iron Age Transjordan. Unpublished PhD dissertation, University of Groningen.
- Boertien, J.H., 2014. Public or domestic? Temple, text and textile production at Khirbet Al-Mudayna in Moab, in *Exploring the Narrative: Jerusalem and Jordan in the Bronze and Iron Ages*, eds E. van der Steen, J.H. Boertien & N. Mulder-Hymans. London: Bloomsbury, 133–58.
- Bourke, S., J. Lovell, R. Sparks, P. Seaton, L. Mairs & J. Meadows, 2000. A second and third season of renewed excavation by the University of Sydney at Tulaylat al-Ghassul (1995–1997). *Annual of the Department of Antiquities of Jordan* 44, 37–89.

- Breniquet, C., 2010. Weaving in Mesopotamia during the Bronze Age: archaeology, techniques, iconography, in *Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC*, eds C. Michel & M.-L. Nosch. Oxford/Oakville: Oxbow, 52–67.
- Breniquet, C., 2014. The archaeology of wool in early Mesopotamia: sources, methods, perspectives, in *Wool Economy in the Ancient Near East and the Aegean: From the beginnings of sheep husbandry to institutional textile industry*, eds C. Breniquet & C. Michel. Oxford: Oxbow, 52–78.
- Cartwright, C.R., 2002. Grape and grain: dietary evidence from an Early Bronze Age store at Tell es-Sa'idiyeh, Jordan. *Palestine Exploration Quarterly* 134, 98–117.
- Casadei, E., 2019. Storage practices and temple economy during the 3rd millennium BC in southern Mesopotamia, in *Pearls of the Past: Studies on Near Eastern art and archaeology in honour of Frances Pinnock*, eds M. D'Andrea, M.G. Micale, D. Nadali, S. Pizzimenti & A. Vacca. Münster: Zaphon, 137–60.
- Cauvin, J., 2000. *The Birth of the Gods and the Origins of Agriculture* (trans. T. Watkins). Cambridge: Cambridge University Press.
- Charvát, P., 2011. On sheep, Sumerians and the early state, in *U4 DU11-GA-NI SÁ MU-NI-IB-DU11, Ancient Near Eastern Studies in Memory of Blahoslav Hruška*, ed. L. Vacín. Dresden: ISLET-Verlag, 49–60.
- Cheape, H., 2010. Gheibhte breacain chàrnaid (Scarlet tartans would be got): the re-invention of tradition, in *From Tartan to Tartanry. Scottish Culture, History and Myth*, ed. I. Brown. Edinburgh: Edinburgh University Press, 13–31.
- Çilingiroğlu, C., 2009. Of stamps, loom weights and spindle whorls: contextual evidence on the function(s) of stamps from Ulucak, İzmir, Turkey. *Journal of Mediterranean Archaeology* 22, 3–27.
- D'Altroy, T.N. & T.K. Earle, 1985. Staple finance, wealth finance, and storage in the Inka political economy [and comments and reply]. *Current Anthropology* 26, 187–206.
- D'Andrea, M., 2021. Developing connections and changing clusters: the Levant between c. 2600 and 1900 bce, in *The Enigma of the Hyksos. Volume IV. Changing clusters and migration in the Near Eastern Bronze Age. Collected papers of a workshop held in Vienna 4th–6th of December 2019*, eds M. Bietak & S. Prell. Wiesbaden: Harrassowitz, 31–81.
- de Miroschedji, P., 1993. Notes sur les têtes de taureau, en os, en ivoire et en pierre du Bronze ancien de Palestine [Notes on bull heads, in bone, ivory and stone from the Early Bronze Age of Palestine], in *Studies in the History and Archaeology of Ancient Israel in Honour of Moshe Dothan*, eds M. Heltzer, A. Segal & D. Kaufman. Haifa: Haifa University Press, 29–40.
- de Miroschedji, P., 2001. Notes on Early Bronze Age metrology and the birth of architecture in ancient Palestine, in *Studies in the Archaeology of Israel and Neighboring Lands in Memory of Douglas L. Esse*, ed. S.R. Wolff. Chicago (IL): Oriental Institute of the University of Chicago, 465–91.
- de Miroschedji, P., 2003. The late EB III palace B1 at Tel Yarmuth: a descriptive summary. *Eretz Israel* 27, 153\*–170\*.
- de Miroschedji, P., 2006. At the dawn of history: sociopolitical developments in southwestern Canaan in Early Bronze Age III, in 'I Will Speak the Riddles of Ancient Times': *Archaeological and historical studies in honor of Amihai Mazar on the occasion of his sixtieth birthday*, eds A.M. Maeir & P. de Miroschedji. Winona Lake (IN): Eisenbrauns, 55–78.
- de Miroschedji, P., 2011. At the origin of Canaanite cult and religion: the Early Bronze Age fertility ritual in Palestine. *Eretz Israel* 30, 74\*–103\*.
- de Miroschedji, P., 2019. *Early Bronze Age palaces in the southern Levant, in Ancient Egyptian, and Ancient Near Eastern Palaces. Volume II, Proceedings of a workshop held at the 10th ICAANE in Vienna, 25–26 April 2016*, eds M. Bietak, P. Matthiae & S. Prell. Wiesbaden: Harrassowitz, 159–79.
- de Miroschedji, P., 2020. Monumental architecture and sociopolitical developments in the southern Levant of the Early Bronze Age, in *New Horizons in the Study of the Early Bronze III and Early Bronze IV of the Levant*, ed. S. Richard. State College, (PA): Eisenbrauns, 169–94.
- de Vreeze, M. & K. Badreshany, 2023. Identity and monumentality: the construction of an Early Bronze Age landscape on the Lebanese coast. *Journal of Ancient Egyptian Interconnections* 37, 109–34.
- Dittmann, R., 2018. Notes on pig-tailed women in the glyptic of the third millennium B.C., in *Grenzüberschreitungen: Studien zur Kulturgeschichte des Alten Orients: Festschrift für Hans Neumann zum 65. Geburtstag am 9. Mai 2018* [Crossing borders: studies on the cultural history of the ancient Orient: Festschrift for Hans Neumann on the occasion of his 65th birthday on 9 May 2018], eds C. Mollenbeck, K. Kleber & G. Neumann. Münster: Zaphon, 163–85.
- Eitan, N., 2011. Survey of herds and grazing systems, in *The Ramat Bet Shemesh Regional Project: Landscapes of Settlement*. Jerusalem: Israel Antiquities Authority, 165–74.
- El-Eini, R., 2004. *Mandated Landscapes: British Imperial Rule in Palestine, 1929–1948*. London: Routledge.
- Elad, I., Y. Paz & D. Shalem, 2018. 'En Esur (Asawir), Area M. *Hadashot Arkeologiyot* 130. [http://www.hadashot-esi.org.il/Report\\_Detail\\_eng.aspx?print=all&id=25495&mag\\_id=126](http://www.hadashot-esi.org.il/Report_Detail_eng.aspx?print=all&id=25495&mag_id=126)
- Fink, S., 2016. War or wool? Means of ensuring resource-supply in 3rd millennium Mesopotamia, in *Textiles, Trade and Theories: From the ancient Near East to the Mediterranean*, eds K. Droß-Krüpe & M.-L. Nosch. Münster: Ugarit Verlag, 79–92.



- Finkelstein, I., M.J. Adams, Z.C. Dunseth & R. Shahack-Gross, 2018. The archaeology and history of the Negev and neighboring areas in the third millennium bce: a new paradigm. *Tel Aviv* 45, 63–88.
- Foster, B.R., 2014. Wool in the economy of Sargonic Mesopotamia, in *Wool Economy in the Ancient Near East and the Aegean: From the beginnings of sheep husbandry to institutional textile industry*, eds C. Breniquet & C. Michel. Oxford: Oxbow, 115–23.
- Frangipane, M., 2016. The origins of administrative practices and their developments in Greater Mesopotamia. The evidence from Arslantepe. *Archéo-Nil* 26, 9–32.
- Frangipane, M., 2018. Different trajectories in state formation in Greater Mesopotamia: a view from Arslantepe (Turkey). *Journal of Archaeological Research* 26, 3–63.
- Freikman, M. & Y. Garfinkel, 2017. Sealings before cities: new evidence on the beginnings of administration in the ancient Near East. *Levant* 49, 24–45.
- Freikman M., D. Ben-Shlomo & Y. Garfinkel, 2021. A stamped sealing from Middle Chalcolithic Tel Tsaf: implications for the rise of administrative practices in the Levant. *Levant* 53, 1–12.
- Gallego López, A., 2011. Sealing pots in Upper Mesopotamia in the late third millennium. *Isimu: Revista sobre Oriente Próximo y Egipto en la antigüedad* 13, 119–24.
- Garfinkel, Y., D. Ben-Shlomo & T. Kuperman, 2009. Large-scale storage of grain surplus in the sixth millennium BC: the silos of Tel Tsaf. *Antiquity* 83, 309–25.
- Genz, H., 2001. Early Bronze Age potmarks from Hirbat Az-Zayraqūn: some aspects concerning their meaning. *Studies in the History and Archaeology of Jordan* 7, 217–28.
- Genz, H., 2003. Cash crop production and storage in the Early Bronze Age southern Levant. *Journal of Mediterranean Archaeology* 16, 59–78.
- Genz, H., 2010. Thoughts on the function of so-called public buildings in the Early Bronze Age southern Levant, in *The Development of Pre-state Communities in the Ancient Near East*, eds D. Bolger & L.C. Maguire. Oxford: Oxbow, 46–52.
- Genz, H., 2011. Restoring the balance: an Early Bronze Age scale beam from Tell Fadous-Kfarabida, Lebanon. *Antiquity* 85, 839–50.
- Genz, H., 2016. Simple bone tools from Early Bronze Age Tell Fadous-Kfarabida (Lebanon): a household approach. *Levant* 48, 154–66.
- Genz, H. & A. Ahrens, 2021. Recent Early Bronze Age glyptic finds from Lebanon: the evidence from Tell Fadous-Kfarabida. *Bulletin of ASOR* 386, 47–76.
- Genz, H., S. Riehl, C. Çakırlar, F. Slim & A. Damick, 2016. Economic and political organization of Early Bronze Age coastal communities: Tell Fadous-Kfarabida as a case study. *Berytus* 55, 79–119.
- Golani, A. & E. Yannai, 2016. Storage structures of the late Early Bronze I in the southern Levant and the urbanisation process. *Palestine Exploration Quarterly* 148, 8–41.
- Graff, S.R., 2012. Culinary preferences. Seal-impressed vessels from Western Syria as specialized cookware, in *The Menial Art of Cooking: Archaeological studies of cooking and food preparation*, eds S.R. Graff & E. Rodríguez-Alegría. Boulder (CO): University of Colorado Press, 19–46.
- Greenberg, R., 2017. No collapse: transmutations of Early Bronze Age urbanism in the southern Levant, in *The Late Third Millennium in the Ancient Near East: Chronology, C14, and climate change*, ed. F. Höflmayer. Chicago (IL): Oriental Institute, 33–60.
- Greenberg, R., 2019. *The Archaeology of the Bronze Age Levant*. Cambridge: Cambridge University Press.
- Greenberg, R., H. Ashkenazi, A. Berger, et al., 2017. The Circles Building (granary) at Tel Bet Yerah (Khirbet el-Kerak): a new synthesis (excavations of 1945–1946, 2003–2015). *Bulletin of the American Schools of Oriental Research* 378, 163–202.
- Greenfield H.J., T.J. Greenfield, E.R. Arnold, I. Shai, S. Albaz & A.M. Maeir, 2020. Evidence for movement of goods and animals from Egypt to Canaan during the Early Bronze of the southern Levant: a view from Tell eš-Šâfi/Gath. *Ägypten und Levante* 30, 377–97.
- Greenfield H.J., I. Shai & A.M. Maeir, 2016. Understanding Early Bronze Age urban patterns from the perspective of non-elite neighbourhood: the excavations at Tell es-Šâfi/Gath, Israel, in *Proceedings of the 9th International Congress on the Archaeology of the Ancient Near East 9–13 June 2014*. Basel, eds R.A. Stucky, O. Kaelin & H.-P. Mathys. Wiesbaden: Harrassowitz, 475–89.
- Greet, B., 2021. The spiritual life of Teleilat Ghassul and Building 78. *Near Eastern Archaeology* 84, 140–47.
- Grossman, K. & T. Paulette, 2020. Wealth-on-the-hoof and the low-power state: caprines as capital in early Mesopotamia. *Journal of Anthropological Archaeology* 60, 1–20.
- Hazell, P., P. Oram & N. Chaherli, 2003. Managing livestock in drought-prone areas of the Middle East and North Africa: policy issues, in *Food, Agriculture, and Economic Policy in the Middle East and North Africa*, ed. H. Lofgren. Bingley: Emerald, 79–104.
- Helms, S., 1987. A question of economic control during the proto-historical era of Palestine/Transjordan. *Studies in the History and Archaeology of Jordan* 3, 41–51.
- Hirth, K., 2020. *The Organization of Ancient Economies*. Cambridge: Cambridge University Press.
- Ilan, D., 2002. Mortuary practices in Early Bronze Age Canaan. *Near Eastern Archaeology* 65, 92–104.
- Jean, M. & K. Badreshany, 2023. Egyptian trade on the Central Levantine coast during the Early Dynastic period: a ceramic-material perspective. *Journal of Ancient Egyptian Interconnections* 37, 171–90.
- Joffe, A., 1993. *Settlement and Society in the Early Bronze Age I and II, Southern Levant*. Sheffield: Sheffield Academic Press.



- Joffe, A., 2001. Early Bronze Age seal impressions from the Jezreel Valley and the problem of sealing in the southern Levant, in *Studies in the Archaeology of Israel and Neighboring Lands in Memory of Douglas L. Esse*, ed. S. Wolff. Chicago (IL): Oriental Institute Press, 355–75.
- Joffe, A., 2018. Notes on Early Bronze Age commensality, in *Tell It in Gath: Studies in the history and archaeology of Israel. Essays in honor of A. M. Maeir on the occasion of his sixtieth Birthday*, eds I. Shai, J.R. Chadwick, L. Hitchcock, A. Dagan, C. McKinney & J. Uziel. Münster: Zaphon, 41–70.
- Joffe, A., 2022. Textiles in the prehistoric southern Levant. *Mitekufat Haeven, Journal of the Israel Prehistoric Society* 52, 89–114.
- Jones, J., 2010. The ‘linen list’ in Early Dynastic and Old Kingdom Egypt: text and textile reconciled, in *Textile Terminologies in the Ancient Near East and Mediterranean from the Third to the First Millennia BC*, eds C. Michel & M.-L. Nosch. Oxford/Oakville: Oxbow, 81–109.
- Kelley, K., 2018. Gender, Age, and Labour Organization in the Earliest Texts from Mesopotamia and Iran (c. 3300–2900 BC). Unpublished PhD dissertation, University of Oxford.
- Levy, J., 2020. *The Genesis of the Textile Industry from Adorned Nudity to Ritual Regalia: The changing role of fibre crafts and their evolving techniques of manufacture in the ancient Near East from the Natufian to the Ghassulian*. Oxford: Archaeopress.
- Levy, T.E. & J. Golden, 1996. Syncretistic and mnemonic dimensions of Chalcolithic art: a new human figurine from Shiqmim. *Biblical Archaeologist* 59, 150–59.
- Mallon, A., R. Koepfel & R. Neuville. 1934. *Teleilat Ghassul I*. Rome: Institute Biblique Pontifical.
- Marchetti, N., A. Al-Hussainy, G. Benati, G. Luglio, G. Scazzosi, M. Valeri & F. Zaina, 2019. The rise of urbanized landscapes in Mesopotamia: the QADIS integrated survey results and the interpretation of multi-layered historical landscapes. *Zeitschrift für Assyriologie* 109, 214–37.
- Marfoe, L., 1987. Cedar forest and silver mountain: social change and the development of long-distance trade in early Near Eastern societies, in *Centre and Periphery in the Ancient World*, eds M. Rowlands, M.T. Larsen & K. Kristiansen. Cambridge: Cambridge University Press, 25–35.
- Massa, M. & A. Palmisano, 2018. Change and continuity in the long-distance exchange networks between Western/Central Anatolia, northern Levant and northern Mesopotamia, c. 3200–1600 bce. *Journal of Anthropological Archaeology* 49, 65–87.
- Matthews, D., 1996. Seal impressions on sherds from Hama. *Egitto e Vicino Oriente* 19, 121–55.
- Mazar, A., 2001. On the significance of the Early Bronze III granary building at Beth Yerah, in *Studies in the Archaeology of Israel and Neighboring Lands in Memory of Douglas L. Esse*, ed. S.R. Wolff. Chicago (IL): Oriental Institute of the University of Chicago, 447–64.
- Mazar, A., 2019. Weaving in Iron Age Tel Rehov and the Jordan Valley. *Journal of Eastern Mediterranean Archaeology and Heritage Studies* 31, 119–38.
- Mazar, A. & Y. Rotem, 2009. Tel Beth Shean during the EB IB period: evidence for social complexity in the late fourth millennium BC. *Levant* 41, 131–53.
- Mazzoni, S., 1992. *Le impronte su giara eblaite e siriane nel Bronzo Antico* [Eblaite and Syrian jar sealings in the Early Bronze Age]. (Materiali e Studi Archeologici di Ebla 1.) Rome: Missione archeologica italiana in Siria.
- Mazzoni, S., 2017. Seal impressions on jars: images, storage and administration, in *Non-Scribal Communication Media in the Bronze Age Aegean and Surrounding Areas: The semantics of a-literate and proto-literate media*, eds A.M. Jasink, J. Weingarten & S. Ferrara. Florence: Firenze University Press, 185–206.
- Mazzoni, S., 2020. Northern Levant in the Early Bronze III–IV: economic wealth and the international landscape of ‘secondary urbanization’, in *New Horizons in the Study of the Early Bronze III and Early Bronze IV of the Levant*, ed. S. Richard. State College (PA): Eisenbrauns, 9–30.
- McCorriston, J., 1997. Textile extensification, alienation, and social stratification in ancient Mesopotamia. *Current Anthropology* 38, 517–35.
- McMahon, A., 2020. Early urbanism in northern Mesopotamia. *Journal of Archaeological Research* 28, 289–337.
- McMahon, A., 2021. Pieces of string: cordage in Late Chalcolithic northern Mesopotamia, in *From Sherds to Landscapes: Studies on the Ancient Near East in honor of McGuire Gibson*, eds M. Altaweel & C. Hritz. Chicago (IL): Oriental Institute, 167–82.
- Medeghini, L., L. Fabrizi, C. De Vito, S. Mignardi, L. Nigro & E. Gallo, 2016. The ceramic of the ‘Palace of the Copper Axes’ (Khirbet al-Batrawy, Jordan): a palatial special production. *Ceramics International* 42, 5952–62.
- Milevski, I., 2011. *Early Bronze Age Goods Exchange in the Southern Levant: A Marxist perspective*. London/Oakville: Equinox Publishing.
- Milevski, I., E. Braun, D. Varga & Y. Israel, 2016. On some possible implications of a newly discovered Early Bronze Age, large-scale silo complex at Amaziya, Nahal Lachish (Israel), in *Storage in Ancient Complex Societies: Administration, organization, and control*, eds L.R. Manzanilla & M.S. Rothman. London: Routledge, 61–83.
- Milevski, I. & L. Kolska Horwitz, 2019. Domestication of the donkey (*Equus asinus*) in the southern Levant: archaeozoology, iconography and economy, in *Animals and Human Society in Asia*, eds R., Kowner, G. Bar-Oz, M. Biran, M. Shahar & G. Shelach-Lavi. New York: Palgrave Macmillan, 93–148.
- Miller, N.F., 2013. Symbols of fertility and abundance in the Royal Cemetery at Ur, Iraq. *American Journal of Archaeology* 117, 127–33.

- Miller, N.F., P. Jones & H. Pittman, 2016. Sign and image: representations of plants on the Warka Vase of early Mesopotamia. *Origini* 39, 53–73.
- Mingay, G.E., 1997. *Parliamentary Enclosure in England*. London: Longman.
- Mithen, S., 2019. Becoming Neolithic in words, thoughts and deeds. *Journal of Social Archaeology* 19, 67–91.
- Montanari, D., 2018. Early Bronze Age Levantine metal weapons from the collection of the Palestine exploration fund. *Palestine Exploration Quarterly* 150, 236–52.
- Moreno García, J.C., 2016. Early writing, archaic states and nascent administration: ancient Egypt in context (late 4th–early 3rd millennium BC). *Archéo-Nil* 26, 149–69.
- Nigro, L., 2013. Khirbet al-Batrawy: an Early Bronze Age city at the fringes of the desert. *Syria* 90, 189–209.
- Nigro, L., 2015. The copper axes hoard in the Early Bronze IIIb palace of Batrawy, Jordan, in *Copper and Trade in the South-eastern Mediterranean Trade Routes of the Near East in Antiquity*, eds K. Rosińska-Balik, A. Ochał-Czarnowicz, M. Czarnowicz & J. Dębowska-Ludwin. (BAR International series S2753.) Oxford: BAR Publishing, 77–86.
- Overmann, K.A., 2019. Materiality and the prehistory of numbers, in *Squeezing Minds from Stones: Cognitive archaeology and the evolution of the human mind*, eds K.A. Overmann & F.L. Coolidge. Oxford: Oxford University Press, 432–56.
- Overmann, K.A., 2022. A cognitive archaeological perspective on literacy and numeracy. *Visible Language* 56, 8–44.
- Paulette, T., 2016. Grain, storage, and state making in Mesopotamia (3200–2000 BC), in *Storage in Ancient Complex Societies: Administration, organization, and control*, eds L.R. Manzanilla & M.S. Rothman. London: Routledge, 85–109.
- Paz, I., 2011. ‘Raiders on the Storm’: the violent destruction of Leviah, an Early Bronze Age urban centre in the southern Levant. *Journal of Conflict Archaeology* 6, 3–21.
- Paz, S., 2014. The small finds, in *Bet Yerah, The Early Bronze Age Mound II: Urban structure and material culture, 1933–1986*, ed. R. Greenberg. Jerusalem: Israel Antiquities Authority, 235–54.
- Paz, Y., 2017. Prisoners of worship? The ‘orant’ posture in ancient Near Eastern imagery. *Ugarit Forschungen* 48, 413–29.
- Paz, Y. & I. Elad, 2022. Old memories and new consciousness: forging new social identity in the EB IB City of ‘En Esur, in *In Centro, Collected Papers Volume II, Memory*, eds G.D. Steibel, D. Ben-Ami, A. Gorzalczy, Y. Tepper & I. Koch. Tel Aviv: Institute of Archaeology, Tel Aviv University, 63\*–85\*.
- Paz, Y., I. Elad, I. Milevski & N. Getzov, 2018. Geometric motifs and a scene on cylinder seal impressions found in Early Bronze IB towns of the southern Levant. *Ugarit Forschungen* 49, 285–98.
- Paz Y., I. Milevski & N. Getzov, 2013. Sound-track of the ‘sacred marriage’? A newly discovered cultic scene depicted on a 3rd millennium BC cylinder seal impression from Bet Ha-Emeq, Israel. *Ugarit Forschungen* 44, 243–59.
- Peyronel, L., 2018. Not only metals: some thoughts on technological and commercial interactions in the Levant and Eastern Mediterranean during the 3rd Millennium BC. *Pasiphae* 12, 165–73.
- Peyronel, L. & A. Vacca, 2021. When different worlds meet: exchange networks in Anatolia and the northern Levant during the third millennium BC, in *Cultural Exchanges and Current Research at Kültepe and its Surroundings. Kültepe, 1–4 August 2019*, eds C. Michel, G. Kryszat & F. Kulakoğlu. Brepols: Turnhout, 23–50.
- Polcaro, A., 2013. The Tuleilat al-Ghassul star painting: a hypothesis regarding a solar calendar from the fourth millennium BC, in *Time and History in the Ancient Near East, Proceedings of the 56th Rencontre Assyriologique Internationale at Barcelona, 26–30 July 2010*, eds L. Feliu, J. Llop, A. Millet Albá & A. Sanmartín. Winona Lake (IN): Eisenbrauns, 273–84.
- Potts, D., 1997. *Mesopotamian Civilization, the Material Foundations*. London: Athlone Press.
- Pournelle, J. & G. Algaze, 2014. Travels in Edin: deltaic resilience and early urbanism in Greater Mesopotamia, in *Preludes to Urbanism: Studies in the Late Chalcolithic of Mesopotamia in honour of Joan Oates*, eds H. Crawford, A. McMahon & N. Postgate. Cambridge: McDonald Institute for Archaeological Research, 7–34.
- Rahmstorf, L., 2006. In search of the earliest balance weights, scales and weighing systems from the East Mediterranean, the Near and Middle East, in *Weights in Contexts. Bronze Age weighing systems of Eastern Mediterranean. Chronology, typology, material and archaeological contexts*, eds M.E. Alberti, E. Ascalone & L. Peyronel. Rome: Università degli Studi di Roma ‘La Sapienza’, 9–45.
- Reade, W.J. & D.T. Potts, 1993. New evidence for late third millennium linen from Tell Abraq, Umm Al-Qaiwain, UAE. *Paléorient* 19, 99–106.
- Renette, S., 2014. Seal-impressed jars from the Hamrin Valley, Central Iraq, in *Proceedings of the 8th International Congress of the Archaeology of the Ancient Near East*, eds P. Bielinski, M. Gawlikowski, R. Kolinski, D. Lawecka, A. Soltysiak & Z. Wygnańska. Wiesbaden: Harrassowitz, 244–52.
- Richards, E., 2007. *Debating the Highland Clearances*. Edinburgh: Edinburgh University Press.
- Rosenberg, D., Y. Garfinkel & F. Klimscha, 2017. Large scale storage and storage symbolism in the ancient Near East: a clay silo model from Tel Tsaf. *Antiquity* 91, 885–900.
- Rosenberg, D. & R. Greenberg, 2014. The stone assemblage, in *Bet Yerah, The Early Bronze Age Mound, Volume II: Urban structure and material culture 1933–1986 excavations*, ed. R. Greenberg. Jerusalem: Israel Antiquities Authority, 189–234.

- Sala, M., 2008. *L'architettura sacra della Palestina nell'età del Bronzo Antico I–III* [Sacred architecture of Palestine in the Early Bronze Age I–III]. Rome: Sapienza Università di Roma.
- Sallaberger, W., 2014. The value of wool in Early Bronze Age Mesopotamia. On the control of sheep and the handling of wool in the Presargonic to the Ur III Periods (c. 2400 to 2000 BC), in *Wool Economy in the Ancient Near East and the Aegean: From the beginnings of sheep husbandry to institutional textile industry*, eds C. Breniquet & C. Michel. Oxford: Oxbow, 94–114.
- Sallaberger, W., 2021. The emergence of calendars in the third millennium bce: deities, festivals, seasons, and the cultural construction of time, in *Calendars and Festivals in Mesopotamia in the Third and Second Millennia BC*, eds D. Shibata & S. Yamada. Wiesbaden: Harrassowitz, 1–34.
- Sapir-Hen, L., D.N. Fulton, M.J. Adams & I. Finkelstein, 2022. The temple and the town at Early Bronze Age I Megiddo: faunal evidence for the emergence of complexity. *Bulletin of the American Society of Overseas Research* 387, 207–20.
- Savage, S.H., 2011. From Maadi to the Plain of Antioch: what can basalt spindle whorls tell us about overland trade in the Early Bronze I Levant?, in *Daily Life, Materiality, and Complexity in Early Urban Communities of the Southern Levant: Papers in honor of Walter E. Rast and R. Thomas Schaub*, ed. M.S. Chesson. University Park (PA): Penn State University Press, 119–38.
- Schloen, J.D., 2017. Economic and political implications of raising the date for the disappearance of walled towns in the Early Bronze Age Southern Levant, in *The Late Third Millennium in the Ancient Near East: Chronology, C14, and climate change*, ed. F. Höflmayer. Chicago (IL): Oriental Institute, 59–71.
- Shalev, O., 2018. The fortification wall of Tel Erani: a labour perspective. *Tel Aviv* 45, 193–215.
- Shamir, O., 2015. Textiles from the Chalcolithic Period, Early and Middle Bronze Age in the southern Levant – the continuation of splicing. *Archaeological Textiles Review* 57, 12–25.
- Shulman, A., 1995. Egyptian seal impressions from 'En Besor, in *Excavations at 'En Besor*, ed. R. Gophna. Tel Aviv: Ramot, 128–46.
- Skeates, R., 2007. Neolithic stamps: cultural patterns, processes and potencies. *Cambridge Archaeological Journal* 17, 183–98.
- Sowada, K., 2009. *Egypt in the Eastern Mediterranean during the Old Kingdom: An archaeological perspective*. Fribourg/Göttingen: Academic Press Fribourg/Vandenhoeck & Ruprecht.
- Sowada, K., 2018. Hidden exports: a likely Early Bronze Age exchange in Egyptian cattle to the Levant. *Bulletin of the Australian Centre for Egyptology* 26, 71–8.
- Spinazzi-Lucchesi, C., 2018. *The Unwound Yarn. Birth and development of textile tools between Levant and Egypt*. Venice: Edizioni Ca' Foscari.
- Stager, L.E., 1985. The firstfruits of civilization, in *Palestine in the Bronze and Iron Ages. Papers in honor of Olga Tufnell*, ed. J.N. Tubb. London: Institute of Archaeology, 172–88.
- Stein, G.J., 2010. Local identities and interaction spheres: modeling regional variation in the Ubaid horizon, in R.A. Carter & G. Philip (eds), *Beyond the Ubaid: Transformation and integration in the late prehistoric societies of the Middle East*. Chicago (IL): Oriental Institute, 23–44.
- Steinkeller, P., 2015. Labor in the early states: an early Mesopotamian perspective, in *Labor in the Ancient World*, eds P. Steinkeller & M. Hudson. Dresden: ISLET-Verlag, 1–35.
- Thalmann, J.-P., 2013. Le lion, la chèvre et le poisson. À propos d'une jarre à empreintes de sceaux-cylindres de Tell Arqa (Liban) [The lion, the goat and the fish. About a jar with cylinder seal imprints from Tell Arqa (Lebanon)]. *Syria* 90, 256–312.
- Tubb, J.N., P.G. Dorrell & F.J. Cobbing, 1997. Interim report on the ninth season (1996) of excavations at Tell es-Saidiyeh, Jordan. *Palestine Exploration Quarterly* 129, 54–77.
- Tumolo, V., 2019a. The Early Bronze Age seal impressions on jars from Ħirbet ez-Zeraqōn. Preliminary remarks on pottery and images. *Studi Eblaitica* 5, 35–56.
- Tumolo, V., 2019b. A bull's head from Ħirbet ez-Zeraqōn, in *Pearls of the Past: Studies on Near Eastern art and archaeology in honour of Frances Pinnock*, eds M. D'Andrea, M.G. Micale, D. Nadali, S. Pizzimenti & A. Vacca. Münster: Zaphon, 847–68.
- Tumolo, V., 2022. Pot sealing practice in the late fourth and third millennia BC: the northern Levant between connectivity and regionalist. *Origini* 46, 57–86.
- Vacca, A. & M. D'Andrea, 2020. The connections between the northern and the southern Levant during Early Bronze Age III: reevaluations and new vistas in the light of new data and higher chronologies, in *New Horizons in the Study of the Early Bronze III and Early Bronze IV in the Levant*, ed. S. Richard. State College (PA): Eisenbrauns, 120–45.
- Vila, E. & D. Helmer, 2014. The expansion of sheep herding and the development of wool production in the ancient Near East: an archaeozoological and iconographical approach, in *Wool Economy in the Ancient Near East and the Aegean: From the beginnings of sheep husbandry to institutional textile industry*, eds C. Breniquet & C. Michel. Oxford: Oxbow, 22–40.
- Waetzoldt, H., 1972. *Untersuchungen zur neosumerischen Textilindustrie* [Investigations into the Neo-Sumerian textile industry]. Rome: Centro per le Antichità e la storia dell'arte del Vicino Oriente.
- Wilkinson, T.J., G. Philip, J. Bradbury, et al., 2014. Contextualizing early urbanization: settlement cores, early states and agro-pastoral strategies in the Fertile Crescent during the fourth and third millennia BC. *Journal of World Prehistory* 27, 43–109.

- Winter, I.J., 2007. Representing abundance: a visual dimension of the agrarian state, in *Settlement and Society: Festschrift volume for Robert McCormick Adams*, ed. E.C. Stone. Los Angeles (CA): Cotsen Institute of Archaeology, 117–38.
- Wright, R., 2013. Sumerian and Akkadian industries: crafting textiles, in *The Sumerian World*, ed. H.E.W. Crawford. London: Routledge, 395–417.
- Wygnańska, Z., 2017. Equid and dog burials in the ritual landscape of Bronze Age Syria and Mesopotamia. *Aram* 29, 141–60.
- Yamafuji, M., 2023. Settlement systems, cultural relationships, and regional economy during the Early Bronze Age III–IV in the northern Shawbak and the southern Dead Sea Valley: new insights into the

copper production system of Faynan. *Bulletin of the American Society of Overseas Research* 390, 21–57.

- Zarzecki-Peleg, A., 1993. Decorated bones of the third millennium B.C.E. from Palestine and Syria: stylistic analysis. *Israel Exploration Journal* 43, 1–22.

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