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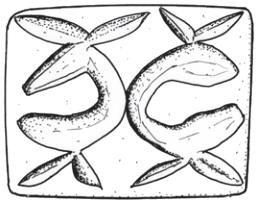

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Front cover photo: Detail of krater with painted geometric decoration from Kınık Höyük (Niğde) (courtesy the Kınık Höyük Expedition).

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Smelting Metals, Enacting Rituals. The Interplay of Religious Symbolisms and Metallurgical Practices in the Ancient Eastern Mediterranean

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Abstract. The archaeological discourse on the development of metallurgy in Anatolia, the Levant and, more generally, the Eastern Mediterranean region has extensively focused on crucial aspects such as procurement routes, technological developments, manufacturing strategies, and socio-economic connotations of metal consumption. On the other hand, potential symbolic and ritualistic aspects permeating mining and metal-making activities have rarely been taken into consideration, largely due to the ephemerality of such traditions and practices in the material record. Extensive studies have analyzed the ritual dimensions of iron and copper metalworking across different belief systems and social structures, from pre-industrial sub-Saharan Africa to pre-classical Andean cultures, from Bronze Age Central Europe to China. Drawing on the contemporary anthropological and archaeological debate on the subject, this contribution identifies and analyzes recurrent semantics of ritualization in metalworking processes, looking at different lines of epigraphic and material evidence from the Chalcolithic and Bronze Age Eastern Mediterranean. The aim is to discuss patterns of correlation between belief systems, ritual behavior, and socioeconomic organizations and to prompt more comprehensive analyses on the complementary technological and symbolic aspects of ancient metallurgical practices.

Keywords: Late Chalcolithic, Bronze Age, metallurgy, ritual production, craft, technological systems, Near Eastern Archaeology, Eastern Mediterranean, religious symbolism.

1. INTRODUCTION

Discussion on the technological and socio-economic facets of metal production has occupied a central position in the archaeological debates on the development of Near Eastern societies, especially with the maturation of extractive and smelting metallurgy during the Late Chalcolithic and Bronze Age phases (i.e., mid-5th millennium to late 2nd millennium BC).

Concepts such as procurement networks and transfer of knowledge, technological experimentation, and modes of production all play a pivotal role in broader analyses of the interdependence between metallurgical development and wider socio-political and cultural phenomena (Di Nocera 2010; Brysbaert 2011; Lehner and Yener 2014). Similarly, the study of ritual behaviors and belief systems has also been integrated in the investigation of complementary aspects of social organization, political centralization, cultural hybridity, and resilience. Religious and ritual ideologies are complex and dynamic, constantly evolving in connection to changes in the contemporary sociopolitical and cultural *milieus*. When looking, for instance, at the gradual and non-linear processes of increasing social complexity and economic diversification that characterized the ancient Near East throughout the Chalcolithic period, important shifts in ritual foci (from communal to private, central to dispersed, architectural-based to object-based) become evident at various scales (Hackley, Yıldırım and Steadman 2021). Subsequently, the alternating cycles of political centralization and social competition observed from the first spread of urbanism in the 4th millennium BC, through the rise of city-states and regional states in the Early Bronze Age (hereafter EBA), to the establishment of complex, supra-regional political entities during the Middle and Late Bronze Age (hereafter MBA and LBA) triggered crucial changes in the ways cosmogonies, mythological traditions, and ritual practices were used to regulate status, mitigate conflict, and invest natural and anthropogenic landscapes with new meanings (Kristiansen and Larsson 2005).

Despite the shared connection with the investigation of socio-economic, cultural, and political facets, archaeometallurgical research and ritual studies are very rarely discussed (let alone pursued) in combination with one another. When the words 'ritual' and 'metals' appear together is almost always exclusively in the contexts of the usage of metal artifacts and related tools as either ritual paraphernalia or as part of funerary assemblages. Rightly so, the symbolic function of metal objects in burial contexts and hoards has been thoroughly studied under different lens. Far from representing solely a powerful means of social status' representation, these often embodied pivotal aspects related to the negotiation of ethnic affiliation and identity, economic strategies, cultural changes, and systems of economic and ritual value[1]. The sophisticated metalwork known from EBA funerary contexts in central, north, and southeastern Anatolia well represents this point (Frangipane *et al*. 2001; Dardeniz and Yıldırım 2022). On the other hand, the phenomenon of the so-called 'smiths' burials' is another element bridging the funerary and metallurgical spheres that has caught scholars' attention. Graves characterized by the presence of tools related to metalworking activities (i.e., casting moulds and crucibles, whetstones, nozzles, ore fragments and metal ingots) are known from disparate regions and periods, from the Chalcolithic and Middle Ages in Central Europe to Bronze Age Cyprus (Schuster-Keswani 2005; Belgiorno 2009). Oftentimes, these have has been interpreted as indicators of prestige status and/or affiliation to a distinct social or ethnic class enjoyed by metal specialists, even in the absence of other elements from the socio-cultural contexts the graves refer to (Rowlands 1971; Nessel 2013; Ježek 2015). Indeed, both examples do underline the existence of more than one tie between the ritual sphere and that of metal production, ties that go beyond the spatial association of artifacts and demand a wider discussion of religious systems, economic organizations, and socio-political structures.

In this contribution the adopted focus shifts from object to practice, from the use of metal-made artifacts in ritual contexts to the conferment of ritual symbolisms to metallurgical settings and practices. Building upon longstanding anthropological debates on the subject[2], the primary aim is to trace ways in which ritual ontologies might

[1] Among different examples, the increase of metal hoards and metalwork in funerary assemblages across Near Eastern societies during the 4th and 3rd millennia BC has been attentively studied by scholars in terms of the application of diverging systems of ritual and economic value (Stork 2015). Rather than a result of fluctuating access to raw materials and finished products, the deliberate removal of conspicuous quantities of metal from exchange and production networks (via hoarding and burial practices) has been seen as a direct reflection of the symbolic value of metal artifacts to mediate, impose, and/or express wealth and power by emerging elites in comparison to the more controlled investment through similar practices enacted during the MBA and LBA (Bachhuber 2011).

[2] Most ethnographic and anthropological studies on the ritual symbolism of metalworking center around iron and steel-working rather than copper production. The technological and social differences between these manufacturing chains should be accounted for, as they presumably generated different symbolisms and ritual ontologies. Moreover, the comparison of ethnographic and archaeological data requires an added layer of caution. The aim here is not to impose interpretations derived from the first to the latter, but to use

Fig. 1. Sites and natural landmarks mentioned in the paper (map by the author).

have pervaded different aspects of ancient metallurgical production, incorporating technological advancements in pre-existing cosmological constructs, and charging them with new meanings related to the broader conceptualizations of social status, political power, gender exclusion, and cultural identity. Through the discussion of different archaeological, iconographic, and textual evidence from the Chalcolithic Levant, Bronze Age Anatolia, Cyprus, the Aegean, and the Balkans, the present analysis proposes criteria for an archaeological understanding of 'metallurgical rituality'. The intention is to address the validity of theoretical interpretations often applied to ritual semantics and recurrent symbolisms identified across different regions and cultures, and to underline the need for more in-depth methodological and theoretic debates on this ambiguous yet fascinating subject.

2. MAKING AND PERFORMING: A DEFINITION OF RITUAL MODES AND SEMANTICS OF PRODUCTION

Archaeological research has often concentrated on the interaction between religious/cosmogonic systems and the cognitive, economic, and socio-political spheres they indirectly display and are constructed upon. In any given society, in fact, ritual behaviors and religious beliefs have represented important mechanisms to assert, negotiate, or

anthropological observations to prompt questions on aspects potentially embodied by material evidence, which remains the primary base for any conclusion.

challenge political and social structures, of which production systems constitute an integral part[3]. However, when it comes to the study of ancient metallurgy, the potential interplay between the ritual sphere and metal-making practices has received scant attention. A practical reason is certainly the difficulty of identifying and interpreting such interplay based solely on epigraphic and archaeological evidence. A more methodological challenge can perhaps be seen in the modern dualistic view that strictly separates the domain of technology and economic/utilitarian production from that of ritual behaviors and belief systems (Gaukroger 2006; Gosden 2012).

The 'rational' side of rituality (i.e., its role in regulating social interactions) and the 'irrational' aspects of economic production (i.e., not always obeying rules of profit and practicality) have long been long acknowledged in the anthropological discourse thanks to the pioneering work of scholars like Bronisław K. Malinowski and Alfred Gell (Gell 1988). Their work has helped challenging old views that saw magic/religion and science/technology at the opposite ends of a linear scale of human progress, proposing alternative frameworks where these spheres coexist and overlap[4] (Budd and Taylor 1995; Radivojević and Rehren 2016). This aspect becomes extremely relevant when it comes to the study of ancient metallurgical processes. It is easy, in fact, to fall into the trap of simplistic views that focus only on the rational, practical, 'trial and error' factors boosting technological changes and overlook complementary sensorial, ritualistic, and socio-cultural aspects (Kuijpers 2018). But how to define an approach that combines both? What terminology can be used to address the possible ritualistic significance of production systems, more generally, and metallurgical processes specifically?

A first suggestion would be to distinguish between what modern economists and anthropologists define as 'economics of ritual' and 'rituals of economy' (McCleary and Barro 2006; Watanabe 2007). While the first term describes all manufacturing processes necessary to enact specific rites (from surplus production linked to feasting activities to the making of votive objects and paraphernalia), the latter addresses the adoption of religious symbolism and ritual behavior to structure specialized craft production, and to control social interactions between production units and the society they are part of (Miller 2015; Costin 2001). Archaeological research has explored in detail examples of the first, often addressed in academic literature as 'ritual modes of production' (Spielmann 2002). It is the second concept, here addressed as 'ritual semantics of production', that the next sections will apply to the analysis of ancient metallurgical practices.

Given the complex networks and many levels of symbolism hiding behind this topic, it is rather challenging to present data in a clear, organized form. The most forgiving way appears to be one which follows the primary and secondary technical stages of metal-making practice from mining to smelting, metal refining, and consumption. Different ritual ontologies will be discussed in light of their potential social and cultural significance, identifying the means (objects, people, and settings) through which they manifest, and the symbolic meanings they potentially carry forward.

3. VIOLATION AND PROCREATION: RITUAL ONTOLOGIES IN METAL MINING

Despite the danger of generalization threatening any holistic discussion on the degrees of symbolism related to metallurgical activities across time and space, striking recurring elements can be recognized across differently structured cultures and societies. One of them is certainly the presence of gender-based taboos, fertility symbolism, and narratives of violation and atonement associated to mining and primary-processing activities (Eliade 1978; Blakely 2006).

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[3] It is beyond the scope of this contribution to analyze in detail the many theoretic models developed to explore cognitive mechanisms behind the ritualization of behaviors, spaces, and things. The reader is referred to the rich anthropological literature on the subject. See for instance the foundational works of Marcel Mauss (Mauss 1950) and Claude Levi-Strauss (Levi-Strauss 1966), or more recent overviews as those provided by Catherine Bell (Bell 1992) and Olivier Gosselain (Gosselain 2011).

[4] One of the most discussed concepts in the anthropological literature on craft and technological production is that of the 'enchantment of technology', which address the interplay of rites and beliefs, aesthetic properties, and functionality in technological manufacture. See Gell 1992.

The basic assumption upon which the engendered nature of metallurgical activities is built is the association of metal deposits and metal-bearing ores with the well-known metaphor of the 'Earthmother' and the image of the 'fertile womb' (Eliade 1978). On one hand, the human alteration of matter and the process of creation enacted during the smelting of ores (i.e., the 'transformation' from stone to metal) plays a pivotal role in the symbolic juxtaposition of primary metallurgical processes and birth (Swenson and Warner 2012). On the other, the interference in the mysterious, sacred rhythms of nature, represents a violation that requires purification rites to be counterbalanced (Rotea *et al.* 2011).

One of the primary ethnographic case-studies upon which scholars have built their observation is that of iron-working pre-Colonial tribes from sub-Saharan Africa (Haaland *et al.* 2002; Gošić and Gilead 2015). Sexual taboos and access restrictions, erotic songs and 'engendered' tools are recurrent elements in cultures well known for their progressive iron making, such as the Tanzanian tribe of the Fipa, the Phoka in Malawi, the Shona in Zimbabwe, and the Yeke in Congo (Childs and Killick 1993). A curious game of female fertility evocation and female exclusion plays a central role in the act of ore processing and smelting through both performative and material elements (Blakely 2006). As those of the other tribes, Fipa's furnaces are gynecomorphic, shaped and/or decorated to represent the female body through incised and plastic decorations representing naval marks, breasts, and the uterus. Stressing this metaphor, the single parts of the furnace are named after female anatomic parts, with tuyeres and bellows associated to phallic symbols. Interestingly, the powerful evocation of female fertility is balanced by precise rules of exclusion concerning female presence during smelting processes. Women are forbidden to participate, and access to open-air smelting areas is strictly prohibited for reasons linked to pollution and interference with the procreative process enacted by male smiths through the furnace (Budd and Taylor 1995). According to anthropologists, gender and age were the two main axes around which metal production was regulated in many sub-Saharan cultures (Childs and Killick 1993). The first, centering around concepts such as female fertility cycles and reproductive powers, was crucial in 'transferring' those powers to a male counterpart through either taboo (i.e., exclusion of women from technological processes) or symbolic appropriation (i.e., use of anthropomorphic tools). The latter, playing with the conceptual pairs of youth/strength, age/wisdom, and ultimately life/death, was crucial in assuring a regulated division of labor and the presence of a defined hierarchy.

When it comes to the study of ancient cultures developing in the Eastern Mediterranean, it becomes extremely difficult to assess the presence of similar ritual beliefs, rites, and traditions applied to mining communities and processes. One can only look at sparse textual references, and scanty material evidence coming from few identified mining sites in order to draw some comparisons.

The association of metal ores with the embryos, and of primary smelting activities with acts of birth, appears (both directly and indirectly) in Sumerian, Hittite, and Neo-Assyrian traditions. Sumerian texts from the Early Dynastic Period (early and mid-3rd millennium BC) do contain different epithets for the Mother Goddess Ninhursag (the Mamma/Mammitum of Assyro-Babylonian tradition), among which that of «URUDU.NAGAR of the land» (translated as 'copper-smelter of the land') appears together with titles associated to protection in childbearing («Shakumakh», translated as 'exalted midwife'. Dalley 1987). The exact attribution of these epithets to the same female deity has been challenged by other scholars, but even if the criticisms hold true, the attribution of these titles to different goddesses, all listed together and all linked at different levels to female procreation and metal craft, is still an interesting element to consider (Lambert 1991). With reference to LBA Anatolia, Hittite cosmogonic and mythological traditions contain numerous references to mountains as both deified entities and sacred places of worship (Bachvarova 2019). Deified peaks mentioned in Hittite ritual texts count natural landmarks located both in the heartland of the Hittite power (as Erciyes Dağ and Kizildağ) and in 'peripheral' regions (as western Anatolia, with Ak Dağ/Mt. Harga and Türkmen Dağ/Mt. Suwara worshipped throughout the LBA and Iron Age). Although some of these peaks are located in areas known for a florid metallurgical production during the EBA-MBA[5], there is no direct evidence of correlation between mining activities and the ritualization of

[5] As in the case of Mt. Suwara/Turkmen Dag in the modern-day provinces of Kuthaya and Eskisehir (Turkey). See Barjamovic 2011: 359-407; Pernicka *et al.* 2003; Massa, McIlfatrick and Fidan 2017).

mountainous areas until Hurro-Hittite narratives are taken into account. These reveal an interesting interplay of male/female imagery applied to mountains and 'living rocks' in light of metallurgical activities as processes of gestation and birth, as well as ejaculation (Bachvarova 2019). It would be tempting to hypothetically link the Hurrian origin of these myths to the importance of the southeastern and eastern regions of Anatolia (especially the Tauride Range) for local and inter-regional networks of metal procurement, but in the absence of more solid evidence this remains highly speculative.

An example that has been widely mentioned and used when discussing fertility-based symbols in association with metal smelting is that of the Neo-Assyrian term «*ku-bu*» ('embryo, fetus'). According to a diffused interpretation, first and foremost defended by M. Eliade, this term is reportedly used in a series of incantations performed to propitiate metallurgical activities. In these mentions, which list a series of measures spanning from ritual cleansing to restricted access and libations, the 'embryo' in question directly refers to a metal-bearing ore placed in the furnace to be roasted and smelted (Eliade 1978). More recent readings of these Neo-Assyrian texts interpret the term in a significantly different way. «K*u-bu*» appears to be used as the epithet of an underworld deity associated to still-born children and invoked to ensure protection from miscarriages. It is indeed mentioned together with kilns and libations in 7th century BC texts but in the context of glass-making rather than metal smelting (Stol 2000). Although Assyriologists do not exclude that various technological processes, including metallurgy, might have retained connections to the symbolic spheres of death/rebirth and fertility embodied by the metaphorical and literal placement of the «K*u-bu*» near the furnace, there is no strong material evidence supporting the idea that primary metallurgical activities were directly linked to gendered taboos and metaphors of procreation in the Neo-Assyrian ritual tradition. Findings such as faunal and human neonatal remains in association with metal smelting furnaces, as attested in pre-historic Andean sites, might reinforce such interpretations (Zori 2019). However, to the best of the author's knowledge, with the exception of bone caches and infant burials found in association to firing installations and floor surfaces in many Neolithic sites across Anatolia and Mesopotamia, direct associations between metal smelting installations and fetal/neonatal remains are not attested at present.

While textual evidence does somehow contain elements for consideration, archaeological evidence is rather scarce and sparse. This does not mean that indicators of ritual behavior, although with no direct connection to the fertility and gendered sphere, are virtually unknown in mining sites across the region of interest. Fragmentary zoomorphic ceramic altars depicting a deer and/or a ram, ritually broken and buried once the mines went in disuse, have been identified at the site of Rudna Glava (present-day Serbia), where copper veins were in use from the mid-5th millennium BC. These have been interpreted by excavators as indicators of rites conducted by miners to ensure protection, and to honor an unspecified 'earth goddess' (Boric 2009; O'Brien 2015). Animal sacrifices and votive offerings of figurines and Spondylus shells were widespread at prehistoric mining sites in the Andes, where such rites were deemed a necessary payment to supernatural forces to counterbalance the violation perpetrated by miners with the extraction of ores (considered bodily fluids, 'flesh and blood' of mountain deities. Zori 2019).

These examples paint quite a complex picture. On one hand, it is not farfetched to envision a scenario where the rhythms of agricultural and mining cycles enforced the application of dichotomies such as life/death, procreation/violation, overground/underground, and wilderness/domestic through enacted rituals and symbolic objects. On the other, the paucity of evidence from investigated mining sites and related first-tier production centers makes it impossible to propose more grounded suggestions on the existence and nature of specific symbolisms connected to primary metallurgical processes.

4. LIMPING GODS AND THE DEMIURGIC POWERS OF METALSMITHS

If certain ritual ontologies appear to be conveyed through artifacts used in metallurgical practices (from metal-bearing minerals and slags to tools), others take shape through myths, demiurgic powers, and sacred knowledge shared by tutelary deities and craftsmen. The presence of gods and goddesses linked to craft activities, more generally, and metallurgy, in the specific, is hardly surprising. Across many Eastern Mediterranean cultures, gods and

semi-gods related to mining and metal production are portrayed in ways that place them closer to mankind, both physically and behaviorally as they often lack the perfection and beauty of other deities when not openly showcasing physical deformities (Dalley 1987; Eliade 1978). The image of the 'limping god', famously represented by divine smiths such as the Greek Hephaistos, the Egyptian Ptah, and even the Aztec Tezcatlipoca, can perhaps be interpreted as either a caricatural reflection of the physical appearance commonly characterizing miners and smiths in antiquity, as a symbolic rendition of the 'brute' strength potentially associated to mining and metalworking, or simply as a combination of all these factors (Aterman 1999). Of course if one postulates that the high risk of physical injuries and long-term health issues to which miners and smelters were exposed finds a mythological rendition in the figure of the limping gods, it is natural to look for anthropological and paleo-pathological studies on human remains that might corroborate this hypothesis. Data from EBA Jordan and Late Chalcolithic Israel cast some light on this point.

At the site of Wadi Faynan, where the renown Roman mining site of Phaino is located, evidence for the exploitation of copper veins and deposits dates back to the 7th millennium BC, with peak exploitation phases during the 3rd millennium BC and the Roman Imperial period. Archaeometallurgical evidence attested at the site during the EBA I-II phases indicates a gradual intensification in the local scale of production, with the transition from small-scale crucible smelting to more intensive furnace-smelting of copper-bearing ores conducted within the settlement. Despite the limited exposure to dangerous fumes one can postulate for limited smelting operations, research conducted on human remains from the contemporary funerary contexts points to a different scenario. Analyses targeting copper and lead intake in the skeletons showed enhanced values of heavy metal concentrations in the femoral bones, especially when compared to human remains from sites in the region that were distant from mining and smelting localities[6] (Pyatt *et al.* 2005). A more recent study has targeted lead absorption measured in the tooth enamel of individuals buried in the same EBA necropolis via LA-ICP-MS, confirming not only significant variations between one another but also within different life phases for the same individual, consistent with varying degrees of exposures to lead and arsenic poisoning in connection to metallurgical activities (Dolphin *et al.* 2022). Similar results were produced at the Chalcolithic site of Shiqmim (Israel), where evidence of on-site copper smelting (mainly carried out in secluded courtyards within the settlement) dates to the late 5th-early 4th millennium BC. Analyses on skeletal remains from the nearby cemetery complex reveled that specific groups of individuals, buried together in stone-lined circular pits, exhibited significantly higher concentrations of arsenic compared to other sampled individuals buried in different contexts (Oakberg, Levy and Smith 2000). In both cases, the results were compatible with the hypothesis of long-term exposure to metal poisoning resulting from mining and smelting activities, and other causes as post-mortem diagenesis (i.e., contamination between the bones and the soil) could be excluded.

Antithetical to these examples, ICP-MS analyses conducted on 90 skeletal remains from the EBA III cemetery of Iziktepe (northern Anatolia) yielded similar results but different interpretations. The concentrations of copper, arsenic, and lead registered in femoral bones of male adults were statistically higher that those characterizing infants, children, and female adults, but they also appeared consistent with those of soil samples taken from the respective funerary contexts. The results have thus pushed scholars towards the possibility that post-mortem contamination occurred though diagenetic intake (Özdemir, Erdal and Demirci 2010). In other words, the individuals buried at Ikiztepe do not appear to have been connected (or exposed) in any way to prolonged smelting activities, and this does indeed reflect the rest of the archaeological evidence in hand. That is, unlike the aforementioned sites, attested on-site practices at Ikiztepe consisted mainly of alloying, casting, and hammering of metal artifacts. Unlike the miners and smelters buried at Wadi Faynan and Shiqmim, local craftsmen would thus have not been exposed to the same dangers of heavy metal poisoning, at least not to the same extent (Özbal *et al.* 2008). While

[6] The question of long-term environmental pollution affecting mining and metal-working regions in pre-industrial eras plays also a crucial role in the understanding of the cultural and economic impact metallurgical development had on local communities. Although limited, archaeological records of deforestation and bioaccumulation of heavy metals in soil and water generated through extensive environmental studies are available for some regions of intensive copper-exploitation as the 3rd millennium BC Iberian peninsula (Nocete *et al.* 2005; Williams 2009).

no direct evidence of body dysmorphia has been pinpointed for these examples, these studies show how lead and arsenic metal poisoning can be a direct cause of stress-markers and signs of trauma on bones, as well as osteoporosis, general decrease in bone strength and optimal development, while possibly having repercussions on male and female infertility (Martinez-Garcia *et al.* 2005; Martin 2017).

More data is needed to push forward the idea that physical conditions and illnesses affecting ancient metal miners and smelters would have found an echo in myths and theological systems, but the *fil rouge* connecting archeological, mythological, and iconographic data is far too interesting to be completely dismissed. The current debate does in fact extend not only to evidence coming from the Anatolian peninsula and the Southern Levant, but also to the Aegean and Egypt. Myths and descriptions related to the cult of the Kabeiri *daimone*s (and the god Hephaistos) in Classical Greek tradition have been directly linked by some scholars to those of the dwarf-smiths, the Pataikoi, of Egyptian mythology (Aterman 1999). The similar iconographic rendition (i.e., physical deformity, short stature, limping) and the shared skills and divine attributes (i.e., metallurgical knowledge, protection from evil, and healing powers in relation to fertility) are commonalities that could point to a connected mythological and ritualistic tradition forming prior to the Iron Age (Blakely Westover 1999). The *daimones*, for instance, are closely associated with the discovery of iron metalworking, and the mythological tradition identifies their birthplaces respectively in Rhodes (southeastern Aegean), the Troad (northwestern Anatolia), the islands of Samothrace, Imbros, and Lemnos (northeastern Aegean), and Crete (Blakely 2006). This peculiar provenance has pushed some scholars to interpret the *daimones* as the mythic representations of itinerant specialized metallurgists traveling along LBA trade routes crossing Anatolia and the Eastern Mediterranean (Blakely Westover 1999; Zaccagnini 1993). Although speculative, this is certainly an element of great interest: the origin of semi-gods placed along known sea routes connecting Mainland Greece with Cyprus, Crete, Anatolia, and the Balkan region might very well reflect the known importance of these regions for trade exchange, in general, and metal procurement in the specific[7]. On the other hand, the ethnic affiliation of these *daimones*, and the actual role played by metallurgy in local cults and rites, are more nuanced than admitted by some scholars, advising caution in the interpretation of their presence as a direct reflection of religious symbolism attached to metallurgical production in these regions (Blakely 2012). Regarding medical knowledge, the power of *daimones* appears to be linked strictly to metals and their properties. Lead and iron, but also gold and other types of metals, were used as amulets to increase sexual drive, cure infertility and enhance female fertility, protect pregnancy or, on the contrary, prevent it. Curative properties assigned to raw materials and specific metals are traits common to many cultures, as also Hittite textual evidence indicates (Alparslan and Doğan-Alparslan 2011; Siegelová 1993). The purifying properties of silver, the strength and purity of gold, of which the 'eternal bodies of the Gods' are made (KBo 4.1 vs. 41-43, in Alparslan and Doğan-Alparslan 2011), and the general symbolic value of metal objects acquired as war booty, tribute, and taxes are all strong evidence of specific ritual meanings attributed to metals in the Hittite culture, as proved by their occurrence in propitiatory rites and dedication ceremonies (Giorgadze 1988; Siegelová 1993).

What all these examples suggest is not only the inclusion of metal-making practices among crafts protected by divine entities, but most of all the close link existing between medical and 'magical' properties of metals in their raw and worked form, the subsequent 'powers' and skills characterizing specialists who work with them, and the need of protection/ritual cleansing to reestablish the natural equilibrium between procreation and death, natural cycles and human manipulation. If the diverse traits shared by many gods and semi-deities could be interpreted as a symbolic generalization of the physical conditions characterizing mining and smelting metalworkers, the inevitable following question would touch upon the significance of this diversity in relation to the socio-economic status of actual metal specialists.

In many central and western Asian cultures smiths are often equated with shamans in their role of custodians of oral traditions, genealogies, and epic compositions (Rotea *et al.* 2011). Similarly, medical knowledge and healing powers are assigned to metallurgists in African, Asian, and Classical Greek traditions (Amzallag 2009). If skilled

[7] Plenty of archaeometric research points to complex metal procurement networks connecting Anatolia, the Aegean, the Pontic Area, and Cyprus already during the EBA and especially in the mature phases of the LBA (Niemeier 2000; Athanassov *et al.* 2020).

technical knowledge is in itself a form of power, the different conception of human demiurgic capabilities triggered by smelting metallurgy (and the subsequent ability to shape matter) potentially affected the entanglement between metal craftsmen and the surrounding communities. Ethnographic research on pastoralist and agricultural communities in pre-Colonial Africa, for instance, has observed how metal specialists often witnessed a process of segregation and exclusion from the rest of society that entangled both positive and negative aspects (Eliade 1978). Smelters and smiths were respected but also feared, and while their knowledge was considered necessary for the existence of economic and social structures, it was also portrayed as potentially dangerous for their balance, and thus in need of ritual regulation and control (Rowlands 1971; Blakely 2006). In the case of Chalcolithic and Bronze Age communities across the Eastern Mediterranean, it is of course difficult to envision a scenario where the minor or major social status of smelters and smiths was not correlated to the role played by metal production in the general economic structure of ancient communities. Ritual ontologies do invest various stages of metal production, and a complex network of dependence must have existed between the social status of metal specialists and factors like seasonality and specialization, centralized power and political competition, the impact of metal exchange, ethnicity, and religious traditions (Swenson and Warner 2012).

5. NEGOTIATING SOCIAL ROLES: RITUAL PRODUCTION IN THE LEVANT AND CYPRUS

The previous sections examined the limited, yet existing textual and archaeological evidence related to ritual symbology and traditions linked to mining landscapes and communities, smelters and deities related to metal production. Additionally, it delved into metaphors of seclusion and fertility. The discussion now shifts to another pivotal aspect of metallurgical activities and rituality, that of the involvement of metal specialists and metal production in communal performances and ritual settings.

Any discussion touching upon these subjects cannot exempt from the examination of the striking examples coming from the Chalcolithic Southern Levant, in particular from the Late Ghassulian culture. The rich metallurgical production characterizing the Late Ghassulian phase (i.e., 4200/4000 BC) has attracted scholars' attention since the 1950s, when Childe first proposed the Syro-Palestine macro-region as a pioneering and independent core of experimentation in early metalworking (Levy and Shalev 1989). Based upon the striking material evidence uncovered at settlements and burial caves, research has focused on various aspects of regional metallurgy, from technological experimentation in copper alloying and gold manufacture to procurement, to the relationship between high quality metallurgy and processes of increasing urbanization and social complexity. The aspect analyzed here concerns, however, the proposed relation of metalworking and cult activities advanced by some scholars (Goren 2014; Gošić and Gilead 2015).

The astonishing metal hoards uncovered at the sites of Nahal Mishmar, Giv'at Ha-Oranim and Shiqmim represent the most interesting examples for the analysis of the cultic character of Ghassulian metallurgy (Amzallag 2022). For instance, the hoard of the Nahal Mishmar cave consisted of more than 400 copper artifacts (both unalloyed and alloyed), with various types of cultic and 'utilitarian' objects ranging from maceheads and standards to scepters, horns, cylinders, and axes (Gošić and Gilead 2015). Looking more generally at evidence coming from other Ghassulian sites and stressing the synchronic occurrence of metalworking and new burial traditions, Gošić and Gilead argue that all elements attest a significant change in ritual behaviors, a change that the sophisticated and precocious copper metallurgy mastered by local communities contributed to trigger. In pre-industrial societies ritual often plays a crucial role in coordinating craft production, especially when this embodies newly established cultural and social identities. In the case of the Ghassulian Chalcolithic communities, the production of astonishing ceremonial and ritual objects is directly connected by these scholars to the gradual formation of new social structures, in a complex entanglement that links the act of manufacture itself, and the skilled craftsman behind it, to the negotiation of communal socio-cultural fabric through ritual and magic ontologies (Amzallag 2019; Amzallag 2022). While the emphasis on the role of metal artifacts as crucial status-markers is certainly important, one cannot help but wonder if, and in which ways, the inarguable skills required to produce them also led to a (re)

Fig. 2. Miscellaneous artifacts from the Nahal Mishmar Hoard, currently exhibited at the Israel Museum of Jerusalem (from Amzallag 2022).

negotiation of the social role of metal craftsmen. In other words, were smelters and smiths in any way involved in the enacting of communal rites of pilgrimage and ritual offering as those attested at Nahal Mishmar and/or sites such as Ein Gedi? So far no convincing evidence for any of these proposed ritual roles of metal specialists has

been pointed out by scholars. However, if the rationale to test is one that sees ritualization as a way to integrate and normalize the impact of metallurgical development in societies witnessing its rapid development and widespread impact on preexisting socio-economic dynamics, an example that might cast some light on this aspect can be found in LBA Cyprus.

The role of Cypriot industries in the LBA copper trade has been and remains the focus of extensive archaeological and archaeometric research (Kassianidou 2013; Charalambous 2016). The identification of deposits exploited in antiquity, the manufacturing technologies, and the trade networks established between the Near East and Levant, Anatolia, and the Aegean are all issues on which current studies focus. An aspect relevant for the present discussion regards the sociopolitical organization of metal production at Cypriot sites and its relation to the religious ideology of local communities (Knapp 1986).

The so-called 'Ingot Gods' found at Enkomi and Kourion represent the first indicators of a tight relationship between ritual and metallurgy (Kassianidou and Knapp 2005): upon their discovery these bronze statuettes, representing both male and female deities standing on oxhide ingots-shaped bases, were immediately interpreted as tutelary deities protecting miners and smelters. Interestingly, the goddess was interpreted as a symbolic representation of the fecundity of Cypriot mines by some scholars, echoing the fertility symbolism previously analyzed (Kieburg 2006). In 1985 the excavation of 12th century BC metal workshops associated with religious structures at Kition seemed to confirm that metal production was not only 'under divine protection', but also connected to religious control. One of the rooms excavated by V. Karageorghis had direct access to the main cultic building, and the team found not only *in situ* metallurgical debris but also ritual paraphernalia, suggesting that rites were performed also within the spaces devoted to metal production. Similar evidence was uncovered at the site of Athienou, where a sanctuary in use between the 16th and the 12th centuries BC revealed traces of smelting activities, and at Myrtou, Idalion, Enkomi, and Hala Sultan Tekke (Kassianidou and Knapp 2005). B. Knapp and J. Webb have recognized five indicators of the rituality of Cypriote LBA metallurgy, from the Ingot Gods and the bronze miniature inscribed ingots[8] to the location of workshops within ritual spaces (Knapp 1986). This last aspect, the spatial association of workshops and temples uncovered at many sites in the island, brings to the forefront of the conversation the possible involvement of metal specialist in the enactment of specific rites (Averett 2015).

However, some criticism against the actual production of copper ingots or objects in these specific settings has been raised by scholars as V. Kassianidou. The main argument proposed is the relatively 'small' quantity of slags and tuyeres found at sites like Kition and Enkomi, which would not mirror the actual scale of Cypriot production as estimated on the volume of trade. Although somehow valid, this critique can be counteracted by other observations. On one hand, the existence of other production centers (not associated with religious structures) does not exclude the close involvement of metal specialists in ritual performances. On the other, their possible role in the enactment of rites and production of ritual objects does not imply in any way that Cypriote metallurgy was overall under 'religious control', nor that different models of production catered to both local, de-centralized consumption and inter-regional trade did not coexist (Schuster-Keswani 2005). Interestingly, and almost in line with the evidence discussed for the Ghassulian culture, the data in hand strongly suggests that the cultic aspects of Cypriot metallurgical production became stronger in concomitance with the growth of local copper industries as one of the main suppliers in the entire Eastern Mediterranean around the 15th century BC (Webb and Knapp 2021).

Both these examples underline some important points. The direct involvement of metalworkers in ritual settings of social and political competition appears to be a form of regulation of their activities within communities

[8] Academic literature has recently provided interesting new insights on this category of metal votive objects using anthropological theories on miniaturization. These highlight in particular concepts such as 'enchantment' and 'ritualized alterity' in relation to paraphernalia representing miniatures of every-day tools and objects (Kohring 2011; Dehouve 2016; Oggiano 2022). According to these theories, the choice of representing something (from a ceramic plate to a metal ingot) in its miniaturized form can reinforce the idea (and illusion) of human control and connection over materiality, and ultimately over the natural world and its resources. Whether the Late LBA Cypriot miniature ingots absolved a more practical function (i.e., weights, recycled scrap metal) or a more ritualistic one (i.e., amulets, votive objects), it is not unlikely to postulate a multivariate usage for such a category of artifacts that merges the utilitarian and symbolic spheres.

characterized by a striking quantitative and qualitative level of metallurgical production, increasing social competition, and economic decentralization. The scenario would most likely be different in state societies with more centralized political and economic structures, where the major control over production might have rendered the need for ritual 'regulation' either redundant or, on the contrary, more strictly organized.

6. DISPLAYING CONTROL: METAL PRODUCTION IN LBA AEGEAN AND ANATOLIA

The association of economy, ritual, and politics in the prehistory of the Aegean has a long history of research and discussion. The 'Palace-Temple' model proposed by Evans has enjoyed consensus among scholars for a long time before being substituted by more nuanced approaches to the study of Minoan economy (Schoep 2010). Recent studies have challenged traditional views that applied labels such as 'a redistributive model' to Aegean Bronze Age societies in favor of approaches emphasizing social 'institutions' such as feasting, craft specialization, gift exchange and, I would add, ritualized modes of production and consumption (Nakassis, Parkinson and Galaty 2011). Here, however, the discussion focuses on aspects of continuity and change noticed for Mycenaean and Classical Greece from the perspective of metal industries and ritual settings. As pointed out by Blakely, the LBA societies of the Aegean islands and Mainland Greece show different and yet similar traits to those attested in Cyprus and examined in the previous section (Blakely Westover 1999). The main difference between Cyprus, on one hand, and Crete and Greece, on the other, consists in the different juxtaposition of political and ritual power. Evidence from Cyprus potentially attests a strict relation between copper production and rituality in the form of both tutelary deities and workshops in ritual settings. Minoan and Mycenaean cultures, instead, show strict palace control over different types of production, including metallurgy. Texts can help clarify this distinction. Linear B tablets found in the Pylos archives mention Mycenaean smiths and metalworkers in connection to the provision of metal objects to the palace (Pullen 2013; Nakassis, Parkinson and Galaty 2011). If it is possible that redistribution and market exchange were both part of the Mycenaean model (as argued by Pullen 2013), then it becomes feasible that metal specialists were employed by both the palace and the elites, while also acting as independent artisans (as suggested by Gillis 1997). A similar conclusion is suggested for Minoan metallurgy (Schoep 2010; Hakulin 2013). The spatial concentration of workshops in the Minoan palaces of Crete is in fact paralleled by the distribution of workshops in harbor towns like Mochlos and Kommos, suggesting the existence of a prosperous 'non-palatial sector in the metal system' (Hakulin 2013: 122; Blakely Westover 1999). The crucial role of metals in the formation of elite social identity and the economic importance of metal trade and production in the LBA Aegean contributed to the exercise of a certain degree of control over metallurgy, control that assumed ritual aspects in some ways but that never escalated to the degree observable on Cyprus (Blakely Westover 1999).

In a similar way, the pivotal social and economic role that metal production played in Hittite Anatolia generated a rather complex yet organized structure for procurement, circulation, and manufacture (Lehner and Schachner 2017). Discussion regarding ritualistic connotations attached to metallurgical production has been conducted mainly from the perspective of philological studies. The role of smiths and metal craftsmen (usually indicated with the Sumerogram ^{LÚ}SIMUG.(A) within the context of purification and foundation rituals is attested in many texts referring to the regulation of rites in Kizzuwatna, Arzawa, and the Hatti lands (Mouton 2012). The available corpus contains mainly references to the presence of metallurgists during rituals which required the usage or dedication of metal sacred objects (from effigies of the Gods to other kind of metal ritual paraphernalia). In most instances, the role played by metal craftsmen was 'limited' to the task of presenting and handling metal paraphernalia, statues, and other votives while the rite was performed (Kempinski and Košak 1977; Siegelová and Tsumoto 2011). In a few examples, textual records do contain more detailed information on specific festivals and occasions in which metallurgists played a more central role as the persons enacting the rite. Prestigious schools of metalworkers were present in important Hittite religious centers such as the cities of Arinna, Karahna, and Zippalanda (where craftsmen would often bring bread offerings and sacrifice animals to the local Storm God. Pecchioli Daddi 1982: 39-40). Other than offerings and sacrifices, texts from Kizzuwatna point also to another pregnant aspect

of the direct involvement of metal specialists, stressing the role they played in the symbolic 'birth' or 'appearance of a divinity' through the dedication of effigies they were responsible for (Mouton 2012: 227). So far textual data are not corroborated by many archaeological finds hinting to on-site production at any of the sites traditionally identified as the mentioned polities. Nonetheless, the association of specialized metallurgy with localities of known religious importance in the Hittite Empire illustrates once more how ritual symbologies and practices served the important function of controlling and regulating metal production within larger macro-regional systems.

7. CONCLUSIONS

This contribution started with a hypothesis and many interrogatives related to it. First and foremost, it argued for a recognition of the ritual significance of ancient metallurgical practices that would embrace not only the objects themselves (and their potential usage in ritual settings) but also the actions needed to produce them, the skilled people performing those, and the natural and social contexts in which all this took place. Secondly, it raised questions on if and how the cultural and socio-political underpinnings of this ritual ontologies and their related symbolism could be identified and interpreted based solely on textual and archaeological data. There are, in fact, many examples provided by anthropological and ethnographic sources, based on direct observations, that reveal the existence of multiple, complex layers of symbolism and religious connotations attached to metallurgical practices, metalworkers, and the resulting artifacts. But is it possible to identify ritual semantics of production through the lens of textual sources and archaeological contexts only? And if so, how to interpret them? Are magical and ritualistic elements only ascribed to metallurgical craft as a way to integrate new technologies into pre-existing yet evolving socio-economic structures? Is ritualization only occurring in the context of production of ritual paraphernalia and votive objects, thus linking possible ritual ontologies only to the actual context of usage of metal artifacts? Or is it social structure, in particular the division between more egalitarian and more hierarchical societies, that affects the role and 'power' possibly assigned to metal specialists? When it comes to the study of rituality and metal manufacture, the nature of archaeological evidence significantly changes the perspectives from which these topics can be approached. A whole corpus of data related to performative aspects, oral traditions, gestures, symbolism, and beliefs becomes elusive, and it can be reconstructed to a certain extent only by contextualizing different pieces of evidence. Far from being conclusive, the evidence provided in this contribution aimed to trace different but interconnected layers, through whose interplay ritual significance might have pervaded the varied social and cultural fabrics woven by metallurgical production in societies across the ancient Eastern Mediterranean. Bearing in mind the unique character of every case study, some general considerations on the different layers of ritual ontologies, can be proposed.

The first layer or level of manifestation is a 'material' one, where symbolic attributes are attached to metals in both their raw or finished form: the magical properties related to fertility, healing, and purification ascribed to different metal objects, the metaphors of birth-giving attached to the mining and smelting of metal ores, and the ritual usage of paraphernalia and metal artifacts are all perfect examples of this, and although at different degrees and through different manifestations they appear to be present across diverse cultures and socio-political structures. If, on one hand, one could argue that the high ritual and socio-cultural value assigned to metals does reflect directly (or indirectly) on their users rather than their makers, on the other it begs the question of if and how it affected the way metal miners, smelters, and craftsmen were perceived (Helms 1993).

The second layer is therefore related to the 'agents', the specialists through which the ritual power of metalworking would have been expressed. Anthropological and mythological sources offer a wide array of ritual roles assigned to metal specialists, from that of shamans and healers, to that of guardians of unshared knowledge serving the entire community. The social status and ritual involvement of metal specialists varied enormously according to different factors, among which scale of production (seasonal, specialized), type of production (everyday tools, prestigious artifacts), and locality of production (temple/palace-based artisans, itinerant smiths, craftsmen working in urban or rural settlements) played a pivotal role. It is important to clarify that an important distinction

would have to be made between miners and smelters, on one side, and craftsmen working on alloying and successive manufacturing practices. If a certain degree of seclusion, and perhaps avoidance, could be targeting mining communities[9], major social mobility can be postulated for metalworkers (especially in case of specialized labor[10], Zori 2019). Here I propose a distinction between first and secondary metallurgical activities that exceeds the differences already imposed by factors such as localities (non-urban, urban), physical skills, knowledge, and regulations imposed on production. These, in fact, would have generated different, in some aspects complementary ritual semantic spheres. Chthonic powers and tutelary deities linked to craft and fertility, physical strength and technical skills, interference with the rhythms of nature and ability to transform matter, cleansing rituals and propitiatory rites, magic properties and alchemic powers, are all potential metaphors intertwined with each other.

The third layer, perhaps the most intriguing for the archaeological study of ritual metallurgy, is represented by social systems. The ways communities channel the ritual significance of matter and agency, embedding it in their socio-economic structures and cultural traditions, are diverse and difficult to interpret. Similar ritual metaphors can be translated in totally different ways, and it is the interplay of social and political factors that determines it. One aspect is clear: the more central metal production becomes to the economic strategies of a specific community, the more ritual dimensions are enhanced or channeled by other members or central authorities.

Considering these three main angles (i.e., matter, agency, and society), it becomes clearer how the same ritual ontologies can be expressed through all of them, and/or each one can be characterized by its own. Fertility-themed symbology and gender-related taboos are a perfect example. Through ritualization, metal production can assume an active role in shaping or communicating gender and age-based divisions within a given society, and this is done explicitly through matter and agency, as the Fipa example shows, and as other archaeological research suggests[11]. The same can be said for the expression of social identity and political power: metal objects as symbols of prestige can convey important messages, but when metal production becomes part of ritual performances involving the negotiation and affirmation of social prestige through agency, as in the case of the rites at the Cypriot center of Kition, metal production becomes charged with evident ritualistic and social meanings.

While recognizing the multi-varied ways in which the different metaphors and levels of symbolism intersect with each other, a pattern can be recognized in all the examples analyzed. The economic centrality of metal production appears to be the triggering element in the development of rituality and magic symbolism, and this appears to be especially relevant in the case of social and cultural contexts in which the negotiation of power, status, and wealth is still fluid. In other words, and keeping in mind that general theoretic frameworks can only work as a basis in the interpretation of singular case studies, it is here suggested that the adoption of ritualized semantics of metal production mirrors general processes in which social competition, negotiation of status, and political control are expressed through ritual behaviors.

From the Ghassulian and Cypriot cultures to the Fipa communities, the *fil rouge* that links all examples is the impact that metal production had on the economic and social fabrics upon which such communities construct themselves. Although this statement might appear rather simplistic, it does not undermine the complexity of the topic: if, on one hand, economy affects the development of ritualized modes of metal production, on the other hand, the ways these are developed, embedded, and manifested are so diversified that the entanglements of rituality with other spheres (i.e., general cosmological beliefs, cultural contact, political developments, broader gender divisions) become evident (Constant 1993; Prescott 2000). In the case of Cyprus, for instance, the scale of copper mining, production, and trade (especially from the 16th to the 12th centuries BC) is well reconstructed through

[9] It is important to stress that mining activities were strictly dictated by seasonality, and that the activity of miners and smelters depended on their balance and integration with other subsistence activities carried on by communities within the region.

[10] It is here argued that specialization would have played an important part in the attribution of ritualistic symbolisms to craftsmen. At the same time, the concept of cross-craft interaction should be taken into account. Indicating mainly the existence of shared tools, working spaces, and know-hows across different manufacturing processes, it raises important questions about the dynamism linking different manufacturing chains, social agents, and skill sets. If this concept shows how blurred the division of labor could often be, it does not diminish the importance of craft specialization as catalyst for economic and social complexity.

[11] See Derevenski 2000 for an interesting study of metalwork in relation to gender identity.

archaeological and archaeometric data. Studies on settlement patterns have targeted mining areas, industrial/smelting centers, agricultural sites, and coastal/trade hubs, highlighting the main characteristics of the socio-economic and political fabric of the island (Knapp 2003). These challenge traditional views that saw an egalitarian, isolated society give space to a hierarchical, hyperconnected system with the transition from the MBA to the LBA, and instead point to a gradual, non-linear process of growth where increasing exploitation of local sources paralleled phenomena of social competition and inequality without the institution of highly centralized systems (Webb and Knapp 2021). The same degree of intra-regional variation can be postulated for Anatolia, where the LBA period saw the establishment of an ensemble of multi-layered polities (in the west), and more centralized imperial politics (in the central and southeastern regions) still showcasing different degrees of power, cultural hegemony, and resilience (Glatz 2009).

The development of ancient metallurgy did indeed follow paths dictated by disparate elements, from more practical concerns (usage, technical advancements, sources) to socio-economic factors (labor organization and division, exchange networks, control over production), and cultural ones (myths, religious beliefs. Rotea *et al*. 2011). The goal here was not to establish the 'importance' of one or the other, but rather to acknowledge their coexistence and interplay. Ultimately, although almost 30 years have passed, the words of Budd and Taylor still hold true. *'The general unwillingness of archaeometallurgists to see prehistoric metal artifacts as anything other than the remnants of scientific experiments in some cumulative, progressive and rational development sequence – leading from the first tentative chemical flame-test, through copper, bronze and iron metallurgy, onward and upward to the achievements of aerospace-industry – is linked to an intra-disciplinary divide between archaeological scientist and socio-cultural archaeologists and anthropologists'* (Budd and Taylor 1995:134). It is towards this divide that future research should focus on, in the attempt to reconsider the development of ancient metallurgical production under a more holistic perspective.

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State Production and Market at Ebla – Animal and Wool Values[1]

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Abstract. The kingdom of Ebla covered an area extending around 200 km from north to south and from east to west; that is, from the modern Syrian-Turkish border down to the oasis of Ḥama in the south, and from the Amuq plain, where the delta of the Orontes River flows into the Mediterranean Sea, up to Emar, its allied city, whose territory reached the Euphrates. The Central Administration – the Palace – had at its disposal the revenues from its own administrative organization, with its workshops, as well as from the "village communities", represented by a large number of "Elders". Notwithstanding that, Ebla's envoys also acquire several types of goods, such as mules, cattle and sheep, garments and wool, from the markets of the cities in its own kingdom, and in other city-states, primarily from its archival, Mari. Luxury goods, on the other hand, were mostly acquired on the basis of ceremonial gifts from court to court. Long-distance-trade, however, was not relevant in the formation of the Syrian regional states. Goods (including the tributary deliveries its officials owed the Palace) were given also values in silver, and small goods, such as aromatic essences, were valued in wool. The average value of a head of cattle was around 25 shekels of silver, while a sheep was worth between 1 and 1½ shekels. It is not possible to establish the exact value of the weight used for wool. These prices are in any case much lower compared to those used in Mesopotamia during the Ur III period.

Keywords: Ebla economy, market Ebla, silver as standard of value, cattle, sheep, wool.

1. INTRODUCTION

Administrative texts are by their very nature an extremely reliable source of data; although they contain occasional accounting errors, these are generally easy to detect. An evaluation of ancient Near Eastern admin-

[1*] Special abbreviations and logograms: kb.: kù-babbar; m.: ma-na (1 mina: 470 g); sh.: shekel (1 shekel: 7.83 g). *Arr*.: minister Arrukum; *Ibr*.: minister Ibrium; *I.Z*.: minister Ibbi-zikir.

istrations based on these kinds of sources is, however, strongly conditioned by external and internal factors. Entire typologies of documents may have been destroyed because they were considered no longer useful, or they may only be represented by some randomly-preserved example, dating in general to the later periods, as is the case at Ebla for most of the entire animal breeding and agricultural sectors, as well as the records for the food provisions of the central Administration.[2] The book-keeping of some other particular administrative sector, moreover, could have been under the responsibility of a peripheral office, whose archive has not yet been found, or even one that did not consider written records necessary, as may be the case at Ebla for the procedure of conveying animals from where they were raised to the Central Administration.[3]

2. SHEEP AND CATTLE BREEDING AND THEIR DELIVERY TO THE PALACE

Document TM.75.G.2306 registers the number of sheep the Palace needed for a period of over three months of one of the very last years of the city: a total of 3,544 heads, to which 400 "dead sheep" were added (for unspecified reasons) belonging to the share owned by the Palace:

				(1)
obv.	I.	1.	4 *mi* 30 lá-2 udu	428 sheep:
			nídba	offerings
		3.	é dingir-dingir-dingir	for the temples;
			1 *mi* 5 udu kú	105 sheep: food
		5.	en	for the king;
			15 udu kú	15 sheep: food
		7.	*Ìr-ʾà-ag-da-mu*	for (the crown prince) Ir'ak-damu;
			57 udu guruš	57 sheep: for the workers
	II.	1.	é en	of the king's house
			23 udu	23 sheep:
		3.	al_6-du_{11}-ga	requested (at disposal);
			1 *mi* 20 udu kú	120 sheep: food
		5.	*Du-bù-ḫu-*^{d}*ʾÀ-da*	for Tubuḫu-Haddu (son of the minister Ibbi-zikir);
			34 udu-nita[1]	34 rams:
		7.	(blank)	———
			1 *mi* 30 lá-3 udu kú	127 sheep: food
		9.	kas_4	for the messengers;
			12 udu	12 sheep:
	III.	1.	kaskal	for the journeys
			Ru_{12}*-zi-ma-lik*	of Ruzi-malik (son of thr minister Ibbi-zikir).
		3.	šu-nígin 9 *mi* 21 udu	Grand total: 921 sheep.
			2 *mi* udu ug_7	200 (were) the dead sheep.
		5.	iti *za-ʾà-tum*	Month III.
				(2)

[2] For animal breeding at Ebla, see Archi 1984; for the field text, see Milano 1987, and Milano 1996. Large part of the documentation concerning the food provision of the royal court and central bureaucracy had been published by L. Milano in *ARET* IX.

[3] For the limits of the typologies of the documentation concerning the Near Eastern studies, see the important article by Miguel Civil (1980).

For a first study based on a quantitative analysis of the data offered by Ebla, see Archi 2017a, which concerns lapis lazuli, turtle carapaces, and a kind of shells. On the ceremonial gifts exchange between the courts of Ebla and Mari, see Archi 1999: 147–152 = Archi 2015: 179–187; on the gifts exchanged between Ebla and Dugurasu (Tukriš), in West Iran, see Archi 2016.

			2 *mi* 62 udu	262 sheep
		7.	é dingir-dingir-dingir	for the temples:
			1 *mi*	157
	IV.	1.	60 lá-3 udu kú	sheep: food
			en	for the king;
		3.	53 udu	53 sheep:
			kú	food
		5.	*Ìr-ʾà-ag-da-mu*	for (the crown prince) Ir'ak-damu;
			4 *mi* 75 udu guruš	475 sheep for the workers
		7.	é en	of the house of the king;
			60 lá-3 udu al_6-du_{11}-ga	57 sheep: requested (at disposal);
	V.	1.	82[+1] udu	83 sheep:
			Du-bù-ḫu-^{d}*ʾÀ-da*	for Tubuḫu-Haddu (son of the minister Ibbi-zikir);
		3.	1 *mi* 20 udu guruš	120 sheep: for the workers (of the king's house)
			1 *mi* 36 udu kas_4	136 sheep: for the messengers
		5.	(blank)	_____
v.	I.	1.	šu-nígin 1 *li* 3 *m*[*i*] 43[!]	Gran total: 1,343[!]
			2 *mi* udu ug_7	200 (were) the dead sheep.
		3.	iti *gi*-NI	Month IV.
				(3)
			2 *mi* 20 lá-1 udu é dingir-din[gir]-dingir	219 sheep for the temples
		5.	1 *m*[*i*] 84[+1] udu	185 sheep:
	II.	1.	kú	food
			en	for the king;
		3.	54 udu	54 sheep:
			Ìr-ʾà-ag-da-mu	for (the crown prince) Ir'ak-damu;
		5.	4 *mi* 96 udu guruš	496 sheep: for the workers
			é en	of the house of the king
		7.	*wa*	and
			Du-bù-ḫu-^{d}*ʾÀ-da*	for Tubuḫu-Haddu (son of the minister Ibbi-zikir);
	III.	1.	1 *mi* 50 lá-3 udu kú	147 sheep: food
			kas_4	for the messengers;
		3.	1 *mi* 40 lá-1 udu níg-kaskal	139 sheep: travel provisions
			I-bí-zi-kir	for (the minister) Ibbi-zikir
		5.	*wa*	and
			Ru_{12}-*zi-ma*[*-lik*]	(his son) Ruzi-malik:
		7.	40 udu	40 sheep:
	IV.	1.	al_6-du_{11}-ga	"requested" (at disposal).
			šu-nígin 1 *li* 2 mi 80 udu	Grand total: 1280 sheep.
		3.	iti *ḫa-li*	Month V.
			(blank)	
	V.		(blank)	

TM.75.G.2538 is a similar account, but annual: from the beginning of month III to the beginning of the same month of the following year. The total number of sheep needed that year by the Palace organization was 21,210 + 10[+x] sheep.

				(1)
r.	I.	1.	4 *li* 8 *mi* udu	4,800 sheep
			é dingir-dingir-dingir-dingir	for the temples.
				(2)
		3.	1 *li* 7 *mi* 80 udu	1,780 sheep:
			kú	food
	II.	1.	en	for the king
			Ìr-ʾà-ag-da-mu	(and the crown prince) Ir'ak-damu.
				(3)
		3.	1 *li* 6 *mi* 45 udu	1,645 sheep:
			al_6-du_{11}-ga	requested (at disposal).
				(4)
		5.	2 *li* 9 *mi* 66 udu	2,966 sheep:
			kú	food
	III.	1.	SA.ZA$_x^{ki}$	for (the workers) of the Palace
			wa	and
		3.	*Ib-la*^{ki}	Ebla,
			é	(and) the house
		5.	*Du-*⌜*bù*⌝*-ḫu-*<-^{d}*ʾÀ-da*>	of Tubuḫu-Haddu (son of the minister Ibbi-zikir).
				(5)
			1 *li* 8 *mi* 3 udu	1,803 sheep:
		7.	kú	food
			SA.ZA$_x^{ki}$	for the Palace
		9.	*áš-da*	by
	IV.	1.	*I-bí-zi-kir*	(the minister) Ibbi-zikir;
			Ru$_{12}$*-zi-ma-lik*	(and his son) Ruzi-malik
				(6)
		3.	3 *mi* 6 udu	306 sheep
			Ar-mi^{ki}	for (envoys of) the city of Armi.
				(7)
		5.	5 *mi* udu šu-du_8-máš	500 sheep: for examinations of the exta.
				(8)
v.	I.	1.	2 *li* 5 *mi* 50 udu	2,550 sheep:
			gaba[-ru]	receipt
		3.	[SA.Z]A$_x^{ki}$	by the Pal[ace].
				(9)
			4 *l*[*i*] 8 ⌜*mi*⌝ 60 udu	4,860 sheep:
	II.	1.	še-ba	rations
			Ib-la^{ki}	for (the people of) Ebla.
		3.	(blank)	
	III.	1.	(blank) [ ] 10 udu	[ ] 10 sheep.

			(10)
IV.	1.	(blank) *áš-d*[*a*]	From
		iti *za-ʾà-tum*	month III
	3.	*si-in*	to
		iti *za-ʾà-tum*	month III.

A detailed list of the sheep slaughtered for the needs of Ebla was drawn up every month, probably at a sheep-cote outside the city. The Central Archive preserved twenty-two of these lists, concerning the very last months leading up to the city's final destruction.[4] One can deduce – considering the ductus – that these documents were drawn up by two or three scribes who were not employed at that archive. They were unbaked (which is anomalous for such large tablets); they present a slightly different ductus; and several of them are dated according to the local calendar, while the dating of the documents drawn up by the scribes of the Central Archive present the Semitic calendar (with extremely rare exceptions).[5] Before the destruction of these monthly documents, their data were condensed and registered by the scribes of the Central Archive on much smaller tablets like the two presented above, which were likewise destroyed after a certain limited period.[6]

Documents concerning the agricultural sectors were not systematically collected, contrary to those concerning the incomes and expenditures of metals, or the distribution of clothing. Some earlier documents concerning the agricultural administration had been transferred to the Central Archive, when it was built at the time of minister Arrukum, because they were considered important, and were never eliminated; others from the time of ministers Ibrium and Ibbi-zikir were randomly preserved, and most of them are to be dated to the last period.

The state of Ebla was based on two counterposing forces: the "Palace", $SA.ZA_x^{ki}$, and the "village communities", which were represented at the Palace by a large delegation of "Elders", ábba (see Archi 2022a). Groups of villages could form "gates", ká; that is "districts", under the control of a "lord", lugal, or an "overseer", ugula, and part of their revenues (usually in silver) were presented by these officials to the Palace (see ARET XIV, 3–5), while other villages sent grain, other products and animals.

Some of these ká "gates" included also é "houses", which were owned directly by the Palace, or also whose revenues also belonged to members of the royal family, or officials of the Palace:

a) TM.75.G.2634 obv. I 1–II 6: 1,342 é gurus nu-su dumu-nita ir_{11} $SA.ZA_x^{ki}$ *wa na-se*$_{11}$ ugula ká 100 é [ir_{11}] en *wa* ama-gal en 75 é $SA.ZA_x^{ki}$ 227 maškim $SA.ZA_x^{ki}$ AN.ŠÉ.GÚ 1,744 é sa_{10} gud-gud ká *Bar-za-ma-ù* "1,342 houses of workers, perfumers, orphans, servant of the Palace, and people of the overseer of the gate. 100 houses [of the servant] of the king and of the king's mother. 75 houses of the Palace. 227 houses of the representatives of the Palace. Total: 1,744 houses ... cattle. Gate of Barzama'u".

According to TM.75.G.1558, twenty-two "chief-herdsmen of the king", ugula-mùnsub-ugula-mùnsub lú en, each placed in a different settlement, were responsible for 67,200 sheep (Archi 1984: 63-64). Some lords had competence of the sheep of the Central Administration, as one may deduce from the following text, dated to the death of a king of Mari – more likely Nizi than Iblul-il – therefore to the first seven years of Irkab-damu's reign:

b) TM.75.G.1574 obv. I 1–III 3: 65,300 udu-udu lú šu *Du-bí-šum* 18,950 udu-udu lú šu *Dar-mi-a in* 1 mu "65,300 sheep in the hands of Dubišum; 18,950 sheep in the hands of Darmia. In the year ..."[7]

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[4] Four of these lists have been published by in Pettinato 1979.

[5] On the two calendars in use at Ebla, see Archi 2017b. That the first month of the year was iti *i-si* seems to be confirmed by the colophon in ARET XV 42, a text which includes expenditures of garments for several months, and has at the end, § 145, iti *i-si* iti *ig-za* iti *za ʾà-tum* [ ]. Previous studies are: Pettinato 1974/77, and Pettinato 1977.

[6] Three other similar tablets, TM.75.G.1629, TM.75.G.16430; TM.75.G.2096, have been published by Pettinato (1977: 258–281).

[7] See Archi 1984: 68–69. For the lord Darmia, see ARET XIV: 2–5.

At the time of minister Ibbi-zikir, according to ARET XIV 2a §§ 6, 7, the cattle available to the Palace were 3,710 heads (under the responsibility of Ida-nikimu), and the sheep 153,600 (under the responsibility of Aḫunaše).[8]

The following two documents show that some account evaluated these revenues in silver:

c) TM.75.G.1958 obv. II 4–III 7: 16;47 ma-na kù:babbar *I-da*-NE ugula si 12;46 ma-na kù:babbar *ʿA-da-wa-zu* 4;32 ma-na kù:babbar *ʿI-ti*-[LU]M [3;13 m]a-[n]a [k]ù[:babbar *Kùn-da-ba-an* ì-na-sum AN.ŠÈ.GÚ 37;18 ma-na kù:babbar níg-sa$_{10}$ 657 gud *Kùn-da-ba-an* zà-me "16;47 minas (7.888 kg) of silver: Ida-NE, the overseer ...; 12;46 minas (6 kg): Ada-wazu; 4;32 minas (3.234 kg) of silver: to Kunda-ban have given. Total: 37;18 minas (17.531 kg) of silver: value of 657 cattle (1 : 3.41 sh.): Kunda-ban has placed at disposal".

d) TM.75.G.10213: [2 *mi-at* 50+]3 ma-na kù:babbar [l]ú [g]ud-gud [l]ú ugula-ugula [k]á-ká [(x) ì-na-s]um [*wa*] 40 ma-na kù:babbar lú ʿtuʾ-[d]a-*sù* al$_6$-gál é-siki *ap* 96 ma-na kù:[bab]bar$_6$ GIŠ-tum kù:babbar ʿgudʾ-ʿgudʾ [*a*]*l*$_6$ ugula-ugula ká-ká *wa al*$_6$ ugula gud-gud nu-ì-na-sum é en AN.ŠÈ.GÚ 3 *mi-at* 90 lá-1 ma-na k[ù:babbar] níg-[sa$_{10}$] 9 *l*[*i-im*] 9 *mi-at* 41 gud *ap* 76 ma-na kù:babbar šu-bal-ak 25 ma-na šú+ša kù-g[i] níg-[sa$_{10}$] 6[+3 *mi-at*] 60 á[b-peš] *in*[(-x)] *Si-*ʿxʾ[ʿšuʾ-*m*[*a*] ugula gud-gud "253 minas (118.91 kg) of silver: (the value) of the cattle which the overseers of the ʿgatesʾ [have] given, [and] 40 minas (18.80 kg) of silver for their newborn (animals): present in the Treasure (the House of wool). Further, 96 minas (45.12 kg) of silver: the balance of the silver of the cattle (which is) competence of the overseers of the 'gates' and competence of the herdsmen (which) has not been given to the king's house. Total: 389 minas (182.83) of silver: value of 9941 heads (1 head = 2.6 sh.). Further, 76 minas (35.72 kg) of silver to be changed in 25;20 minas (11.907 kg) of gold to purchase 660+[100/300] (1 head : 2/1.59 sh.) cows in age to be impregnated ..."

The term áb-peš refers to a heifer which could be impregnated, that is, at around two years of age or a few months less, while áb-peš-maḫ was a "mature cow (to be impregnated)". A "young cow not impregnated", áb:peš nu-GIŠ-gál-tag$_4$, was sacrificed on the occasion of the royal wedding, ARET XI 2 § 74. Text TM.75.G.1747 lists cattle in this sequence: gud-áb – áb:peš – amar 1 mu "cattle, cow in calf, calf of one year". TM.75.G.2283 obv. I 1–III 1 has: "Total 972 bulls, 935 mature cows in calf, 768 fattened oxen, 338 draught-oxen, 241 mature calves, 36 draught-calves", gud-maḫ, áb:peš-maḫ, gud:niga, gud-gíd, amar-maḫ, amar-gíd (Archi 1987: 122).

The kingdom of Ebla extended over a region with between 600 and 400 mm annual rainfall. In winter and spring even areas with 300 mm annual rainfall become covered with a thick lawn of vegetation, and today sheep farmers from the city of Saraqeb (near Tall Mardikh / Ebla) still keep their herds in the hilly region north-east of Ḥama.[9]

3. TEXTILE PRODUCTION

The important role that wool played in the economic development of Ebla from archaic times can be appreciated when considering that the place where silver and gold were stockpiled – the Treasury – continued to keep the name é-siki, "House of Wool".[10]

The working of wool, along with silver and gold, were the two major economic activities of the Eblaite secondary productive sectors. Metal incomes – unwrought and in the form of objects – were registered in annual

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[8] The dowry of Kešdut, daughter of the king Iš'ar-damu and the queen Tabur-damu, who married a son of the king of Kiš, included (according to TM.75.G.2283) a total of 3,290 bovines, that is 972 bulls (gud-maḫ), 935 mature cow in calf áb:peš-maḫ), 768 fattened oxen (gud:niga), 338 draught-oxen, gud.GÍD), 241 mature calves (amar-maḫ(, 36 draught-calves (amar-GÍD). The total of the sheep was 1,680. Moreover: 159 onagers (BAR.AN), 1 donkey (IGI.NITA), 5 pigs (šaḫ), 19 , 14 bears (az), see Archi 1987:122-124.

[9] An image of Syria with average annual rainfall isohyets is published in Smith, Wilckinson, Lawrence 2014: 153. On pastural transhumance in the Jebel Bishri region, see Lönnquist 2014, pp. 100–104.

[10] See the passages quoted in ARET XIV: 530.

documents under the label "delivery" mu-DU, to the Administration.[11] The textile production was registered in monthly documents, starting from the period of minister Arrukum; therefore, for about forty-one years. All these documents were preserved in the Central Archive.[12]

The rather low data of the textile production in comparison with the herds and other primary goods at the disposal of the Administration are explainable considering that these were the garments manufactured in the workshops in the city of Ebla together with those sent as ceremonial gifts by some peripheral centres and city-states. Raw wool was also distributed to the lower-level personnel.

ARET XV	túg "garments"	íb-TÚG "kilts"	ARET XV	siki "wool"
9	128	17	19	14 *zi-rí* 14 "KIN"
10	118	52	26	15 *zi-rí* 51½ "KIN"
11	254	61	32	33 "KIN" 1 na_4
12	88	x	33	5 *zi-rí* 5 "KIN"
13	195	35	37	11 "KIN" 2 na_4
15	113	29	39	2 *zi-rí* 23 "KIN"
16	115	31	41	112½ "KIN"
17	1201	29	43	13 *zi-rí* 302 "KIN"
18	95	36	49	35 "KIN" 1 na_4
19	197	53	58	78 "KIN" 15½ na_4

Garments and wool expended in ten months of the period of minister Arrukum according to the monthly documents

ARET XIX	túg "garments"	íb-TÚG "kilts"	ARET XIX	siki "Wolle"
1	98	97	1	13 *zi-rí* 95½ "KIN" 19 na_4
3	234	77	3	234 gu-mug-TÚG
8	661	110[+x]	4	39 ½ "KIN"
9	242	210	6	8 *zi-rí* 3133 "KIN"
11	74	37	9	14 "KIN"
12	59	74	13	26 "KIN"
14	111	80	15	201 "KIN"
15	91	70	16	83½ KIN" 1 na_4
16	66	53	18	1 *zi-rí* 2[+x] "KIN" 305 na_4
17	136	116	20	3 *zi-rí* 15½ "KIN"

Garments and wool expended in ten months of the period of minister Ibrium according to the monthly documents

ARET I	túg "garments"	íb-TÚG "kilts"	ARET XIX	siki "Wolle"
1	565	368	1	12 "KIN"
2	263	142	3	6 "KIN"
3	494	238		//
5	1,032	547	4	1 *zi-rí*
7	830	181[+x]	6	1 *zi-rí*
8	775	296	9	//

[11] The documents have been published in Archi 2022b.

[12] A general presentation of the use of wool at Ebla is given by Biga 2014. For the value of wool in the Early Bronze Age in Mesopotamia, see Sallaberger 2014.

10	197	111	13	//
13	132	116	15	11 *zi-rí* 76 “KIN”
16	121	86	16	66 “KIN”

Garments and wool expended in ten months of the period of minister Ibbi-zikir

4. THE VALUE OF GRAIN, ANIMALS, AND GARMENTS IN SILVER[13]

Silver was the basic medium of exchange. The lemma níg-sa$_{10}$ means “price”, and in general “value”. MEE 2, 18 (TM.75.G.1305) obv. I 1–II 1: 26 gín (204 g) kb. níg-sa$_{10}$ guruš *Ti-*[*t*]*i* šu-ba$_4$-ti “26 shekels of silver, the price of a man, Titi has received”. TM.75.G.1552 obv. III 2–4: 10 gín (78 g) kb. níg-sa$_{10}$ dumu-nita níg-du$_8$ *Ga-du-um* “10 shekels of silver, the price of a child ransomed (by) Gadum”.

Some of the top officials of the Administration: the “lords”, lugal, together with most of the “overseers”, ugula, were at the head of villages or “gates”, ká, that is: “districts” composed of several settlements (above, § 2). Their “deliveries”, mu-DU, in silver were registered every year in annual documents (collected in ARET XIV). This kind of taxation system also foresaw that agricultural products valued in silver (usually barley, and in some case also oil) could be delivered instead. This procedure is preserved in a few cases, in passages like the following one:

a) ARET XIV 67 § 7: “2 ma-na kb. *wa* 3 *mi-at gú-bar* še *a-dè* 1 ma-na kb. mu-DU *Ḫáb-ra-ar* “2 minas of silver and 300 *gú-bar* measures of barley of the value of 1 mina of silver: delivery by Ḫabrar”; XIV 82 § 10: 1440 še *gú-bar a-dè* 3 ma-na kb. GABA-*da-mu* 1 ma-na kb. *al$_6$-sù* “1440 *gú-bar* measures of barley: (delivery by) GABA-damu; 2 minas of silver: his debt”.

Only two texts present a large delivery of sheep valued in silver. According to text *b*, a certain Išgaʾum delivered a total of 76 minas, 20 of which were given by Abadanu (probably a subordinate of his), and another 20 minas were given personally by Išgaʾum. In order to reach the amount of 76 minas, he delivered 2,170 sheep valued 36 minas (= 2,160 shekels), that is: 1 sheep = 1 shekel. Another 13 minas remained outstanding as Išgaʾum’s debt (*al$_6$-sù*). There are no data which would allow us to define the role of this Išgaʾum in the administration.

b) TM.75.G.2553: (1) 20 ma-na kb. *A-ba-da-*⌜*nu*⌝ *Dur*-N[E-*du*^{ki}] ì-na-sum / (2) 36 ma-na kb. lú níg-sa$_{10}$ 2 *li* 1 ⌜*mi*⌝ ⌜70⌝? udu / (3) 20 ma-na kb. *Iš$_{11}$-ga-um* ì-na-sum / (4) AN.ŠÈ.GÚ 76 ma-na kb. *Iš$_{11}$-ga-u*[*m*] ì-na-sum 13 ma-na kb. al$_6$-*sù* / (5) iti *ga-sum* “(1) 20 minas (9.40 kg) of silver: Abadanu of the city of DurNEdu has given. (2) 36 minas (16.92) of silver: the price (/value) of 2,170(?) sheep. (3) 20 minas (9.40 kg) of silver: Išgaʾum has given (4) Total 76 minas (35.72 kg) of silver: Išgaʾum has given. 13 minas (6.11 kg) of silver (is) his debt. (5) Month VII.”

Text *c* registers the expenditure of 214;42 minas (100.82 kg) of silver. Part of this silver had to be exchanged for gold for objects to be given as a dowry by the queen to her daughter Kešdut, who was betrothed to a prince of Kiš, as well as for gifts to the queen of Ḫarran, and for Zaʾaše, the daughter of minister Ibbi-zikir, betrothed to the crown-prince Irʾaq-damu. Other silver was used for decorations, perhaps for chariots, and for the “purchase”, níg-sa$_{10}$, of garments by a certain *Šar-a-ba$_4$*. The final sum explains that 116;40 minas of silver were the equivalent of 10,000 sheep, each head being valued at $^7/_{10}$ of a shekel (7,000 shekels: 10,000 = 0.7). Šar-aba gave a further 26;55 minas (12.651 kg) of silver, and another 11;55 minas (5.50 kg) of silver for seven *sides* (*of chariots*)”:

c) TM.75/86.G.3 rev. III 1–6: šu-nígin 2 *mi* 14 ma-na ša-pi 2 kb. *wa* ì-na-sum šà-*sù* ⌜1⌝ *mi* 16 ma-na ša-pi kb. lú 1 *rí-pap* udu 26 ma-na 55 kb. ⌜*Šar*⌝-*a-ba$_4$* ì-na-sum 11 ma-na [30+]25 kb. [*Ša*]*r-a-ba$_4$* 7 zag-me “Grand total: 214;42 minas (100.809 kg) of silver: 116;40 minas (54.833 kg) of silver of this (amount) has been given (in form of) 10,000 sheep (1 sheep = 0.7sh.). Šar-aba has given 26;55 minas (12,651 kg) of silver, (and further) 11;55 minas (5,601 kg) of silver Šar-aba (has given) for seven *sides* (*of chariots*).”

[13] R. Englund (2012, 2014) is the author of two important studies on silver equivalences in the economy of the Ur III period.

Deliveries of garments to the Palace could also be valued in silver. Text TM.75.G.2316 registers deliveries of garments by some officials. Irti was probably one of minister Ibrium's son, while Enna-Dagan and Bazari were two of his representatives. Irti's precise role in the Administration, however, cannot be defined, nor can that of the other two officials (Biga 1981: 30-33):

d) TM.75.G.2316: (1) 400 sal-TÚG *En-na-*^{d}*Da-gan* 200 sal-TÚG *Ba-za-rí* 2 maškim *Ir-ti* šu-mu-tag$_4$ níg-sa$_{10}$ 10 ma-na kb. / (2) *wa* 17 ma-na kb. *Iš*$_{11}$*-gi-ba-ir* maškim *Ir-ti* ì-na-sum / (3) 6;30 ma-na kb. *I-rí-ig-da-mu Ga-ga-u*$_9$ ì-na-sum / (4) 26;30 ma-na kb. *al*$_6$ *Ga-ga-u*$_9$ / (5) *wa* 100 ma-na kb. *A-bu* ì-na-sum / (6) níg-sa$_{10}$ túg-túg "(1) 400 garments Enna-Dagan, 200 garments Bazari: two representatives of Irti, have handed over; (their) value: 10 minas (4.70 kg) of silver / (2) And 17 minas (8 kg) of silver Išgi-ba'ir, the representative of Irti has given. (3) 6;30 minas (3.055 kg) of silver Irig-damu (and) Gaga'u have given. (4) 26;30 minas (12.455 kg) of silver: debt of Gaga'u. / (5) And 100 minas (47 kg) of silver Abu has given. Values of garments".

Goods expended by the Administration could also be valued in silver, according to the following document:

e) TM.75.G.2543 obv. I 5–9: 6 (gín) kb. níg-sa$_{10}$ 10 udu *ma-lik-tum En-na-ì* šu-ba$_4$-ti "6 shekels (47 g) of silver: value of sheep for the queen: Enna-i(l) has received"; II 4–8: 3 (gín) kb. mu$_4$^{mu} *Ma-da-na Za-ba-za*^{ki} šu-du$_8$ "3 (shekels) (23 g) of silver for garments: Madana of the city of Zabaza has taken in possession"; II 9–III 4: "4;02 ma-na níg-sa$_{10}$ 6 gud 1 ma-na kb. 2 IGI.NITA šu-mu-tag$_4$ níg-kaskal en *Ib-dur-i-šar* ugula gud-gud "4;02 minas (2.04 kg): value of six cattle; 1 mina (470 g) of silver: value of two donkeys: have been handed over as travel provision for the king to Ibdur-išar, the herdsman"; VI 1–5: 3 ma-na kb. níg-sa$_{10}$ 145 níg-sagšu udu$^{!?}$-nita è *áš-da* en "3 minas (1.41 kg) of silver: value of 145 níg-sagšu measures (of barley) for rams(?): expenditure from the king".

5. EVALUATION IN GOLD AND WOOL

According to some late documents datable to the last years in which the ratio between silver and gold had dropped down to 3: 1, or even 2.5: 1, Ebla even expended gold at the market, having easier access at it than other eastern states:

a) TM.75.G.10096 (Archi 1982: 177) obv. I 1 – II 2: 37 ma-na kù-gi níg-sa$_{10}$ še *Pa-a-ba*$_4$ šu-ba$_4$-ti "37 minas (17.39 kg) of gold received by Pa-aba for purchases of barley". This Pāba can only be the spouse of ḪI-dār, king of Mari, who visited him as prisoner at Ebla (Archi 2019c: 175-176).
b) TM.75.G.11611 obv. I 1–III 3: 1 ma-na kù-gi níg-sa$_{10}$-níg-sa$_{10}$ *En-na-ì wa A-bù si-in Si-*⌜*tùm*⌝^{ki} šu-mu-tag$_4$ 10 (gín) kb. níg-kaskal-*sù* iti *ga-sum* "1 mina (470 g) of gold for purchases to Enna-i(l) and Abu handed over in the city of Situm; 10 shekels (78 g.) of silver was their travel provision. Month VII".
c) TM.75.G.10056 obv. I 1–II 2: 1;20 ma-na kù-gi 15*'à-da-um*-TÚG 5 ma-na kù-gi níg-sa$_{10}$ še 21 ma-na kù-gi níg-é-gul-gul 9 é-duru$_5$ 2½$^{!}$ *Ma-rí*^{ki} ugula *A*[-x(-x-)]-⌜^{ki}⌝ šu-b[a$_4$-ti](?) "1;20 minas (617 g) of gold: 15 mantel (at 5.3 shekels each); 5 minas (2.35 kg) of gold: price of barley; 21 minas (9.87 kg) of gold: allowance for 9 teams (of 20 men each) of Mari at 2½ shekels (each): the overseer of the city of A[...] has received".

Wool also was often used as standard of value, in particular for small goods as aromatic essences, or could be given as remuneration. Here below are just some few passages:

a) ARET I 1 § 87'': 10 "KIN" siki níg-sa$_{10}$ GIŠ-šim ("resin essence") é en, § 88'': 2 "KIN" siki níg-sa$_{10}$ 2 *ma-ḫu* ("..."); ARET II 15 § 21: 40 "KIN" siki níg-sa$_{10}$ *a-gú* ("...") 30 "KIN" siki níg-sa$_{10}$ GIŠ-*ma-ir* (a colour); ARET III 231 V 1–3; 2 "KIN" siki níg-sa$_{10}$ 2 GIŠ-asari ("two trays"); ARET XV 37 § 77: 4½ "KIN" siki níg-sa$_{10}$ ú-ḫáb 8 "KIN" siki níg-sa$_{10}$ GIŠ-sal (a colour, "...") ki:lam$_7$ SA.ZA$_x$^{ki} ("bought at the Palace market ").

b) ARET XV 8 § 90: 1 “KIN” siki šu-mu-tag$_4$ nunuz-mušen “1 “KIN” measure of wool for having handed over ostrich eggs”.[14]

6. THE IMPACT OF THE MARKET[15]

Notwithstanding the internal resources of the state both in goods and manpower, Ebla bought manufactured goods, such as clothing, and even wool, at several markets (even from Mari, its rival city) despite having herds of more than 70,000 sheep at its disposal (above § 2). According to the following passage from a document to be dated to the first year of minister Ibrium, 4 minas of silver were expended for purchasing seventy-one garments, one kilt, and three lengths of linen by Nazi at the market in the city of Mari. ARET XXI 3 (Ibr. 01) § 73: 4 ma-na (1.88 kg) kb nig-sa$_{10}$ 71 *ʾà-da-um*-TÚG-I 1 íb+III-TÚG gíd babbar 3 gada-TÚG ˹ki:lam$_7$˺ *Ma-rí*^{ki} *Na-zi*. Parallel passages also mention again him and/or another “merchant”, dam-gàr, who bought garments, XXI 6 § 85: 12 ma-na (5.64 kg) kb. 162 aktum-TÚG 15 zara$_6$-TÚG 1 gada-TÚG 11 dùl-TÚG 5 níg-lá-sag ˹ki:lam$_7$˺ *Ma-rí*^{ki} *Na-zi*; XXI 13 § 29: 8 ma-na (3.76 kg) kb. nig-sa$_{10}$ 150 aktum-TÚG 1 zara$_6$-TÚG 20 dùl-TÚG *Ma-rí*^{ki} ki:lam$_7$ *Ma-rí*^{ki} dam-gàr. Even honey and flour were sometimes purchased at Mari, as is exemplified by TM.75,G.10107 obv. I 1–II 2: 10 ma-na (4;70 kg) kb. níg-sa$_{10}$ túg-túg làl *wa* zíd l[ú] *Ma-rí*$^{[ki]}$ “10 minas: price of garments, honey, and flour of Mari”.

It was so common for Eblaite envoys to travel to different markets to purchase garments, that the Administration of Mari even considered a load of wool (together with other goods) a gift worthy of the king of Ebla, as shown in ARET XIV 79 § 41: 184 na$_4$ siki *Ma-rí*^{ki} níg-ba en *Šu-ga-du* sagi šu-mu-tag$_4$ “184 stone-weights of wool of Mari for the king were handed over by Šugadu, the steward (of Mari)”.

Luxury goods were instead mostly acquired on the basis of ceremonial gifts from court to court, as was the case of lapis lazuli. Some delegations from Mari reached Ebla even several times a year, especially during the time of Ibbi-zikir, the last minister: these envoys usually brought clothing, but the chief delegation (the “steward”, sagi) presented lapis lazuli, receiving gold in exchange (see Archi 2017a: 37-38).

The amount of lapis lazuli brought by envoys from Mari during the first thirteen years of minister Ibbi-zikir’s term – when Ebla was at the height of its power – amounted to about 72 kg, and that acquired at several markets along the Euphrates valley (whose origin was ultimately the city of Mari, which acted as an intermediary between Kiš and the western regions), totaled about 58 kg, a clear example of the role that the market played in connection to the ceremonial exchanges involving such a highly coveted luxury good.

The impact on the market of other kinds of goods, such as clothing, objects, and animals as well (with the exception of mules imported from the territory of Nagar), was surely much less remarkable, because of the revenues which the Central Administration could raise from the production of goods manufactured in its own ateliers, from its own possessions, and through the taxation system.[16]

Text TM.75.G.1352 offers a rare example of a document concerning the amount of silver expended for “purchases”, níg-sa$_{10}$, over one year: the “third one” of Arrukum (the name of this minister is mentioned in rev. V 4). Here below are some excerpts:

> obv. I 1–III 1: 32;20 ma-na (15.197 kg) kb. níg-sa$_{10}$ 6 gír mar-tu kù-gi 6 gír mar-tu-ti kù-gi 31 gír mar-tu *ba-du-u*$_9$ kb. kù-gi 47 gír mar-tu ḫul 77 aktum-TÚG 23 zara$_6$-TÚG 36 sal-TÚG ... (15.197 kg of silver for ninety daggers of different kinds, several kinds of garments); V 5 – VI 3:] 16 GIŠ-*gú-gú-ba-tum* 200 udu ki:lam$_7$ [... (16 .... 200 sheep at the market of [...]); VI 6–VII 2: ...] níg-sa$_{10}$ 10 gír mar-tu ḫul ki:lam$_7$ ˹*Du*˺-*ub*[ki] (...] purchase of ten bad daggers at the market of the city of Tuba); VIII 2’–rev. I 1: ki:lam$_7$ *Ig-dar*^{ki}; I 5–6: ki:lam$_7$ *Si-ʾà-am*^{ki} (at the markets of the cities of Igdar, Siʾamu); I 7–III 1: 2;30 ma-na (1;175 kg) kb. 265 íb-TÚG 7 GIŠ-asari ki:lam$_7$ ^{d}*ʾÀ-da* (two hundred sixty-five kilts, seven trays at the market of the god Hadda); III

[14] For nunuz mušen-maḫ “egg of the big bird (i.e. the ostrich)”, see ARET VII 77 §§ 5–7: 10 / 4 / 7 gín kb. 1 / 2 / 3 níg-sa$_{10}$ nunuz mušen-maḫ “10 / 4 / 7 shekels of silver for three purchases of ostrich eggs”. For nunuz “ovoid”, see Civil 2008: 66–67: nunuz.mušen.za = TE.MUŠEN “stone bird eggs”.

[15] On the interpretation of LAM$_7$.KI as ki:lam$_7$ (ganba) “market”, see Conti 1997: 59–60 (nt. 139).

[16] On the manpower employed in the city of Ebla, see Archi 2018: 203–213, 229–234.

5–7: 5 ma-na (2;35 kg.) kb. níg-sa$_{10}$ 29 aktum-TÚG 34 zara$_6$-TÚG ki:lam$_7$ *Ma-rí*^{ki} (63 garments: purchase at the market of Mari); VIII 1–VI 6–8: AN.ŠÈ.GÚ 53;10 ma-na (25.69 kg) kb. níg-sa$_{10}$ (total: 25.69 kg of silver: purchase of 91 daggers, 7 trays, 565 garments, 815 kilts, 50 GIŠ-MA/pèš-gíd, 38 na$_4$ measure of goat wool, 80 *ostrich eggs*: ḪU.UD); VI 6–8: šu-nígin 400 túg-túg níg-sa$_{10}$ 3 mu (grand total: 400 garments purchased: third year).

Markets were held – in many cases on the occasion of religious festivals – at Ebla itself, in cities of its kingdom, and in many city-states, such as Mari, a factor which has been previously noted by M.G. Biga.[17] The people whom the Administration entrusted to provide cattle, garments, and wool (notwithstanding Ebla's own revenues), received some amounts of silver. Some names of these people occur several times: they could have been officials from the Palace; while others are qualified as "merchant", dam-gàr, or "trader", lú-kar (rarely: ga-eš$_8$). The fact that only two documents concerning the book-keeping of the journeys of two different merchants were preserved in the Central Archive shows that these merchants mostly acted on their own behalf, and were not institutional agents commissioned to obtain goods that were needed.[18]

One can conclude that valuable objects, including garments, were mostly exchanged through a ceremonial system, which consisted in a yearly issue of garments to the rulers and the Elders of the city-states which acknowledged Ebla's supremacy, and a counter-delivery from these cities of small amounts of silver and garments (of the same kind as those received!) once or twice a year. Only the city of Kablul regularly sent gold in amounts of ca. 5 minas (2.35 kg) during the years of minister Ibbi-zikir, evidently because it must have been situated close to the sources of gold.[19] Major centres, such as Mari and Dugurasu (Tukriš, north of the Zagros mountains), also regularly exchanged exotic goods (year after year). Precious goods were also sent on the occasion of special events as a military victory by an allied state: the victory of the city of Armi over Abarsal, for example, prompted Ebla to send envoys bearing objects in gold (see Archi 2019b: 6-7).

The steady increase in data and some new intellectual insights have compelled scholars to reinterpret the formation of states in the ancient Near East; differently from the times when it was believed that the royal households of the Ur III period, and their dependents, included nearly all of the population.[20]

According to recent theories long distance trade would have been the basis of the early formation of the state, not only in the period of the expansion of the Uruk colonies in the IV millennium: the commercial factor would also have played a decisive role during the Sargonic period, as the royal inscriptions seem suggest. A strong interaction with the eastern regions would have continued into the Ur III period.[21]

The Ebla of the 24th century BC presents a rather different picture. Only "mules", (ANŠE.)BAR.AN, (ANŠE-kúnga), a hybrid obtained by crossing onagers with jennies, were mostly imported from the Ḫabur triangle, under the hegemony of Nagar (Tell Brak), at the border of a hilly region where wild onager once grazed. Mules however, were in time also bred on Eblaite farms (Archi 2019d: 45-47).

Ebla had contact with several cities in the far northeastern regions: Aššur (*A-šu-ru*$_{12}$^{ki}), Erbil (*Ir-bí-ì-lum*), and Ḫamazi (*Ḫa-ma-zi*^{ki}), with which it tried to establish ties to obtain mules in exchange for woodtimber. Only with Gasur (*Ga-su-ru*$_{12}$*/lu*^{ki}), however, and with Dugurasu, did relations remain intense until the final years, but this was based solely on ceremonial gifts (Archi 2016: 33-37).

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[17] Biga 2002, where she presents a long list of places and occasions in which these markets took place.

[18] These two texts are ARET XVI 22 and TM.75.G.1245, studied respectively by Milano (2003) and Archi (2005).

[19] For the first case, see Archi 2019a; for the deliveries to Ebla, see the mu-DU documents, published in ARET XIV.

[20] For a picture of the organization of the Old Akkadian period and its government, see Foster 2013: 111–119. According to Steinkeller (2021: 50–51) "the enormous effort and expense of sending their armies to the outer borders of Eastern Asia ... was the goal of controlling ... the main trade routes (so that they) created the first great commercial highway of the Near East", a thesis stressed in Steinkeller 2022. Sallaberger and Pruß (2015) analyzed the social distinction and the differentiation of the workers at Girsu of Lagaš, and those at Nabada (Tell Beydar) in Syria during the 24th century. For the Ur III Period, see the groundbreaking study in Steinkeller 2015.

[21] On the Uruk period, see Algaze 2001. According to Steinkeller (2021, and 2022) international commerce was the main motivation behind the Sargonic expansion. On the activity of the Ur III merchant, see Snell 1975.

The case of lapis lazuli (mentioned above) exemplifies how an exotic good could be obtained by Ebla, more exactly how much through diplomatic relations and how much from the market. Lapis lazuli was extracted in Badakhshan; it reached Mesopotamia in the Kish region, and from there Mari. Ebla received most of it through ceremonial exchanges, but the amounts acquired on the market in the Euphrates valley, west of Mari, were also substantial.

The market factor concerned perhaps two dozen urban centres out of the whole of northern Syria including the Ḫabur region. Its intense activity, well documented by Ebla, must have been based on a large exchange of goods. Notwithstanding that, the disproportion between the inner redistributive sector and inner-regional exchange (not to mention the inter-regional ones) remained very large.

7. PRICES

Dating of the documents: Arrukum (*Arr.*) was minister in the years 40–36 before the fall of Ebla; Ibrium (*Ibr.)* in the years 35–18; Ibbi-zikir (*I.Z.*) in the years 17–01.

7.1 Cattle

gud (áb)

TM.75.1379 (*Arr.*) obv. IX 1-4: 5;20 m. kb. níg-sa$_{10}$ 14 gud ki-lam$_7$ NI-*ap*^{ki} (a small centre of Ebla), (1 gud = 22;86 sh.)
rev. II 5-7: 156 udu ki-lam$_7$ *Si-ʾà-am*^{ki} (a small centre of Ebla)
TM.75.G.1413 (*Arr.*) obv. VII 1-5: 4;45 ma-na (2.231 kg) kb. níg-sa$_{10}$ 12 gud ki:lam$_7$ ^{d}*Ga-mi-iš* (at the market of the god Kamiš), (1 gud = 23;75 sh.)
TM.75.G.1554 (*Arr.*) rev. 1-4: 5 gín kb. ḫi-mu-DU 1 gud udu-udu *Ma-rí*^{ki}
TM.75.G.1871 (*Arr.*) rev. III 17-IV 3: 18 ma-na kb. níg-sa$_{10}$ 35 gud-gud 13 áb (1 gud = 22.50 sh.)
ARET XXI 3 (*Ibr.* 01) rev. II 6-11: 5 ma-na kb. níg-sa$_{10}$ 10 gud *Ib-bí-um* ugula é šu-ba$_4$-ti (1 gud = 30 sh.)
ARET XXI 5 (*Ibr.* 02) obv. VII 15-20: 25 g. kb. níg-sa$_{10}$ 1 gud nídba en ^{d}*ʾÀ-da*
obv. VIII 4-9: 1;13 ma-na kb. níg-sa$_{10}$ 2 gud nídba en ^{d}*ʾÀ-da ʾÀ-da-ni*^{ki} (1 gud = 36.5 sh.)
rev. II 11-14: 1.36 ma-na kb. níg-sa$_{10}$ 3 gud ki:lam$_7$ SA.ZA$_x^{ki}$ (1 gud = 32 sh.)
rev. XI 16-19: 14 ma-na kb. níg-sa$_{10}$ 61 gud ki:lam$_7$ ^{d}*ʾÀ-da* (1 gud = 13.77 sh.)
ARET XXI 6 (*Ibr.* 03) rev. XIII 7-8: 2 ma-na kb. níg-sa$_{10}$ 4 gud (1 gud = 30 sh.)
ARET XXI 7 (*Ibr.* 04) obv. XVII 10-13: 12;11 ma-na kb. níg-sa$_{10}$ 33 gud ganba ^{d}*ʾÀ-da* (1 gud = 22.15 sh.)
rev. VIII 8-12: 6;10 ma-na kb. níg-sa$_{10}$ 38 gud *in Ša-da*$_5^{ki}$ lú *Ì-mar*^{ki} (1 gud = 9.73 sh.)
ARET XXI 11 (*Ibr.* 08) obv. III 6-7: 8;30 ma-na kb. níg-sa$_{10}$ 22 gud (1 gud = 23.19 sh.)
obv. X 12-17: 1 ma-na kb. níg-sa$_{10}$ 4 gud *Wa-ba-rúm En-na-ì* lú-kar *Kak-mi-um*^{ki} (1 gud = 15 sh.)
obv. XII 8-12: 42 g. kb. níg-sa$_{10}$ 2 gud *Ib-lu*$_5$*-zú* ki:lam$_7$ ^{d}*Ga-mi-iš* (1 gud = 21 sh.)
ARET XXI 12 (*Ibr.* 09) rev. III 7-10: 10;52 ma-na kb. níg-sa$_{10}$ 80 gud ki:lam$_7$ ^{d}*ʾÀ-da* (at the market of the god Hadda), (1 gud = 8.15 sh.)
ARET XXI 13 (*Ibr.* 10) obv. V 13-14: 5;33 ma-na kb. níg-sa$_{10}$ 20 gud (1 gud = 16.65 sh.)
obv. XIV 4-5: 3;24 ma-na kb. níg-sa$_{10}$ 12 gud (1 gud = 17 sh.)
ARET XXI 14 (*Ibr.* 11) obv. XVII 3-5: 3;34 ma-na kb. níg-sa$_{10}$ 11 gud (1 gud = 19.46 sh.)
ARET XXI 17 (*Ibr.* 14) obv. XIII 7-10: 40 g. kb. níg-sa$_{10}$ 2 gud *in* SA.ZA$_x^{ki}$ (1 gud = 20 sh.)
rev. X 14-17: 25 g. kb. níg-sa$_{10}$ 1 gud ki:lam$_7$ ^{d}*Ga-mi-iš* (1 gud = 25 sh.)
rev. X 18-21: 55 g. kb. níg-sa$_{10}$ 2 gud ki:lam$_7$ *Kab-lu*$_5$*-ul*^{ki} (1 gud = 27.5 sh.)
ARET XXII 1 (MEE 10, 20) (*I.Z.* 01) obv. V 24-28: 30 g. kb. níg-sa$_{10}$ 1 gud nídba en ^{d}En-ki (1 gud = 30 sh.)
TM.75.G.2543 (*I.Z.*) obv. II 9-10: 4;02 ma-na kb. níg-sa$_{10}$ 6 gud (1 gud = 40.34 sh.)
TM.75.G.2064 rev. I 1–3: 1 ma-na kb. níg-sa$_{10}$ 1 gud *Ib-du-lu* (1 gud = 1 mina)
TM.75.G.2088 rev. I 7–8: 1 ma-na kb. níg-sa$_{10}$ 1 gud (1 gud = 1 mina)

7.2 Sheep

The documents concerning the agricultural sector distinguish between "(native) sheep", udu, and "fat-tailed sheep", gukkal; see e.g. TM.75.G.1187 obv. I 1–III 2: 1 gukkal PN_1 / 2 gud 2 gukkal 8 udu PN_2 / 23 gud 15 gukkal PN_3 / 2 gud 5 udu PN_4 / 1 gud 5 udu PN_5 / 1 péš–áb 3 gukkal PN_6 2 / udu PN_7 4 udu PN_8. The other administrative documents use only the term udu.

udu-nita sa_6 "ram of good quality"
TM.75.G.1377 (*Arr.*) obv. IV 6–V 3: 10 gín kb. níg-sa_{10} udu-nita sa_6 *áš-ti Kab-lu-ul*^{ki}
ARET XXI 2 (*Ibr. 01*) rev. XII 18–XIII 1: 18 gín kb. níg-sa_{10} 6 udu-nita sa_6 ki:lam_7 $SA.ZA_x^{ki}$ (1 udu-nita sa_6 = 3 sh.)

udu-nita "ram"
ARET XXII 6 (*I.Z. 07*) rev. XIX 13-15: 42 gín kb. 28 udu-nita *Ma-rí*^{ki} (1 = 1.5 sh.)
ARET XXII 9 (MEE 12, 37) (*I.Z. 10*) rev. XXII 24-25: 3 gín kb. níg-sa_{10} 2 udu-nita (1 udu-nita = 1.5 sh)
rev. XXII 24-25: 3 gín kb. níg-sa_{10} 2 udu-nita (1 udu-nita = 1.5 sh)

udu sa_6 "sheep of good quality"
TM.77.G.730 obv. (*Arr.)* VI 6-7: 3 ma-na kb. níg-sa_{10} 100 udu-udu sa_6 (1 udu sa_6 = 1.8 sh.)

udu "sheep"
TM.75.G.1353 (*Arr.*) rev. III 3-7: 1 ma-na 5 gín kb. 50 m. urudu lú níg-sa_{10} udu-udu níg-kaskal-*sù* "1;50 minas (861 g) of silver (and?) 50 minas (23.50 kg) of copper: price of the sheep (which were) the travel provision (for three people who went to the city of Armium)
TM.75.G.1379 (*Arr.*) rev. II 5–7: 156 udu ki:lam_7 *Si-ʾà-am*^{ki} (a small centre of Ebla)
ARET XXII 4 (*I.Z. 05*) rev. XXII 15-16: 100 ma-na (47 kg) kb. níg-sa_{10} udu-udu
ARET XXII 6 (*I.Z. 07*) obv. III 13-16: 1 ma-na kb. níg-sa_{10} udu-udu nídba *Ar-mi*^{ki} "offering of (the city of) Armi)"
rev. VI 30-33: 160 ma-na kb. níg-sa_{10} 4600 udu-udu *ap* 1 udu 1 gín 3 NI kb. (1 udu = 1⅓ sh.)
ARET XXII 7 (*I.Z. 08*) rev. II 11–12: 31 ½ gín kb. níg-sa_{10} 21 udu *Ma-rí*^{ki} (1 udu = 1½ sh.)
ARET XXII 8 (MEE 12, 35) (*I.Z. 09*) obv. XIII 16–19: 9;50 m. kb. níg-sa_{10} 250 udu *in* 1 gín. 3 NI kb. (1 udu = 1⅓ sh.) – (níg-sa_{10}) 255 udu *in* 1 gín kb. (1 udu = 1 sh.)
ARET XXII 12 (*I.Z. 13*) obv. IV 11: 3;15 ma-na kb. níg-sa_{10} 100 udu (1½ (gín kb.)
TM.75.G.10056 obv. III 3–7: ⌜x⌝ kb. níg-sa_{10} 1 udu *En-na-ì* šu-du_8

síla-munus gukkal "female lamb of a fat-tailed sheep"
TM.75.G.1413 (Arr.) obv. II 8-9: 2 gín 1 síla-munus gukkal

7.3 Wool

TM.75.G.1353 (*Arr.*) obv. VI 5-7: 40 gín kb. níg-sa_{10} 25 na_4 siki sa_6 (1 na_4 sa_6 = 1.6 sh.)
TM.75.G.1377 (*Arr.*) obv. III 5-7: 1;41 ma-na kb. níg-sa_{10} 100 na_4 siki sa_6 (1 na_4 sa_6 = 1 sh.)
TM.75.G.2424(+) (*Arr.*) obv. VI 8-12: 12 gín kb. 15 na_4 siki sa_6 *áš-ti Ìr-ra-ku*^{ki} (1 na_4 sa_6 = 0.8 sh.)
ARET XXI 16 (*Ibr. 13*) obv. III 21–IV1: 1;25 gín kb. 170 siki na_4 *Ma-rí*^{ki} (1 na_4 = 0.5 sh.)
ARET XXI 18 (*Ibr. 15*) rev. XIII 8-14: 4;44 ma-na kb. níg-sa_{10} 340 siki na_4 *Ma-rí*^{ki} ki:lam_7 ^{d}*Ga-mi-iš wa* ...(1 na_4 = 0.8 sh.)
§ 109: 1;04 ma-na kb níg-sa_{10} 85 siki na_4 *Ma-rí*$^{<ki>}$ (1 na_4 sa_6 = 0.7 sh.)
ARET XXII 1 (MEE 10, 20) (*I.Z. 01*) obv. XIV 23–24: 7;30 ma-na kb. níg-sa_{10} 720 siki na_4 *Ma-rí*^{ki} (1 na_4 = 0.6 sh.)
ARET XXII 2 (*I.Z. 3*) rev. III 7–11: 3;10 ma-na kb. níg-sa_{10} 287 *mi-at* na_4 siki *Ma-rí*^{ki} *ap* níg-sa_{10} 1 (gín) kb. 1 ½ na_4 siki (1 na_4 = 0.7 sh.)
ARET XXII 3 obv XXIII 15–21: 11;14 ma-na kb. níg-sa_{10} 208 na_4 siki *Ma-rí*^{ki} lú 2 na_4 siki 712 na_4 siki lú 2 na_4 siki 9 bal 150 na_4 siki lú 1½ na_4 ,
ARET XXII 4 (*I.Z. 05*) rev. XVII –XVIII 5: 3;53 ma-na kb. níg-sa_{10} 461 na_4 siki *Ma-rí*^{ki} *ap* níg-sa_{10} 1 gín kb. 2 na_4 siki ki:lam_7 (1 na_4 = 0.5 sh.)
ARET XXII 5 (*I.Z. 6*) rev. XV 5–9: 6;13 ma-na kb. níg-sa_{10} 560 na_4 siki *Ma-rí*^{ki} *ap* níg-sa_{10} 1 gín 1½ na_4 siki (1 na_4 = 0.75 sh.)
ARET XXII 6 (*I.Z. 7*) rev. XVIII 18–XIX 4: 55 gín kb. 110 na_4 siki *Ma-rí*^{ki} *ap* níg-sa_{10} 1 gín kb. 2 na_4 siki (1 na_4 = 0.5 sh.)

ARET XXII 7 (*I.Z. 8*) rev. II 13–17: 11;40 ma-na kb. níg-sa$_{10}$ 951 na$_4$ siki *Ma-rí*^{ki} *ap* níg-sa$_{10}$ 1 (gín) kb. 1.5 na$_4$ siki *Ma-rí*^{ki} (1 na$_4$ sa$_6$ = 0.7 sh.)
ARET XXII 8 (I.*Z. 9*) (MEE 12, 35) obv. XIII 23–XIV 1: 56.20 ma-na kb. níg-sa$_{10}$ 5780 na$_4$ siki *ap* níg-sa$_{10}$ 1 gín kb. 3 na$_4$ siki 5800 na$_4$ siki níg-sa$_{10}$ 1 gín (56;20 minas = 3380 sh; 5780 na$_4$ siki at 3 sh. each: = 1927 sh. / 5800 na$_4$ siki at 4 = 1450 sh; total: 3377 sh.)

rev. VI 29–VII 2: 2;17 ma-na kb. 232 na$_4$ siki *Ma-rí*^{ki} *ap* Á-GÁ-II 2 na$_4$ siki 1 (gín) kb. *ap* Á-GÁ-II 1 ½ na$_4$ siki 1 (gín) kb. ("that is both 2 na$_4$ and 1 ½ na$_4$ siki of the value of 1 sh. of silver)

ARET XXII 9 (*I.Z. 10*) (MEE 12, 37) obv. I 30–31: 2;20 ma-na kb. níg-sa$_{10}$ 470 na$_4$ siki (1 na$_4$ = 0.3 sh.)

rev. XX 23–24: 2;27 ma-na kb. níg-sa$_{10}$ 245 na$_4$ siki (1 na$_4$ = 0.6 sh.)

ARET XXII 10 (MEE 12, 36) (*I.Z. 10*) rev. XVI 12–XVII 3: 3;10 ma-na kb. níg-sa$_{10}$ 440 na$_4$ siki *Ma-rí*^{ki} ki:lam$_7$ *ʾÀ-da-ni*^{ki} (1 na$_4$ = 0.4,4 sh.) (and others cities)
ARET XXII 11 (*I.Z. 12*) rev. XVII 10–11: 14;44 ma-na kb. 1290 na$_4$ siki *Ma-rí*^{ki} (1 na$_4$ = 0.6 sh.)
ARET XXII 12 (I.Z. 13) rev. X 5–10: 5;22 (gín) kb. 500 na$_4$ siki *Ma-rí*^{ki} *šè* níg-sa$_{10}$ 1½ na$_4$ siki 1 (gín) ki:lam$_7$ (1. na$_4$ = 06 sh.)
ARET XXII 18 *(I.Z.)* rev. XII 23–26: 1:03 ma-na 110 na$_4$ siki *Ma-rí*^{ki} ki:lam$_7$ *ʾÀ-da-ni*^{ki} (1 na$_4$ = 0.6 sh.)

8. CONCLUDING CONSIDERATIONS

The wool measures at Ebla were: *zi-rí*; "KIN"; and na$_4$, which stood respectively on a 1 : 2, and 1: 2 ratio (Zaccagnini 1984). The weight of a single fleece is estimated of ca 0.780 kg.

According to TM.75.G.2417 rev. XIV 12–XVI 15, 1 *zi-rí* (i.e. 4 na$_4$) of wool was given to the person performing the offering rite to the god Kura; the bridles and the harnesses of the four oxen hitched to the wagon which brought the royal couple to the sanctuary of NEnaš for the wedding ritual needed 1 na$_4$ and 1 "KIN" (2 na$_4$) of wool respectively. The opening of the gate of the sanctuary of the goddess Ganana required a further 1 *zi-rí* of wool. The two "shawls", *maš-da-bù* (*maštāpu*), of black and white wool which the king and queen had to wear in that ceremony needed another 1 *zi-rí* (Archi 2021: 11, 16).

Minister Ibrium's chariot needed 5 "KIN" of wool, according to ARET XIX 6 § 22.

The brother of minister Ibrium's father received 2 "KIN" of wool, as well as the spouses respectively of three and five officials, ARET XIX 6 §§ 19, 10, 12; while four of the king's daughters received 4 "KIN" each (§ 24).

According to the monthly document ARET XIX 16 §§ 47–48 the seven "cooks", muḫaldim, (of the Palace), received 1^1/$_5$ "KIN" (= 3 na$_4$) measures of wool each, while an unspecified number of cooks from the "outskirts", eri-bar, received altogether 10 "KIN" measures. According to ARET XIX 6 (another monthly document) § 23, the same seven "cooks" received 2 "KIN" each.

ARET XX 2 § 34 (period of minister Ibrium) concerns a distribution of one "KIN" measure of wool to each of 5,001 men, mostly grouped in "gangs", *ìr-a-núm*, who were usually employed in military expeditions. Among the recipients were also some of the king's son, "Elders", ábba, "overseers", ugula", "representatives", maškim, and personnel of the Palace, such as the "cooks", muḫaldim, and "metalworkers", simug.

These deliveries seem to have been annual.

Hundreds of monthly documents register annual expenditures of garments as gifts to members of the court and representatives of other cities, in addition to wool for the personnel. The deliveries to the "men", guruš, assigned to the *ìr-a-núm* could also alternately consist of garments (e.g. ARET XX 8 § 36), and of wool in the amount of 2½ "KIN" (that is three na$_4$) as in ARET XX 9 §§ 33–45; this is the same amount received by the personnel of the Palace, which included: "representatives, singers, cooks, metalworkers, carpenters" (§§ 48–53). According to ARET XX 12 §§ 11–17, 17 §§ 1–10, and 19 §§ 1–13, more than half of the men of each *ìr-a-núm* received garments, while the other men got three na$_4$ of wool each; the same amount was received by the Palace personnel registered in the following sections. The "women", dam, of the Palace and its workshops received instead one "KIN" (i.e. 2 na$_4$) of wool each, with some exceptions. such as the seventeen senior women at the service of the queen, who received three na$_4$; while her twenty-seven "junior servants", dam *pa$_4$-šeš* tur, received only two na$_4$ (rev. VII 33–VIII 7).

gu-dùl-TÚG (a kind of dress)	420 "KIN" for 210 items – 1 item: 4 na_4 (obv. I 1–3); same ratio in II 3–5, II 8–III 2
níg-sagšu "ḫelmet"	2 "KIN" for 4 níg-sagšu – 1 item: 1 na_4 (obv. III 9–11)
níg-sagšu lú zag "helmet..."	5 "KIN" for 5 níg-sagšu – 1 item: 2 na_4 (obv. IV 1–3); 1 na_4 for 1 <níg-sagšu – 1 item: 1 na_4 (obv. IV 9–11);
níg-lá-gaba "breast-band"	200 "KIN" for 400 items – 1 item: 1 na_4 (rev. VI 3–5);
íb-III-TÚG-gùn "kilt"	25 "KIN" for 50 items – 1 item: 1 na_4 (obv. I 4–6)
túg-du_8 "felt"	2035 "KIN" for: 100 large (maḫ) felts of 14 na_4 (each), 30 large felts of 11 na_4 (each), 30 large felts of 6 na_4 (each): of the couriers (the total of the expended wool is of 1943 "KIN" instead of 2035!)
ma-za-bù "cushion"[22]	20 "KIN" for 10 items – 1 item: 4 na_4 (rev. IV 4–6)

Wool employed for garments, felts, and cushions

Based on these values, a possible hypothesis is that one na_4 measure, that is, a "stone", could have been more or less the equivalent of one mina. Several passages distinguish between a "big" and a "small" na_4: maḫ / tur, which could have hypothetically corresponded to the Mesopotamian and the Syrian mina weighing 470 g and 505 g respectively.[23] Accepting these values, it would seem that the allotments of wool given as remuneration to the working dependents at Ebla was a bit lower than what workers received in Mesopotamia during the Sargonic period, when men received four or five minas; that is, between 2 to 2.5 kg of wool.[24]

Whichever estimate is accepted, one na_4 of "good quality", sa_6, wool was valued at either 1.6, 1, or 0.8 shekels each; the other wool at 0.7 or 0.6 shekels (see 7.3 above).

9. PRICES AT EBLA AND AT UR III: A COMPARISON

A comparison between the prices of animals and wool at Ebla and those of the Ur III period in Mesopotamia presents different scenarios that are difficult to explain, even more so if one considers that the mina of Ebla weighed 470 g and the Mesopotamian mina was 505 g.

The price of "cattle", gud, was considerably lower: at Ebla it varied mostly between 20 and 30 shekels, reaching in two cases 1 mina. At Ur III it varied between ⅚ and 1 mina; a cow, áb-máḫ, was worth between ⅔ and ⅚ of a mina (Cripps 2019a: 62–63, 60–61).

The prices of sheep (and goats) were extremely low at Ebla in comparison. A "ram", udu-maš, was worth between 3 shekels and 1½ shekels. The price of a "good sheep", udu $ša_6$, was of 1⅘ shekels, and that of a "sheep", udu, varied between 1 shekel and 1½ shekels. At Ur III, the value of a sheep or a goat, udu-máš, was usually 14 shekels, reaching in some cases 30 shekels (Cripps 2019a: 58–59).

The Ebla values are, therefore, not compatible with those from the Ur III period, at least according to the evaluation of the Administration. Furthermore, wool fluctuated in Ur III between the ratio of 1 mina: 8 shekels, and 1 mina: 12 shekels (Cripps 2019b: 28-33).

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[22] Pasquali 1997: 253–255.

[23] Passages mentioning these two different minas are listed in ARET XX: 274.

[24] Foster 2014: 119. Gelb (1965: 236) attributes 4 minas to the men and 3 minas to the women in the Ur III period.

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Fig. 1. TM.75.G.2306.

Fig. 2. TM.75.G.2538.

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A Culinary Perspective on North-Central Anatolia: An Overview of Cooking Facilities across the Late Bronze and Iron Ages

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Abstract. This paper presents the evidence related to the spread of cooking methods in north-central Anatolia during the Late Bronze and Early and Middle Iron Ages (1650-700 BC), with particular emphasis on fire installations and cooking tools collected during the last century of archaeological activities. Ovens, hearths, andirons, cooking pots, and baking plates are a constant presence within the various settlements of the Anatolian plateau. This essay will reconstruct the history of cuisine and eating customs across the Late Bronze and Iron Ages through archaeological evidence and complementing it with ethnographic research. This approach, indeed, offers extra information on foodways not available in written sources, especially when the latter are lacking or reticent. Finally, the data and information on daily life's cooking and food preparation will be employed as a lens to identify broader social and economic phenomena prompted by the rise and fall of the Hittite Empire in the heart of the Anatolian Plateau.

Keywords: foodways, Anatolia, Bronze Age, Iron Age, fire installations, kitchenware.

1. INTRODUCTION

Food is fundamental to human existence and 'the cooking act is a central, inescapable moment in people's lives, so it represents a fact of culture, a direct expression of what people do, know, and think – of what basically they are' (Montanari 1988: IX). Therefore, food is life, but also culture (Montanari 2007). Foodways – overtly or implicitly approved by a community – can be understood as the product of social, political, and economic choices that affect the history of regions and populations.

Consequently, in the past decades, food has been recognised as a fruitful area of study for a better understanding of modern and ancient societies (Dietler 2007; Dietler, Hayden 2001; Twiss 2007; Villing, Spataro 2015; Bonneterre 2021: 1-3).

Relating to the Anatolian Plateau during the Late Bronze Age and Early and Middle Iron Ages, written sources on foodways are unfortunately lacking or reticent, making it complicated to piece together the whole picture of the widespread culinary practices in this area during such a long period. The Hittite cuneiform texts display a large variety of words to indicate cooking tools and food (Hoffner 1974; 2003), but without citing specific methods of processing it,[1] whereas written documents are completely absent for the following historical phases. The Hittite language employed three basic verbs to describe actions involving the heating and preparation of food: *inu-* (Hoffner 1967: 32, 76; Tischler 1983: 363; 2001: 62), *zanu-* (Hoffner 1967: 20, 32, 76; Tischler 2001: 205; 2016: 657-660), and *zeya-* (Hoffner 1967: 32; Tischler 2001: 207; 2016: 686-690). These verbs describe the action of cooking in the broadest possible sense ('to cook') and, depending simply on the sentence's object, can be translated into modern languages in a variety of ways, such as 'boiling, stewing, roasting, toasting, etc.' (Casucci forthcoming a). Only the verb *ša(n)ḫu-* (Hoffner 1967: 20, 76; Tischler 1983; 2004: 828-829) has a more specific meaning: 'to roast' and 'to bake'. Therefore, the texts never provide many details on the cooking methods, ingredients, and tools employed during the preparation of the meals.

Despite this weakness,[2] a scholar has several available approaches to these types of studies. Information can be integrated through different analyses of archaeological artefacts, such as kitchenware and fire installations, as well as their carbon deposits, surface attritions (Skibo 1992), residue analysis, and zooarchaeological and archaeobotanical studies (Graff 2018). Food and all its associated elements constitute a language that is non-verbal and unwritten but highly communicative and full of significance.[3] Going beyond the physiological and functional needs, food and cooking practices have a strong social component and are evident manifestations of the culture, becoming an instrument of self-determination and cultural exchange governed by its grammar. Therefore, along with the archaeological manufacts that were generally thought to have more artistic and historical significance, everyday tools – like cooking pots, hearths, and ovens – can provide interesting details about some aspects of ancient everyday life. A scholar can comprehend better the cultural, social, economic, and political reality of the past through these items, which were typically classified as 'trivial' (Gelichi 2011). The presence or lack of a cooking tool might imply social hierarchies, preferences of food, different levels of wealth, and access to aliments. In the same way, it can be a proxy of cultural identity or cross-cultural interactions and population movements to new areas (Villing, Spataro 2015: 1; Graff 2015: 32-33; 2018; Metheny 2015: 221; Yasur-Landau 2010).

This paper aims to present a preliminary overview of the culinary practices widespread during the Late Bronze and Iron Ages (1650-700 BC) in the core of the Anatolian Plateau, inside the bend of the Kızılırmak River (Hittite *Marassantiya* and classic *Halys*). This objective will be reached through the analysis of morphological and functional typologies of cooking vessels and fire installations recovered during the last century of archaeological excavations in north-central Anatolia (Fig. 1). Their interpretations will also make use of the ethnographic examples and limited information coming from the written and visual sources.

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[1] Evidence of this reticence is offered by the Ritual for the God of the Storm of Kuliwišna, where in vs. II:5' we read that the deity is appeased in the same way as the wooden ladle calms the pot (Glocker 1997). This example shows that this simple picture could recall a well-known and established culinary practice without providing specific details.

[2] In recent years, scholars have shown a growing interest in feasts in the Hittite world. The conducted investigations provide some information about the Hittite cuisine through the reading of ancient texts. See Collins 1995; De Martino 2012; Mouton 2007; Cammarosano 2018; and Polvani 2012.

[3] In the wake of Lévi-Strauss (1958), several scholars have examined in deep the relationship between food, language, and communication. For a detailed analysis and bibliography see Barthes 1966; Douglas 1865; Di Renzo 2005: 198; and Montanari 2007: 153-154.

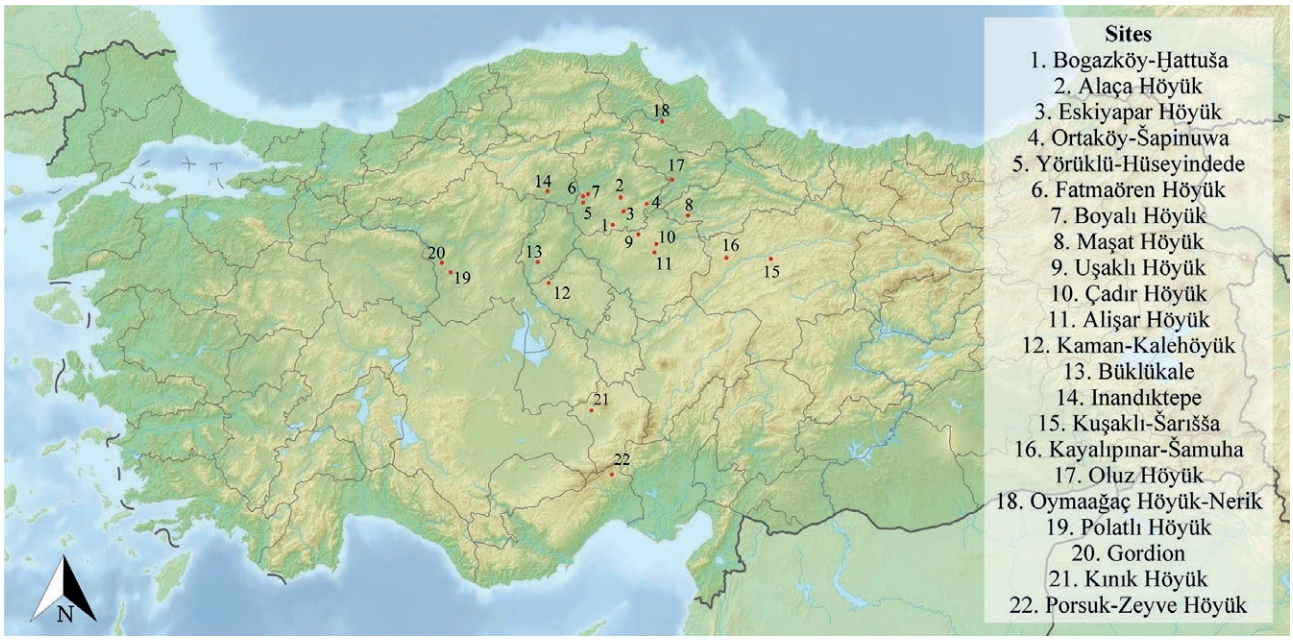

Fig. 1. Map of Anatolia showing the sites analysed and mentioned in the text.

2. THE HISTORICAL CONTEXT: THE ANATOLIAN PLATEAU FROM THE HITTITE KINGDOM TO THE REGIONAL STATES (1650-700 BC)

Recent archaeological studies have challenged, improved, and redefined the traditional accounts of imperial power that relied on textual sources and have emphasised the role of the dominant cores and surrounding areas (Cline 2014; Sinopoli 2001; Brown 2013; Strobel 2011a).

The history of the Hittite kingdom, one of the great states of western Asia during the Late Bronze Age (ca. 1650-1200 BC), offers the opportunity to examine how central areas and hinterland sites and regions can experience and interpret mechanisms of political and economic dominance by an imperial power, and what happens when this authority withdraws or vanishes.

The historical and archaeological investigation in the capital Ḫattuša-Boğazköy, located in the heart of the Anatolian Plateau (the 'Land of Hatti') and at other Hittite regional centres, attested that this was a kingdom with a complex state religion and sophisticated system of imperial administration that included both vassal states and Hittite-administered provinces (Bryce 2005; Glatz 2009; Schachner 2009; Seeher 2011; Mielke 2011). Moreover, written sources documented that Hittite kings were important participants in the military engagements and diplomatic negotiations that took place in the eastern Mediterranean during the Late Bronze Age.

Food played an essential role in the political, administrative, and religious spheres during this period. This is philologically documented by the Hittite festival texts (Barsacchi 2019; Cammarosano 2018) and archaeologically by several large granaries discovered in the Hittite centres (Seeher 2006; 2008; 2018: 57-69; Mielke 2001; Fairbairn, Omura 2005; Czichon 2015), which show as the storage and distribution of food requested a rigid political-administrative organisation (Westbrook, Woodard 1990; d'Alfonso, Matessi 2021).

However, this system experienced a crisis and collapse between the end of the 13th century and the beginning of the 12th century BC. For a long time, the previous research – focused on the Hittite capital – has followed the idea that Ḫattuša was destroyed by a devastating fire brought on by an enemy strike, and then abandoned (Bittel, Naumann 1952: 27; Macqueen 1986: 50-52; Klengel 1999: 312). The various burned ruins were regarded as proof of such devastation and were thought to be related to the Egyptian narration of the Sea People raids, followed by a long 'Dark Age'. Nevertheless, the subject of how the crisis was perceived in the late 13th century BC in Hittite

written sources, as well as its internal and external causes, have already been addressed and reassessed in various ways, proposing new interpretations (among others Divon 2008; Singer 2013; Strobel 2011b; Seeher 2018; Kealhofer, Grave, Voigt 2019). In the last years, based on new data coming from the Hittite capital and other sites, the thesis of a sudden collapse was replaced by the one of a political and urban crisis, at least in the heart of the Empire. Scholars have suggested that only the Hittite elites abandoned the capital (Seeher 2001; 2010; 2018), and that the decades before the fall of the Empire – around 1180 BC or later – were rather a period marked by changes in the administrative workings of society and several internal and external problems (Schachner 2020). Some sites were abandoned, some rebuilt more modestly, and others were still continuously occupied without significant interruption (Mielke 2011; Ross *et al*. 2019). Therefore, it was suggested that the Early Iron Age (ca. 1200-900 BC)[4] in Anatolia experienced distinct regional cultural trajectories (Seeher 2001; 2010: 80; Genz 2003; 2004: 26-28; 2005: 76; 2011: 81; Summers 2009; 2013; 2017: 82; d'Alfonso 2020a; d'Alfonso, Matessi, Mora 2020: 33-34, 50-52), in which phenomena of transformation and adaptation – among to which the foodways could be also be included – would be the basis for the formation of the following regional states (the so-called neo-Hittite kingdoms)[5] during the Middle Iron Age (ca. 900-700 BC) (d'Alfonso 2020b; 2023).

3. COOKING TOOLS: AN INVESTIGATION IN ARCHAEOLOGICAL SOURCES

Fire installations

Two types of fire installation can be distinguished in north-central Anatolia during the Hittite period (ca. 1650-1200 BC): hearths and ovens (Tab. 1).[6]

Hearths (Fig. 2-3a-b) can be recognised by their simple ash patches, which are occasionally surrounded by stone or clay edge, and/or by the presence of a thin cooking surface made with hardened clay, that could be also located over a layer of gravel, lime, pottery sherds, or stone slabs to avoid heat dispersion. They are circular, semicircular, and rectangular in shape, and they are typically discovered in the principal rooms or courtyards of domestic buildings. Other morphological variants are attested in only a few cases. They can occupy a central position or be located in front of a wall, or near a corner, indicating different domestic activities – such as lighting, family gatherings, heating, cooking, and eating. The discovery of kitchenware in the proximity of these fire installations suggests that they were probably employed to prepare a variety of foods: baking plates (and probably grills and wooden skewers) could be put directly on the embers and used to roast meats, cereals, and vegetables, which may be also boiled or stewed inside cooking pots.

Ovens of varying sizes were discovered inside and outside, in courtyards or open spaces, as well as in public and private structures. Two main categories of closed fire installations with a superstructure can be distinguished: dome ovens and cooking pot supports. The first ones are large installations (ca. 1-3 m in diameter) distinguished by a brick or stone dome combustion chamber and a curving opening at the base. The cooktop, made with stones, gravel, and clay, was the place where the fuel was burnt and where a variety of foods were cooked, as suggested by

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[4] There is no firm consensus regarding central Anatolia's Iron Age phasing. It is difficult to establish a precise correlation between archaeological and historical sequences, and there are problems with the range of absolute dates that are available for this period. Therefore, Iron Age phases are typically site-specific (D'Agostino, Mazzoni, Orsi 2021: 63-64; Summers 2008; Kealhofer, Grave 2011). In north-central Anatolia, however, the Early Iron Age is mainly equated with the period from the 12th to 10th centuries BC; the Middle Iron Age with the 10th/9th to 8th centuries BC; and the Late Iron Age with the 8th/7th to the second half of the 4th century BC (D'Agostino, Mazzoni, Orsi 2021: 63-63; Genz 2011; Seeher 2018; but see also Kealhofer, Grave 2011; and Kealhofer, Grave, Voigt 2019; 2022 for slightly different ranges).

[5] For an overview of the Iron Age states of central Anatolia and the difficulties of framing the political situation of the area within the band of the Kızılırmak River see Weeden 2023.

[6] For a thorough examination of the many morphological and functional typologies of the fire installations found in Late Bronze Age central Anatolia see Casucci 2020.

Table 1.

N°	Type	Site	Date	Diameter / Size	Height	Thickness walls	Height cooktop	Size hole	Height sub-structure	Diameter / size platform	Height platform	Type of context	Location	Note
1	Circular Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop
2	Circular Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Stone edges
3	Circular Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay and gritty cooktop
4	Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside - Close to a wall	
5	Cooking Pot Support	Boğazköy-Hattuşa	LB	0,49 m	N/A	6 cm	N/A	24 cm	N/A	N/A	10 cm	Domestic Building	Inside - Close to a wall	Clay body located over a pottery sherds layer
6	Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Clay cooktop with a central incision
7	Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Clay cooktop with a central incision
8	Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
9	Circular Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Burnt patches above a platform
10	Circular Hearth	Boğazköy-Hattuşa	MIA	2,00 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside	Stone edges. The cooktop was located above a stone layer
11	Subcircular Hearth	Boğazköy-Hattuşa	MIA	2,00 x 1,00 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop located above a gritty layer
12	Dome Oven	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	1 x 0,7 m	N/A	Domestic Building	Inside - Close to a wall	Gritty and clay cooktop bordered by stones and located above a squared platform. The platform was located over a stone step
13	Circular Hearth	Boğazköy-Hattuşa	MIA	0,85 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Stone edges
14	Dome Oven	Boğazköy-Hattuşa	MIA	0,65 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside	Clay cooktop with a central incision, bordered with medium size stones and located over a pebble layer. An opening could be on the northern side

N°	Type	Site	Date	Diameter / Size	Height	Thickness walls	Height cooktop	Size hole	Height sub-structure	Diameter / size platform	Height platform	Type of context	Location	Note
15	Dome Oven	Boğazköy-Hattuşa	MIA	0,60 x 0,80 m	N/A	N/A	5 cm	6 cm	10 cm	1 x 0,8 m	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop located above a stone layer built with small stones and pebbles arranged inside a semicircle formed by with medium-sized and angular stones positioned vertically. The remains of clay dome have a linear and squared external surface and a curved internal one. A round opening was preserved just above the cooktop and could have been used to ventilate
16	Circular Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Burnt patches above a platform
17	Circular Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside	Burnt patches above a platform
18	Circular Hearth	Boğazköy-Hattuşa	MIA	0,90 m	N/A	N/A	3,5 cm	N/A	N/A	N/A	20 cm	Domestic Building	Inside - Close to a wall	Clay cooktop above a stone and pottery sherd layer, located over platform borded with clay. Renewed several times
19	Dome Oven	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Mudbrick cooktop above a stone layer, located over a platform
20	Circular Hearth	Boğazköy-Hattuşa	MIA	1,00 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside - Close to a wall	Clay cooktop above a stone layer and stone edges. Associated with fire installation 20
21	Circular Hearth	Boğazköy-Hattuşa	MIA	0,80 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside - Close to a wall	Clay cooktop above a stone layer and stone edges. Associated with fire installation 20
22	Horseshoe-shaped Hearth	Boğazköy-Hattuşa	MIA	0,60 x 0,75 m	N/A	N/A	N/A	N/A	N/A	0,7-2,0 m	40 cm	Domestic Building	Inside - Close to a wall	Located over a platform. Associated with fire installation 23
23	Circular Hearth	Boğazköy-Hattuşa	MIA	1,00 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop above a stone layer, located over a platform. Associated with fire installation 22
24	Dome Oven	Boğazköy-Hattuşa	MIA	0,70 m	N/A	N/A	N/A	N/A	0,2 cm	N/A	N/A	Domestic Building	Inside	Clay cooktop above a stone layer and stone edge
25	Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mudbrick cooktop with a central incision
26	Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mudbrick cooktop with a central incision

N°	Type	Site	Date	Diameter / Size	Height	Thickness walls	Height cooktop	Size hole	Height sub-structure	Diameter / size platform	Height platform	Type of context	Location	Note
27	Circular Hearth	Boğazköy-Hattuşa	MIA	0,90 m	N/A	N/A	3,5 cm	N/A	20 cm	N/A	N/A	N/A	N/A	Clay cooktop above a stone layer
28	Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop bordered with stone edges. Associated with a working installation for the production of flour as suggested by grinders and millstones
29	Dome Oven	Boğazköy-Hattuşa	MIA	1,10 m	N/A	N/A	N/A	N/A	20 cm	1,6 x 1,8	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop located above a gritty and clay layer arranged over another small stones and pottery sherd layer. The entire fire installation is built over a gritty platform. The remains of clay dome have a linear and squared external surface and a curved internal one. A round opening was preserved just above the cooktop and could have been used to ventilate
30	Dome Oven	Boğazköy-Hattuşa	MIA	0,90 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
31	Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
32	Cooking Pot Support	Boğazköy-Hattuşa	LB	0,45 m	N/A	4 cm	N/A	20 cm	N/A	N/A	N/A	Domestic Building	Inside - Central position	
33	Circular Hearth	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Central position	Pottery sherd edges
34	Dome Oven	Boğazköy-Hattuşa	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Pottery sherd cooktop
35	Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Central position	Burnt patches
36	Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside	Stone cooktop associated with a cooking pot
37	Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside	Associated with a bath and a cooking pot. Probably used to heat the water and the room
38	Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
39	Circular Hearth	Boğazköy-Hattuşa	LB	0,75 m	N/A	3 cm	N/A	N/A	N/A	N/A	N/A	Open Area	Outside - Close to a wall	Associated with a Hittite baking plate

N°	Type	Site	Date	Diameter / Size	Height	Thickness walls	Height cooktop	Size hole	Height sub-structure	Diameter / size platform	Height platform	Type of context	Location	Note
40	Dome Oven	Boğazköy-Hattuşa	LB	1,20 x 0,60 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Pottery sherd cooktop
41	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
42	Circular Hearth	Boğazköy-Hattuşa	LB	1,20 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Associated with a Hittite baking plate
43	Circular Hearth	Boğazköy-Hattuşa	LB	0,60 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside - Close to a wall	Clay cooktop above a pottery sherd layer
44	Circular Hearth	Boğazköy-Hattuşa	LB	0,60 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop above a stone layer and associated with kitchenware
45	Subcircular Hearth	Boğazköy-Hattuşa	LB	0,63 x 0,80 m	N/A	3 cm	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
46	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Central position	Stone edges
47	Dome Oven	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Close to a wall	
48	Dome Oven	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Close to a wall	
49	Semicircular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop above a stone layer
50	Semicircular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
51	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside	Clay cooktop above a stone layer
52	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
53	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
54	Semicircular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
55	Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Ash and burnt patches
56	Circular Hearth	Boğazköy-Hattuşa	LB	2,00 m	6 cm	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop above a pottery sherd layer and bordered with stone
57	Squared Hearth	Boğazköy-Hattuşa	LB	1,00 x 1,00 m	4 cm	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop above a pottery sherd layer and bordered with stone

N°	Type	Site	Date	Diameter / Size	Height	Thickness walls	Height cooktop	Size hole	Height sub-structure	Diameter / size platform	Height platform	Type of context	Location	Note
58	Cooking Pot Support	Boğazköy-Hattuşa	LB	0,50 m	N/A	2 cm	N/A	20 cm	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop above a pottery sherd layer. Clay body renforced with pottery sherds
59	Semicircular Hearth	Boğazköy-Hattuşa	LB	1,50 m	55 cm	N/A	5 cm	N/A	50 cm	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop above a gritty and drebis layer
60	Rectangular Hearth	Boğazköy-Hattuşa	LB	1,35 x 1,10 m	5 cm	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop renewed several times and bordered with a mudbrick and stone edge on one side
61	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
62	Oven	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Stone cooktop
63	Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Ash patches associated with kitchenware
64	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
65	Circular Hearth	Boğazköy-Hattuşa	LB	2 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
66	Horseshoe-shaped Hearth	Boğazköy-Hattuşa	MB-LB	0,80 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay edges
67	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay edges
68	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
69	Circular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Central position	
70	Squared Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Central position	
71	Rectangular Hearth	Boğazköy-Hattuşa	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Central position	
72	Rectangular Hearth	Alişar Höyük	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Mudbrick edge on one side
73	Horseshoe-shaped Hearth	Alişar Höyük	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Mudbrick structure
74	Cooking Pot Support	Alişar Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Close to a wall	
75	Dome Oven	Alaça Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside - Central position	

N°	Type	Site	Date	Diameter / Size	Height	Thickness walls	Height cooktop	Size hole	Height sub-structure	Diameter / size platform	Height platform	Type of context	Location	Note
76	Circular Hearth	Alaça Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside	
77	Cooking Pot Support	Alaça Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay body renforced with stones and pottery sherds
78	Circular Oven	Alaça Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Inside - Close to a wall	
79	Cooking Pit	Boyalı Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside	
80	Dome Oven	Boyalı Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside	Clay cooktop above a stone layer
81	Dome Oven	Fatmaören	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Inside - Close to a wall	Clay cooktop above a stone layer
82	Dome Oven	Hüseyindede Tepe	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside - Close to a wall	Clay cooktop above a stone layer
83	Dome Oven	Hüseyindede Tepe	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside - Close to a wall	Clay cooktop above a stone layer
84	Hearth	Maşat Höyük	MB-LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Associated with fire installation 77
85	Dome Oven	Maşat Höyük	MB-LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Associated with fire installation 76
86	Cooking Pot Support	Maşat Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside	
87	Rectangular Hearth	Maşat Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Stone edges
88	Rectangular Hearth	Maşat Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Stone edges
89	Hearth	Maşat Höyük	IA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
90	Rectangular Hearth	Inandık Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Close to a wall	Stone edges. Associated with fire installations 83 and 84
91	Oven	Inandık Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Close to a wall	Stone edges. Associated with fire installations 82 and 84
92	Oven	Inandık Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Close to a wall	Stone edges. Associated with fire installations 82 and 83
93	Circular Hearth	Inandık Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Central position	
94	Circular Hearth	Inandık Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Central position	
95	Tandır	Kayalıpınar Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Clay cooktop above a pottery sherd layer
96	Cooking Pot Support	Kuşaklı-Šarišša	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside - Close to a wall	Clay body with three bulges on the rim. Inserted in a plastered superstructure

N°	Type	Site	Date	Diameter / Size	Height	Thickness walls	Height cooktop	Size hole	Height sub-structure	Diameter / size platform	Height platform	Type of context	Location	Note
97	Undetermined	Çadır Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	Outside - Close to a wall	
98	Hearth	Çadır Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Inside	
99	Subcircular Hearth	Uşaklı Höyük	LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Public Building	Inside	
100	Tandır	Uşaklı Höyük	MIA	0,50 m	N/A	4 cm	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
101	Circular Hearth	Uşaklı Höyük	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
102	Circular Hearth	Uşaklı Höyük	MIA	0,50 x 0,30 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Associated with a lot fragments of baking trays
103	Circular Hearth	Uşaklı Höyük	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside	Asscoiated with fire installation 104
104	Circular Hearth	Uşaklı Höyük	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside	Asscoiated with fire installation 103
105	Circular Hearth	Uşaklı Höyük	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Associated with a lot fragments of baking trays
106	Circular Hearth	Uşaklı Höyük	MIA	0,85 x 0,69 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Associated with a lot fragments of baking trays and bones
107	Circular Hearth	Uşaklı Höyük	MIA-LIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	
108	Circular Hearth	Uşaklı Höyük	MIA-LIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside	
109	Circular Hearth	Uşaklı Höyük	LB	0,40 x 0,30 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Open Area	
110	Hearth	Uşaklı Höyük	LB	N/A	N/A	5 cm	N/A	N/A	N/A	N/A	N/A	N/A	Open Area - Close to a wall	
111	Cooking Pot Support	Uşaklı Höyük	MB-LB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
112	Circular Hearth	Oluz Höyük	EIA	0,60 x 0,45 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Domestic Building	Inside - Close to a wall	Clay cooktop
113	Circular Hearth	Oluz Höyük	MIA	1,40 m	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Inside	Clay cooktop
114	Circular Hearth	Oluz Höyük	MIA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Inside	Clay and gritty cooktop

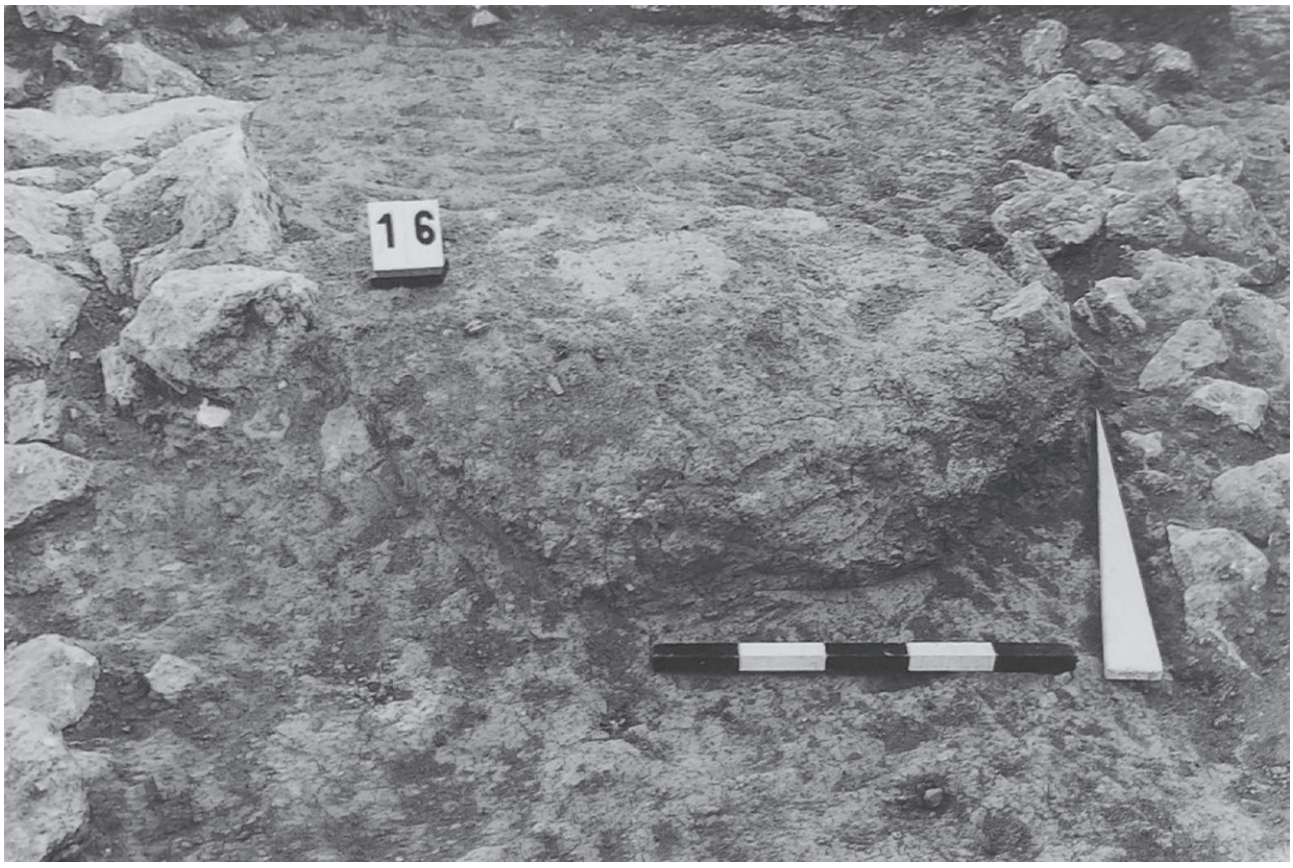

Fig. 2. Circular hearth from Ḫattuša-Boğazköy (Neve 1999: Pl. 147b).

the comparison with the modern ovens in Turkey – e.g., leavened bread, *fırın ekmeği* (Yakar 2000: 176; Ökse, Görmüş, Kaymak 2015: 44). There are just a few poorly preserved examples known from the Hittite period in north-central Anatolia. Their placement inside public buildings, as in the case of the so-called GAL MEŠEDI-*haus* (Schachner 2017) and open areas as a street of the Hüseyindede site (Yıldırım, Sipahi 2001), could indicate that different groups of people used these jointly, making the cooking activity also a time of gathering and socialising areas.

Finally, cooking pot supports are bell-shaped installations with clay walls that range in thickness from 4 to 10 cm and a base diameter between ca. 0.50 and 0.75 m. Their cooktop, located at the bottom, often consisted of a fire-hardened layer of clay that had been located on top of another one of gravel and pottery sherds. In the archaeological reports, these are described simply with the terms 'oven' and 'fireplaces', or generically 'fire installation'. Although these fire installations are comparable to ancient and modern bread ovens *tandır*[7] (Fig. 4) for some physical features, they were more likely used as supports for cooking pots placed on their upper openings (Fig. 3c) or equipment for roasting different meals using hooks and skewers inserted into their body (Casucci 2020: 174-175, 188-189). This function is particularly evident from the three bulges on the upper opening of the bell-shaped clay

[7] *Tandır* is a clay oven of slightly conical form about 1.00-1.50 m in height and 0.40-0.50 m in length, used primarily to bake unleavened flatbreads attached around its well-smoothed inner surface – today *tandır ekmeği* (Yakar 2000: 176). Fire installations characterised by a bell-shaped clay body and described as similar to the modern *tandır/tannur* have been mentioned in reports since Late Pottery Neolithic sites of western Asia and frequently reported both in private and public buildings during historical periods (Balossi Restelli 2015: 45-50; Parker 2011, Rova 2014). For a detailed description of modern *tandır* see Smogorzewska 2012; Parker 2011; Parker, Uzel 2007; Rova 2014; Balossi Restelli 2015; Balossi Restelli, Mori 2014; and Dalman 1935.

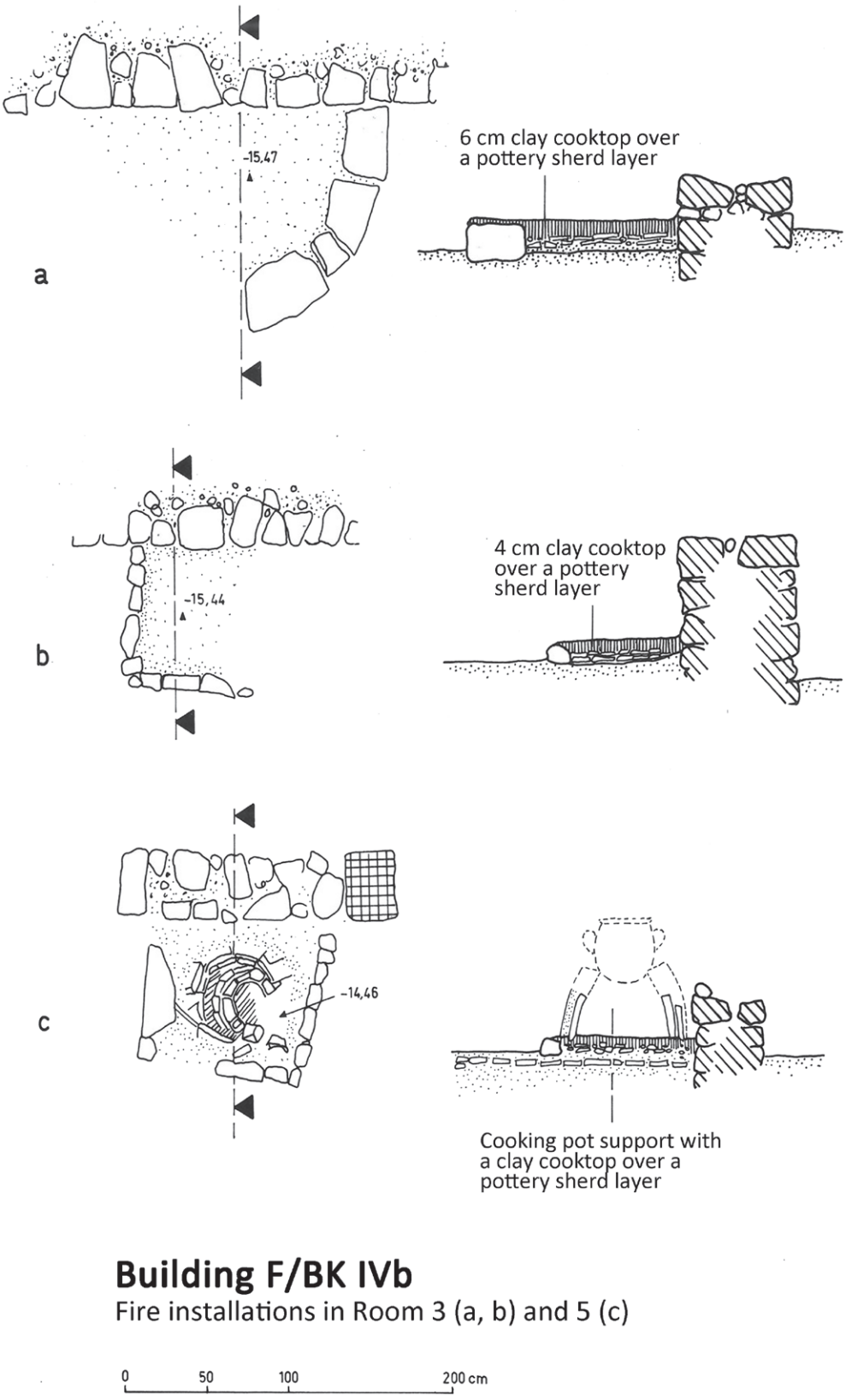

Fig. 3. a-b: hearths; c: cooking pot support (Neve 1982: Fig. 24).

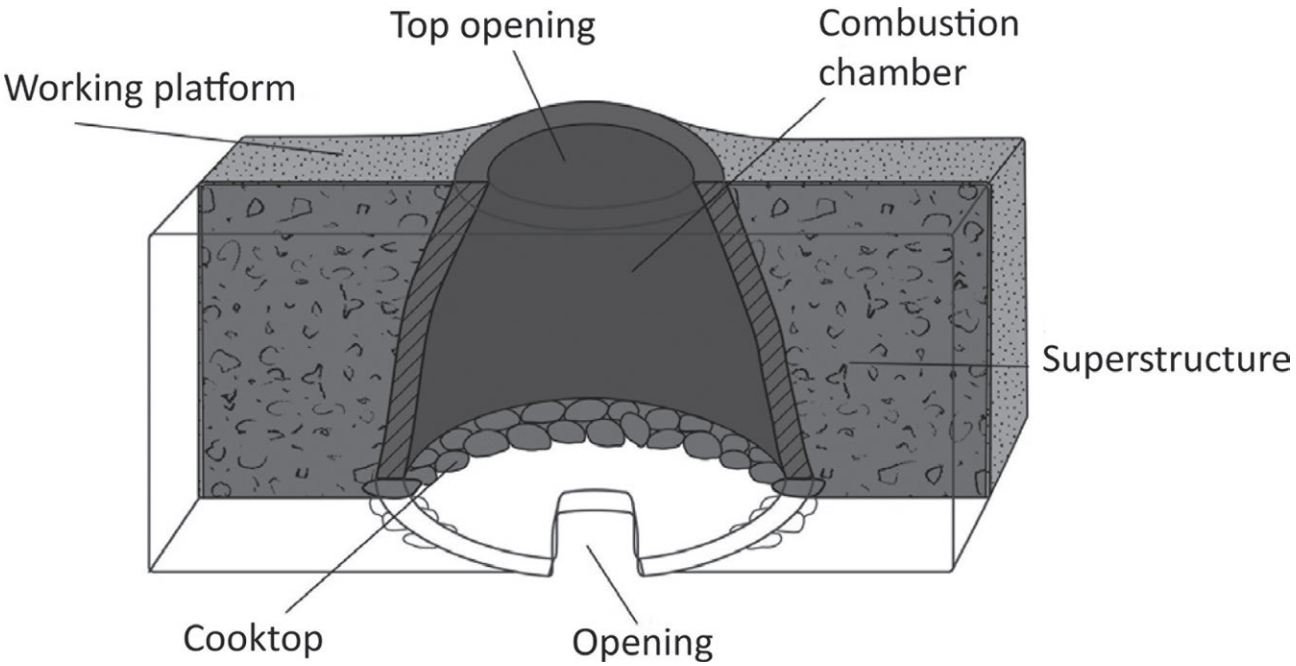

Fig. 4. Reconstruction of a modern *tandır* (drawn after Smogorzewska 2012).

body of the fire installation discovered inside the Kuşaklı-Šarišša North-West Gate (Fig. 5) (Müller-Karpe 2017: Fig. 30; Mielke 2004a; 2004b; 2004c; 2006b). The three ledges were apparently useful to hold a cooking pot without entirely blocking the aperture that would cause the blowing out of the flame (Casucci 2020: 184).

Additionally, as rightly pointed out by Rova (2014: 127-128), people in the past had opted for various solutions concerning the building and location of the *tandır* based on individual needs; the previous cooking pot supports never seem to share all features with the modern *tandır*. The available examples of cooking pot supports do not appear to have a perfectly conical shape (the body appears stockier), and they were never placed in open spaces or near doors as *tandır,* but rather inside rooms in a central position or near walls. Moreover, based on the archaeological documentation, it is difficult to establish whether these fire installations had finished internal surfaces suitable for baking unleavened flatbread. Therefore, no sure examples of *tandır* have been identified in Late Bronze Age sites of north-central Anatolia. Only one slanted and circular grit and pottery sherd base can be interpreted as the lower part of a *tandır*, but it was discovered at Kayalıpınar (eastern part of the central Anatolian Plateau) without an associated context, and it has been dated to the final Hittite phase (Level II) (Müller-Karpe 2006: 215). There are two main explanations for this lack. First, the archaeological investigations of the last century have been focused on the digging of the Late Bronze Age public buildings. However, some domestic contexts have been excavated in the Hittite capital and other central Anatolian sites, and consequently, one very likely explanation for this absence is that we simply have not been lucky enough to find them. Otherwise, a second possibility is that there are significant differences in the foodways of this period that made *tandır* style cooking facilities unnecessary, unpopular, or redundant during the Late Bronze Age, compared to the previous phases.[8] Although it is challenging to argue based on a lack of evidence; the *tandır*'s absence may indicate that the Hittite baking plates – which will be presented later – took over from this fire installation in making unleavened flatbreads during the Late Bronze Age (Orsi, Volante, D'Agostino 2023: 98).

[8] *Tandır* are fire installations attested at many sites in Anatolia from the Late Chalcolithic to Middle Bronze (Ökse, Görmüş, Kaymak 2015).

Fig. 5. Kuşaklı-Šarišša, Northwest Tower. Cooking pot support inside Room 7 (Müller-Karpe 2017: Fig. 30).

During the transition to the Early Iron Age (ca. 1200-900 BC) and the subsequent Middle Iron Age (ca. 900-700 BC), fire installations, on the one hand, seem to remain partially unchanged. The excavations on the Büyükkaya (Seeher 2018), at further parts of the ancient Hittite capital,[9] and other sites located in north-central Anatolia,[10] revealed the presence of not-structured and circular hearths and dome ovens, built with rather similar techniques and characteristics of the previous ones, attesting a continuity in the cooking installations across the Late Bronze Age and Iron Age. On the other hand, other elements – such as horse-shaped hearths – appear to be more attested, highlighting more similarities with the previous local traditions of the Early and Middle Bronze Age[11] rather than the Late Bronze Age. This, in some way, seems to fit with the theory that the older traditions survived in areas outside Hittite control proposed by Genz (2003; 2004; 2005) to explain the spread of handmade

[9] Traces of domestic structures with associated fire installations were discovered in the Büyükkale II (Middle Iron Age) and the square J/18 of Lower Town (Middle-Late Iron Age) (Neve 1975; 1982).

[10] Remains of fire installations dating to the Iron Age were discovered at the site of Maşat Höyük, Alişar Höyük, Oluz Höyük and Kaman-Kalehöyük (Özgüç 1978; Bittel 1937; Dönmez 2010; Dönmez, Yurtsever-Beyazıt 2014; 2016; Matsumura 2005).

[11] During the Early and Middle Bronze Ages in central Anatolia a greater variability of fire installations is attested. For more details see Ökse, Görmüş, Kaymak 2015 and Aquilano 2017.

Fig. 6. The lower portion of the clay oven-*tandır* US 300 in Uşaklı Höyük Area D (©Uşaklı Höyük Archaeological project).

painted pottery during the Early Iron Age. Concerning this reappearance of older traditions, the discovery of a *tandır* located in proximity to a wall belonging to the Middle Iron Age domestic structures of the Uşaklı Höyük site (Fig. 6) (D'Agostino, Mazzoni and Orsi 2021: 59-61; Casucci forthcoming a) is interesting. If the previous interpretation of the absence of this type of bread oven in Hittite centres is correct, the example at Uşaklı Höyük could be evidence for the re-emergence of another bread tradition already attested in central Anatolia during the Middle Bronze Age – for example in the *karum*'s houses at Kültepe-Kaneš (Özgüç 1986). Although the *tandır,* in Turkish – or *tannur*, in Arabic – are not devices only intended for cooking unleavened bread,[12] it is possible to hypothesise that these fire installations were primarily used during the Iron Age for baking flatbreads, which during the previous Late Bronze Age were likely produced using alternative tools, such as the Hittite Baking Plate (Casucci 2023; forthcoming a; Orsi, Volante, D'Agostino 2023: 98).

To summarise the fire installations during the Late Bronze Age from the morphological point of view result quite homogeneous. They are principally represented by unstructured circular or squared hearths, cooking pot supports, and domed ovens. During the Iron Age, on the contrary, a greater typological variety is attested, and clear changes can be observed in comparison to the previous phase. If circular and squared hearths continue to be present, the diffusion of horseshoe-shaped hearths, the disappearance of the so-called cooking pot supports, and the reappearance of *tandır* after the gap during the Late Bronze Age are strong signals of discontinuity.

Kitchenware

In Anatolian archaeology, an interest in the cooking devices – specifically Hittite cooking pots – was restricted to the publication of a paper by T. Mühlenbruch (2012), mainly devoted to the dimension analysis of the cook-

[12] The available ethnographic evidence has well shown how the *tandır* is a type of oven also used for cooking meat and vegetables using hooks or skewers positioned inside or pots placed on the top opening (Dalman 1935: 110-111; Mulder-Heymans 2002: 199; Ökse, Görmüş, Kaymak 2015: 44).

ing pots coming from three fundamental Hittite sites – Boğazköy, Kuşaklı, and Kayalıpınar – and who suggests the existence of different size groups of 'mass-produced' cooking pots under Hittite state control for different functional and social contexts. The publications of some pottery assemblages and preliminary reports of main archaeological sites can provide additional information.[13]

During the Late Bronze Age, two major morphological categories characterised the kitchenware assemblage attested in all north-central Anatolian sites: the so-called Hittite baking plates and cooking pots.

The so-called Hittite baking plates (Fig. 7-8), which are one of the most represented forms within each Late Bronze Age pottery assemblage,[14] belong to a distinct group based on their technical characteristics, as well as from a functional and morphological standpoint. They are large open plates with a diameter between 25-30 and 100 cm, and they are characterised by a typically coarse fabric, rich in mineral and vegetable inclusions, and by a generally thickened and everted rim that frequently bears rope impressions (Mielke 2006; 2017; 2022). According to Mielke (2006; 2017), this vessel might be the direct evolution of the baking trays spread in Anatolia in the previous phases, which are attested only in a few pieces during the Late Bronze Age, and characterised by a flat base, short and vertical or slightly tilted outward walls, and a simple and rounded rim. The regular presence (ca. 5-15%)[15] of the so-called Hittite baking plates in Hittite public and private contexts demonstrates their regular daily use. As pointed out by Schoop (2011: 247) and Orsi (2018: 189) the probable employment for food preparation (roasting, toasting, and *sautéing*) is further suggested by low dense and gritty fabric, suitable for resisting thermal shock (Rice 1987: 105-106, 229-231, 367-368), traces of secondary burning mainly on external or both surfaces,[16] and archaeological contexts.[17] However, many unanswered questions surround their forming[18] and use.

The Hittite cooking pots (Fig. 9) have matte reddish-brown surfaces and a medium-coarse fabric, including mineral inclusions of medium and large sizes of various quality and shapes. They are wheelmade and do not

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[13] For a selection of relevant sources see Fischer 1963; Mielke 2006; 2017; 2022; Bossert 2000; Genz 2001; 2004; 2005; 2011; Mühlenbruch 2012; 2014; Schoop 2006; 2009; 2011; Mazzoni, D'Agostino, Orsi 2019; and Orsi 2018; 2020.

[14] This type of vessel seems to appear within archaeological contexts in conjunction with the formation of the Hittite kingdom and follow its development, to then disappear with its collapse and the transition to the Iron Age (Schoop 2003; 2006; 2009; 2011; Glatz 2009: 130).

[15] This data is based on the percentage distribution of Hittite baking plates within the published ceramic assemblages of Ḫattuša-Boğazköy (Parzinger, Sanz 1992), Kuşaklı-Šarišša (Mielke 2006a; Arnhold 2009; A. Müller-Karpe, V. Müller-Karpe, Stümpel 1996; Müller-Karpe 1998), and Kayalıpınar Höyük (Mühlenbruch 2014; A. Müller-Karpe, V. Müller-Karpe, Rieken 2017). The collation of these kitchenware artefacts into a unified database is a component of my PhD project (*Fires and cooking pots: foodways and culinary identities in Anatolia between the 2nd and 1st Millennium BCE*) at the University of Pavia.

[16] The traces of carbon deposit on the surfaces of the plates suggest their possible use in association with fire (Mielke 2006a: 129; Schoop 2011: 247), but it is important to remember that their absence is not direct proof of the contrary: if blackening from secondary burning is generally frequent on pottery used suspended over the fire or placed next to it, carbon deposits on containers placed directly on the embers tend to disappear more easily (Orsi, Volante, D'Agostino 2023: 88). Traces of secondary burning on large plates are quite frequent, but not ubiquitous. However, a preliminary analysis of the correlation between the secondary burning distribution and the fabric typology suggests a distinction between medium-small sized plates, characterised by a finer fabric and not primarily intended for use in association with fire, and the larger size ones, almost exclusively in coarse fabric and more frequently used in connection the fire (Orsi, Volante, D'Agostino 2023: 88).

[17] Despite these plates being described in various ways in the previous literature, including as 'bowls and plates' or even 'lids', scholars have hypothesised that they were used in ordinary household activities, specifically for baking bread (Fischer 1963: 66; Özgüç 1982: 24; Müller-Karpe 1988: 127-128; Mielke 2006a; Schoop 2011: 246-247). Since the shape is perfect for cooking sticky food, it has been supposed that they were mainly employed for baking different types of thin unleavened bread (Schoop 2011: 246-247), which are still highly popular in contemporary Turkey under the name *pida* or *yufka ekmeği* (Yakar 2000: 176). However, if the association between this type of vessel and the term ^{DUG}DÍLIM.GAL. – attested in several cuneiform texts and proposed by Torri – we could imagine that this served multiple functions (D'Agostino, Orsi, Torri 2020: 124-125; Orsi, Volante, D'Agostino 2023: 87-88; Casucci 2023: 291, forthcoming a).

[18] Mielke (2006a: Fig. 132; 2017: 134-136), based on experimental experience, has proposed a hand-building process for these artefacts, limiting the use of the wheel only during the finishing stage. At the same time, according to an experimental archaeology programme carried out at the site of Uşaklı Höyük an employment a slowly rotating device was also used during the construction process (Orsi, Volante, D'Agostino 2023: 89-95).

Fig. 7. Hittite baking plate from Uşaklı Höyük (©Uşaklı Höyük Archaeological Project).

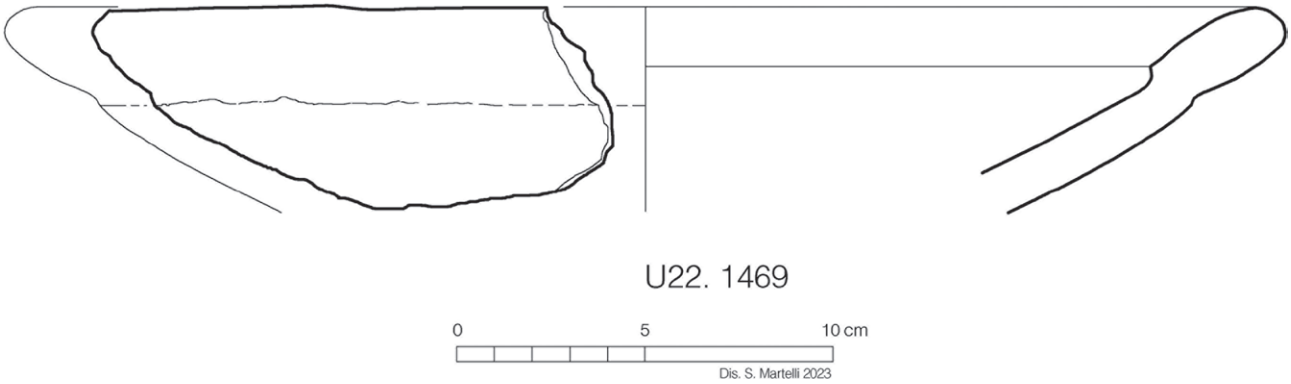

Fig. 8. Hittite baking plate from Uşaklı Höyük (©Uşaklı Höyük Archaeological Project).

have treated surfaces, proving a very fast and massified production, probably inside specialised workshops (Mielke 2022). From a morphological perspective, they are distinguished by a typical rounded shape, external thickening of the rim measuring ordinally ca. 18-32 cm in diameter, the lack of a neck, rounded base, and the presence of two vertical handles with a circular, rounded, and more rarely, a rectangular section (Müller-Karpe 1988, Mielke 2006a; Mühlenbruch 2012; 2014). The coarse fabric and the shape characteristics provide the product with strong thermal shock resistance and a good yield on fire, facilitating a greater exposure, distribution, and conservation of heat over the vessel's whole surface and its contents, and reducing simultaneously the evaporation of liquids (Mielke 2006a: 78; Schoop 2011: 249; Casucci 2023: 290). At the same time, the difficulty of accessing food due to the deep and relatively closed shape could easily be overcome by using ladles. This latter hypothesis is supported by one of the depictions on the Inandiktepe relief vessel (Fig. 10) (Özgüç 1988: Fig. 64-65), in which two people are shown mixing and serving the contents of some pots with ladles, which are most likely made of wood (Mielke 2006a: 83). A similar scene was also described in the text Grand Festival of Goddess Arinna (KUB XX 76, I - CTH 634), where food was cooked and served using cooking pots. Finally, the rounded bases and most of the surface with a slope ranging from 60° to 90° suggest they were probably hung over them through a superstructure to boil and stew foods. This is confirmed by the discovery of fire installations classified as cooking pot support (Casucci 2020: 183-187). The previously described installation, discovered inside the North-West Gate of the Hittite city of Kuşaklı-Šarišša, is particularly exhaustive. Moreover, the Hittite cuneiform sources – where porridge (BA.BA.ZA), soups, and stews of vegetables and meats (TU_7) are enough mentioned (Hoffner 2003: 99-102; Mouton

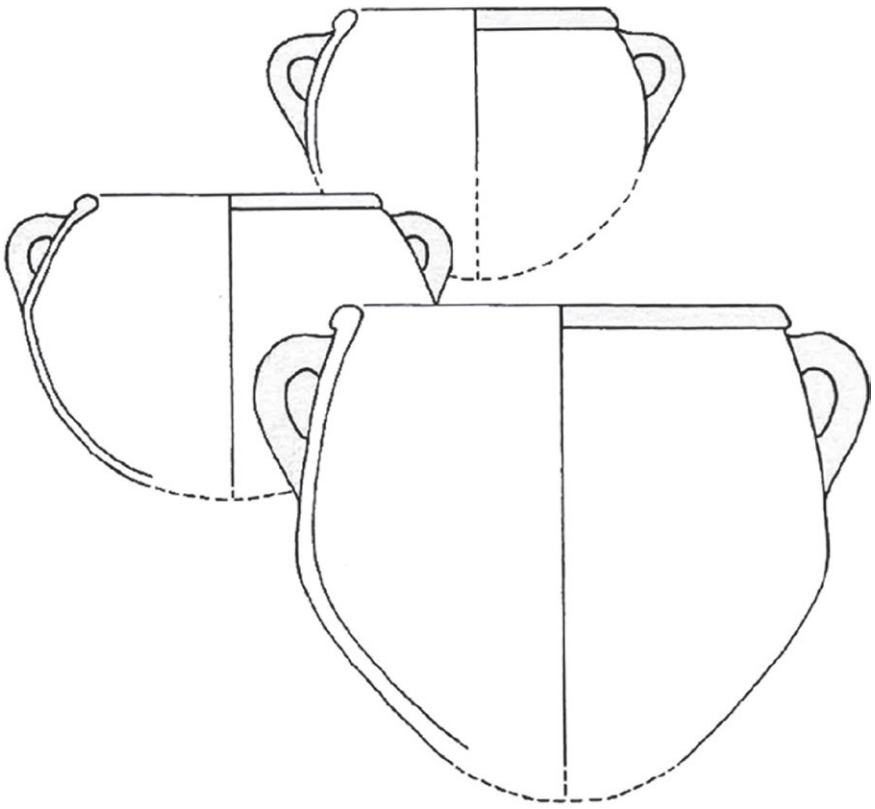

Fig. 9. Late Bronze Age cooking pots (Mielke 2006a: Fig. 57).

2007; 2017; Şahingöz, Akbulut, Örgün 2015) – and the archaeobotanical analysis done on the grain stock of the Kuşakli-Šarišša North-west Gate – where wheat had been boiled and ground to create *bulgur* (Pasternak 1999a; 1999b; Mielke 2004c: 30-31), a dish that is still popular in western Asia today – also support the picture of preparing boiled and stewed meals.

Based on the published pottery assemblages,[19] the cooking pots from the Early and Middle Iron Ages in north-central Anatolia can be compared since they have some similar features and uses, which differentiate them from those of the previous phase. They are characterised by a surface that is typically dark brown or grey in colour, and by a fabric that is typically gritty (Fig. 11-12). However, some differences are present between the Early Iron Age and Middle Iron Age cooking pots. The first ones are likely a household production, as suggested by the handmade manufacture and technical and morphological choices (Orsi 2020; Genz 2001; 2004; 2005), and are characterised by surface treatments – e.g., coarse burnishing – which make these pots glossy and smoothed (Fig. 11); instead, the ones dating to the Middle Iron Age return to be mostly made on a wheel, indicating manufacturing on a different scale (Fig. 12). From a morphological perspective, a 'standardisation' process is seen during the Iron Age: the cooking pots group[20] passed from a variety of globular and neckless vessels with simple rim, small jars with simple or flared rim measuring generally ca. 15-20 cm in diameter, and different types of handles (small holder or band or vertical handle) during the Early Iron Age (Fig. 13) to a more uniform product in the Middle Iron Age, when the variant characterised by a globular body, flat base, medium-short neck and vertical or slightly everted rim, rounded

[19] The Iron Age kitchenware assemblage that is examined in this study comprises the published artefacts coming from Ḫattuša-Boğazköy (Genz 2004; Bossert 2000), Uşaklı Höyük (Orsi 2020), Alaça Höyük (Kosay, Akok 1973), and Alişar Höyük (Schmidt 1932; Bittel 1937). This collection is included in a unified database which is a component of my PhD research, see note 15.

[20] For the reference sample, see note 19.

Fig. 10. Cooking pots on the relief vessel from Inandıktepe (Özgüç 1988: Fig. 64).

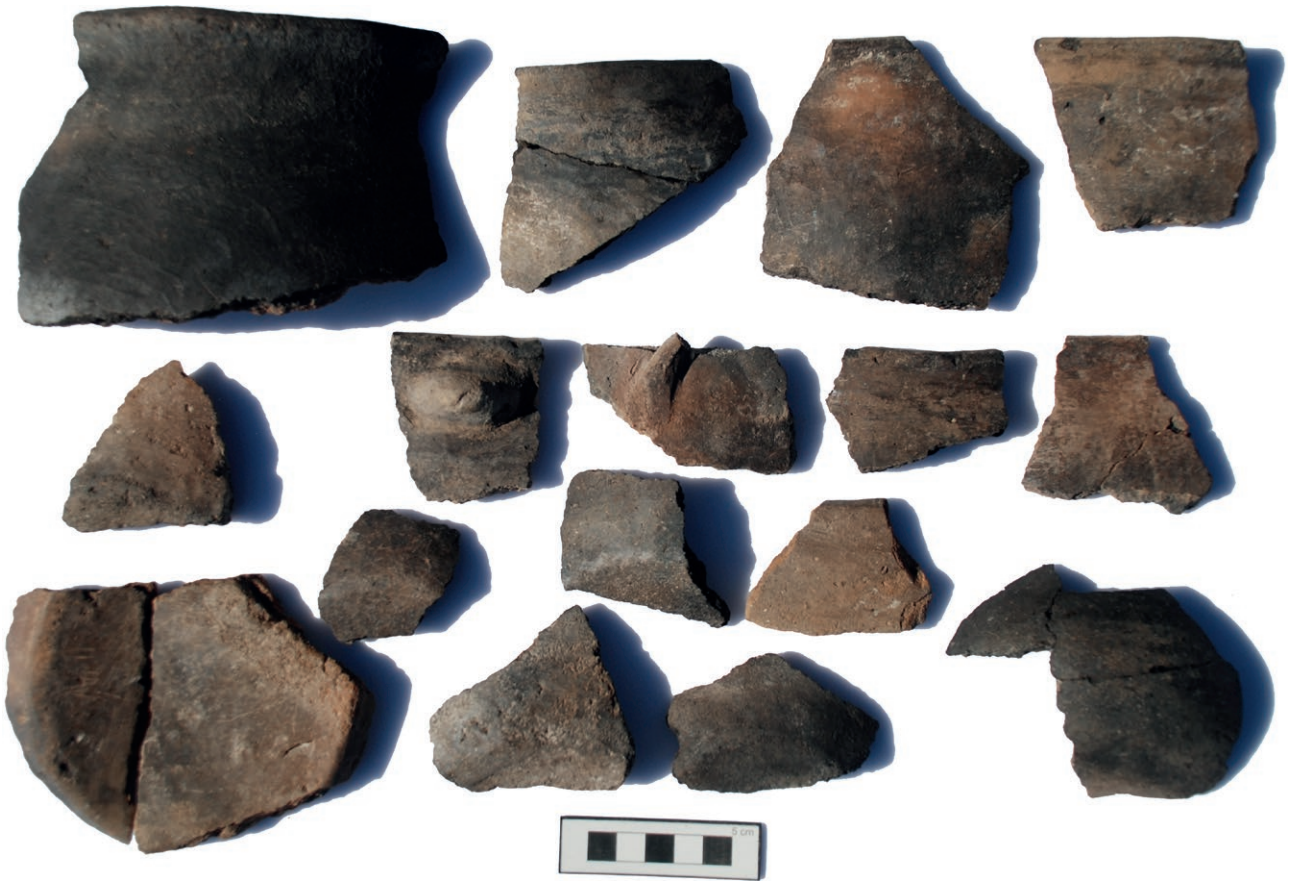

Fig. 11. Early Iron Age Handmade Kitchenware from Uşaklı Höyük (Orsi 2020: Fig. 8).

or triangular in shape measuring usually ca. 15-25 cm in diameter, becomes the most widespread (Fig. 14). Despite these variations, the rounded shape, and the narrow opening in relation to the body ensured even heat distribution over the surfaces, minimising also liquid spillage and evaporation. Moreover, the flat base could make it possible to

Fig. 12. Iron Age Wheelmade Kitchenware from Uşaklı Höyük (©Uşaklı Höyük Archaeological project).

stand solidly and suggests their placement close to or directly on the heat source, resting on a cooktop or stand, in order to make a slow fire cooking (Killebrew 1999: 107; Lis 2015: 105).

Summarising, the analysis of kitchenware across the Late Bronze Ange and Iron Ages, like fire installations, shows some differences. The Late Bronze kitchenware set is characterised by wheelmade neckless cooking pots with thickened rims and large baking plates, one of the genuine Hittite shapes. The transition to the Iron Age is well marked by the disappearance of these Hittite baking plates. Additionally, the Iron Age cooking pots are smaller and morphologically different in comparison to the Hittite ones. The neckless cooking pots with externally thickened rims, typically of the Late Bronze Age, decreased intensely during the 1st Millennium, replaced by the collared ones that became the most attested type. Especially, the typical Iron Age's flat base, opposite to the rounded one of the Hittite cooking pots, could be connected to the disappearance of the Late Bronze Age cooking pot supports. This suggests two different ways of positioning the vessel in relation to the flame, and consequently two different ways of cooking: one suspended and high flame during the Late Bronze Age and another one on low heat by placing the cooking pot near the heat source during the Iron Age.

Finally, to fully understand this change in material culture and likely change in culinary practices across the Late Bronze Age and Iron Age, it is necessary to look also at the regions surrounding north-central Anatolia and observe their responses to the political transformation that took place at the close of the 13th century BC. In fact,

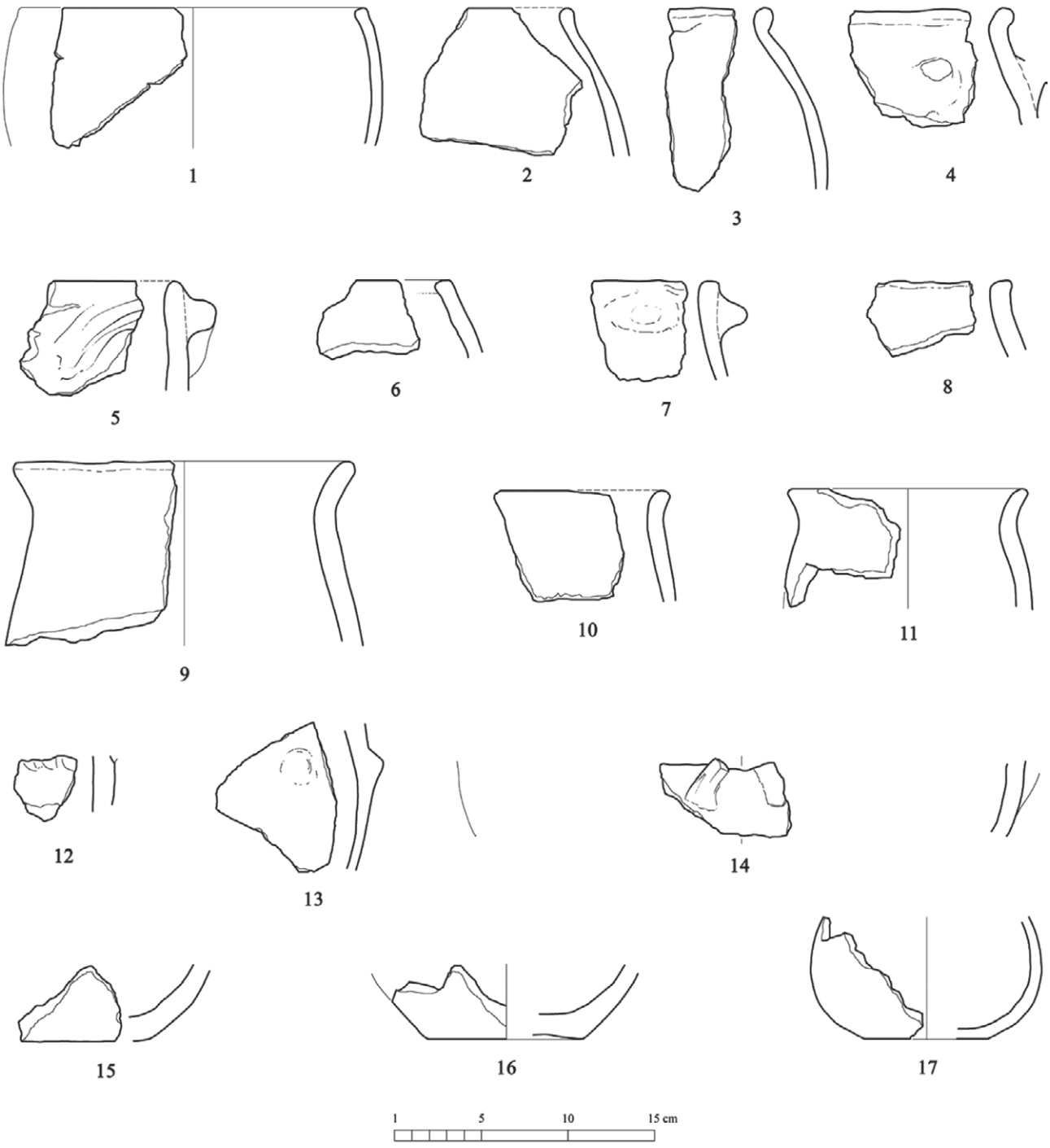

Fig. 13. Selection of Early Iron Age Handmade Kitchenware from Uşaklı Höyük (Orsi 2020: Pl. 2).

these areas, which had been under Hittite political control and whose material culture was partly influenced by the north-central Anatolian tradition during the Late Bronze Age, seem to have experienced local outcomes throughout the Iron Age (d'Alfonso 2020a; 2023). The Gordion case, in central-west Anatolia, seems to be particularly exhaustive. The site, probably under the Hittite political and cultural influence during the Late Bronze Age, as shown by the pottery found in a deep sounding (Gunter 1991), displays a local route in the subsequent periods. At

Fig. 14. Middle Iron Age cooking pot from Uşaklı Höyük (D'Agostino and Orsi 2020: Fig. 5).

first, during the Early Iron Age (12th-10th BC), it is characterised by the presence of local handmade cooking pots which seem to find more comparisons with those of western Anatolia (Voigt, Henrickson 2000; 2013) rather than with the area inside the bend of the Kızılırmak river. Subsequently and concurrently with the formation of the Phrygian kingdom, Gordion knows a local development of a group of wheelmade cooking pots, the so-called *one-handled utility pots* (Sams 1994; Casucci forthcoming b), and a set of three fire installations – the dome oven, circular, and U-shaped hearth – that appears to be standardised and without no direct comparison with other regions (Casucci forthcoming b). Turning south of the Kızılırmak River, instead, the picture is once again different. As evidenced by the excavations of Kaman-Kalehöyük (Matsumura 2005: 361-364), Porsuk-Zeyve Höyük (Dupré 1983) and Kınık Höyük (d'Alfonso, Gorrini, Mora 2014: 574; 2016: 601), the first phase of the Iron Age seems to maintain a continuity with the central Anatolian pottery production of the Late Bronze Age, including wheelmade and neckless cooking pots with external thickened rim.

4. CONCLUSION

Even though the 13th and 11th centuries BC are still currently a hazy period in the historical reconstruction of north-central Anatolia, accentuating any potential signs of change, what becomes clear from the observations on archaeological data, including the kitchenware and fire installations, is that the Hittite capital and its region located inside the bend of Kızılırmak river was not suddenly destroyed and abandoned, falling into a long dark period, but rather experienced a phase of transformation. In this change, culinary practices must also be included.

During the Late Bronze Age, fire installations, mainly represented by multifunctional circular hearths, cooking pot supports, and dome ovens, tended to a sort of typological 'homogenisation', which in some ways seems to go hand-in-hand with that of pottery production (Schoop 2009; 2011; Mielke 2017), including kitchenware set.[21]

[21] Greater morphological variability is documented for the Early and Middle Bronze Ages. Horseshoe-shaped hearths, double chamber hearths, andirons, and cooking pots with support directly attached to the base have been discovered in several sites of the Anatolian Plateau (Ökse, Görmüş, Kaymak 2015; Aquilano 2017). Similar examples, such as the andirons and the two globular pots with a

The latter is composed of neckless pots with an externally thickened rim, suitable for cooking soups and stews, and the so-called Hittite baking plates, a multifunctional tool for frying and toasting various foods, most likely including unleavened bread (Orsi, Volante, D'Agostino 2023).

This trend of 'homogenisation' came to a standstill in the subsequent Early and Middle Iron Ages, when elements of new material and culinary culture seemed to emerge. Indeed, although there is no clear break in the faunal and botanical assemblages between the 1st and 2nd Millennium BC[22] and people continued to eat stewed, boiled, and roasted vegetable-based meals (wheat, barley, emmer, and legumes), as well as roasted and blanched meat less frequently, the Iron Age cooking tools highlight some differences in comparison to the Late Bronze Age ones. The disappearance of the so-called Hittite baking plates after the fall of the Hittite empire, and the spread of different types of cooking instruments such as horseshoe-shaped hearths and collared cooking pots are the signal of change in the cooking practices between the Bronze and Iron Ages. Specifically, the discovery of a *tandır* in the Middle Iron Age levels at Uşaklı Höyük could be proof of another way of baking unleavened bread, replacing the Hittite baking plate in this function.

Looking at the neighbouring regions, which had experienced Hittite political and cultural influence during the Late Bronze Age, the cooking tools changed drastically from the previous period and do not display new typological ties with those of north-central Anatolia during the Iron Age, but a local development. In fact, the case of Gordion (central-western Anatolia) seems to show local development, marked by different cooking pots and a rather standardised cooking set of fire installations. On the other hand, the southern Anatolian plateau shows more continuity with the Late Bronze Age tradition.

At the current state of research, based on historical and archaeological data available for north-central Anatolia, it is difficult to establish whether ancient traditions and aspects of daily life have been preserved for centuries in some groups located on the margins of a state and a society aimed at 'integration' like the Hittite one. However, since cooking tools are traditional artefacts reluctant to change, the permanence of some of these instruments, the modification of others, and their production at least during the Early Iron Age at a household level[23] suggest that who moved and/or stayed to fill the void, left by the abandonment of Hittite public institutions, reorganised their foodways to the new socio-economic reality during the Iron Age.

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support directly attached to the base coming from Alaca Höyük (Kosay, Akok 1966: Pl. 16 and 106, 1973: Pl. XXXII, LXXIII and XXXVII), can also be assigned to the Late Bronze Age. However, they compose a very small group and come from dubious contexts or date to the transition phase between the Middle and Late Bronze Ages.

[22] For a more thorough picture of the outcomes of the archaeobotanical analyses carried out at the main archaeological sites in the north-central Anatolian region (Boğazköy, Çadır Höyük, Kuşaklı-Sarissa), see Diffey, Neef, Bogaard 2017; Diffey *et al.* 2020; Ross *et al.* 2019; and Pasternak 1999a; 1999b.

[23] A similar situation can be observed in the northern frontier area of the Neo Assyrian kingdom, see D'Agostino 2016.

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Re-collecting Sherds: Rescue Activities of Archaeological Materials from Tell Afis, Syria

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Abstract. In September 2021 a small group of archaeologists, members of the University of Florence excavations at Tell Afis, made return to Syria and took part into an expedition concerning not the site itself, out of reach due to the political crisis in the country since 2011, but materials from the site kept in the expedition house written at Saraqib. This article is an account of that return and of the following ones in 2022 written with the aim to keep attention on Syria, its important past and its critical present.

Keywords: Tell Afis, Syria, rescue, sherds.

1. SOME BACKGROUND INFORMATION

Tell Afis is located in Northwestern Syria in the governorate of Idlib. It is placed in a fertile plain next to an important crossroad of routes running east-west and north-south, in antiquity as much as now (Fig. 1).

Excavations at the site, started already in the '70s by Paolo Matthiae of the University of Rome La Sapienza, were resumed on a larger scale in 1986 by Stefania Mazzoni, at that time of the University of Pisa and, from 2006, of the University of Florence, and Serena Maria Cecchini, of the University of Bologna.

The site has a long history of occupation as the results of excavations in different areas have shown from the Late Chalcolithic period at the bottom through the Bronze Ages reaching out the Iron Age on the top (Fig. 2).[1]

Among the most relevant discoveries is certainly an official building dated to the Hittite period brought to light in one of the enlargements of the stepped trench on the western slope of the tell, in area E4b, with important finds including high quality bronze objects and cuneiform tab-

[1] The site's bibliography is available at https://unifi.academia.edu/TellAfisArchaeologicalMission.

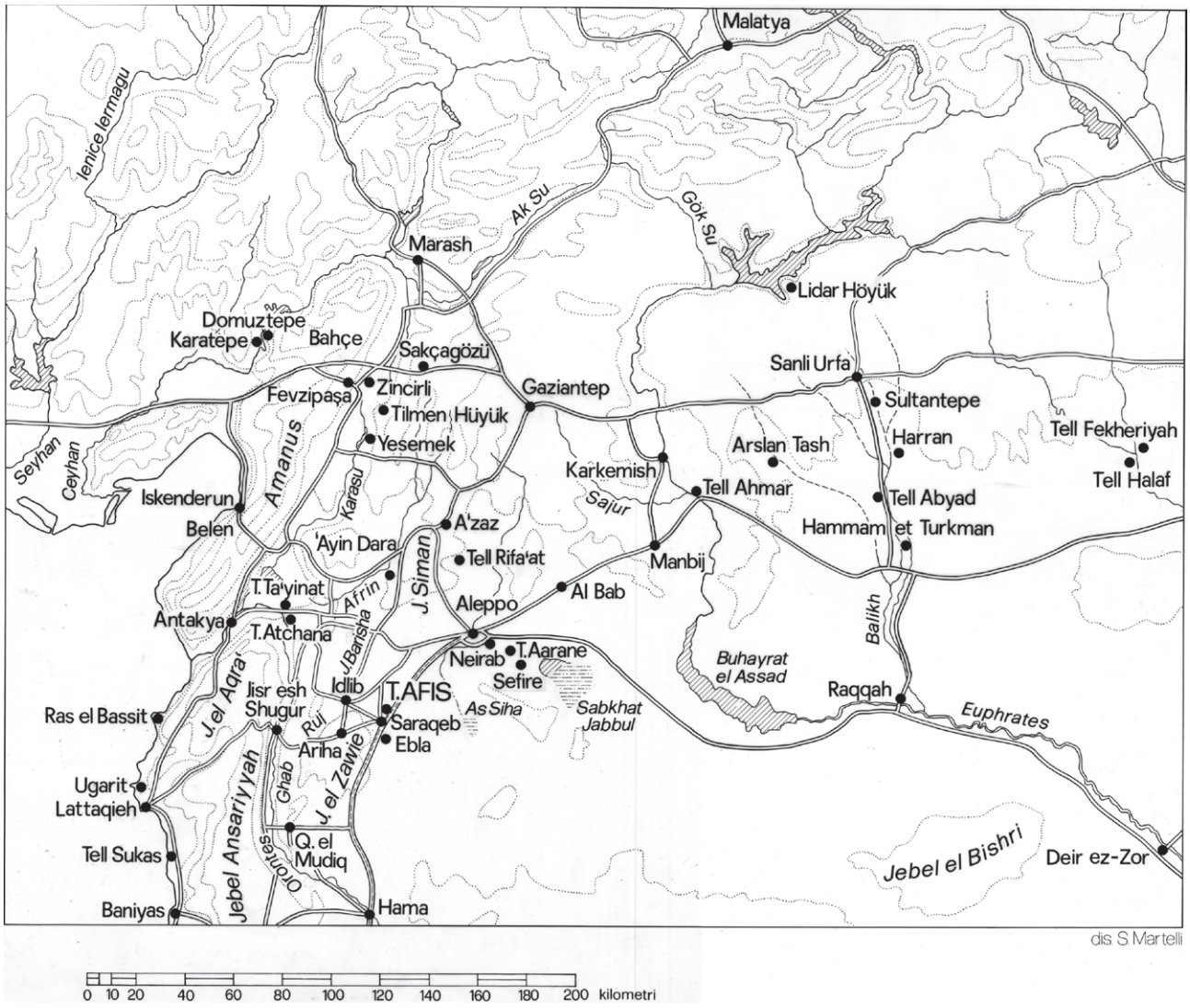

Fig. 1. Map of Northwestern Syria with location of Tell Afis and indications of modern roads (copyright Sergio Martelli 2007).

lets (Venturi 2020). Monumental buildings next to a large, sunken, ceremonial courtyard on the Acropolis were part of a cultic area, presumably dedicated to a Storm god, dating to 11th-7th century BC, the time in which Afis then became Hazrek, the capital city of the important Aramaean kingdom of Hamath and Lu'ash. The special function of the buildings and of the whole area is confirmed by the specialized archaeological associated materials (Fig. 3.a, b).

2. CURRENT SITUATION

Works at the site have been part of a long-standing project carried out until 2010, just before the political upheaval occurred in 2011 which caused the closing down of all the expeditions active in Syria at that time due to the general disruption.[2]

[2] For the last report see Mazzoni 2012.

Fig. 2. Tell Afis, view from the west (copyright Afis expedition).

Fig. 3. Tell Afis: a. ivory recumbent calf, AI temple annex (2,1x6,6x3,3 cm); b. cultic vessel, A III temple (27x13 cm), Iron Age (copyright Afis expedition).

Tell Afis is part of the governorate of Idlib and has since then remained within the limits of the opposition-held territory. During this period the site has been affected by some looting and its most relevant feature on the top, the cenotaph of Sheikh Hassan, object of restoration by our mission in 2000, has been destroyed, most probably rather early, already by 2012 (Fig. 4).

Fig. 4. Tell Afis, view of the Sheikh Hassan cenotaph on the Acropolis from west (2003) (copyright Afis expedition).

As it is possible to see by comparing satellite images of the site through time since the outbreak of the conflict, apart from many new building activities detectable in several areas of the mound profiting from lack of safeguarding, defense works for military purpose have been erected on crucial locations on the mound itself including a quite recent long trench running east-west (Fig. 5.a, b).

A different fate experienced Saraqib, a town located just few kilometers to the southeast of Tell Afis where the expedition was based since 2000. Initially, two houses had been rented in the town of Saraqib for the purpose of accommodation from a close friend of both Ebla and Afis expeditions, dr Fais Abeidin:[3] one where women lodges and all common rooms were placed and one, nearby, to accomodate all male members of the team, both provided with large courtyards ideal for post-excavation activities (Fig. 6.a). In 2003, the latter house was left for a new, two-storey building, with spacious storerooms, located in the basement, where all archaeological materials which were not sent to the Idlib museum could find place along with some excavation equipment.

[3] To him our greatest gratitude for all help and support always granted to our mission in Syria.

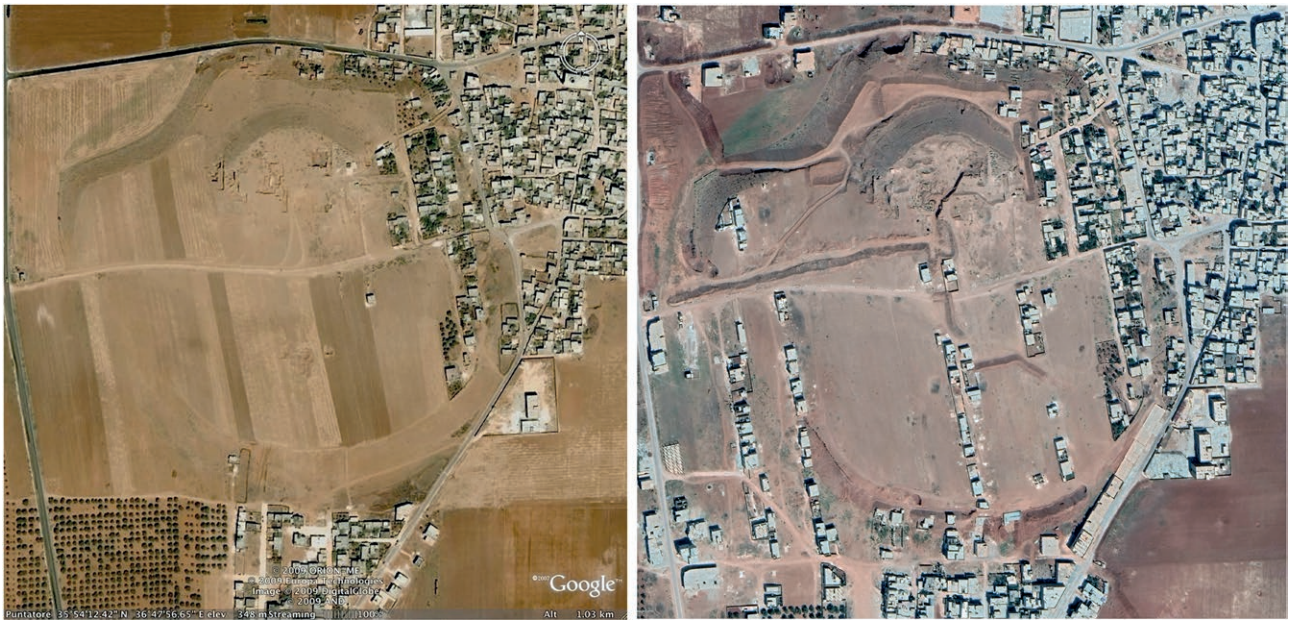

Fig. 5. Tell Afis, 2009 and 2021 satellite images (copyright Google Earth Pro).

Fig. 6. Saraqib, expedition house courtyard a. in 2003; b. in 2021 (copyright Afis expedition).

As usual in all archaeological projects in Western Asia, most of the sherds retrieved in the excavations, after having been processed, catalogued, drawn and/or photographed, were kept in the storerooms of the expedition house together with different sorts of soil, botanical and osteological samples and all other finds which were not handed in to the museum. Such collections, fundamental for the expedition's post-excavation work, were also valuable resources not only for each mission specialists but also for all scholars who asked permission to see the materials.

In 2020, Saraqib was taken back by government forces. Within a city largely destroyed, our houses were still standing but devastated (Fig. 6.b): all extant materials from within the buildings, including storerooms, were found thrown out in the courtyards, scattered around and utterly broken, as was still possible to ascertain by Stefania Mazzoni and Serena Cecchini in a visit in December 2021.

However, some materials had escaped from destruction and had been brought by DGAM officials during late Spring 2021 to the museum of Ma'arrat al-Nu'man, a town located to the south of Saraqib on the highway leading to Damascus – the closest possible location, being the Idlib museum still off limits.

The city of Ma'arrat itself had been bombed and abandoned, but the museum, although badly damaged, was still standing. The building was originally a khan dating to the 16th century, turned in 1987 into a museum of Late Antique mosaics from the region. In 2021 the Afis materials had been placed by the DGAM in its eastern wing, in the space left free from the sandbags put against the wall to protect the leaning mosaic panels. However, the location was clearly unfit for long storage, as already assessed by Marina Pucci in an early visit in March 2021. That was the reason for planning an expedition in September, to arrange things to enable the move of the materials in a safer place, more to the south, in the Hama Archaeological Museum, where the director of the DGAM of Idlib, Ghazi Alulu, under whose responsibility fall the archaeological materials from Tell Afis, holds temporarily his office. [4]

3. 2021: WORK IN MA'ARRAT AL-NU'MAN

The archaeological materials in Ma'arrat were partly in the original plastic boxes used for storage, partly in the typical black containers made of car tires (arabic *zanabil*), usually used in excavations to carry pottery from the dig, some simply in plastic bags (Fig. 7.a).[5] Many sherds were also scattered on the ground, around and beneath the containers. Finally, there were three arrays of red plastic boxes of a type we never used in our storeroom and fetched by the DGAM to collect sparse materials, filled in till the top and beyond with sherds, some in the original cloth or plastic bags, some loosely placed there.

Among these materials were included also finds from the sites surveyed by the Afis expedition in the Jazr region surrounding the site, especially Tell Nuwaz, Tell Zertine and Tell Sheikh Mansur (Mazzoni 2005).

It was immediately clear that, apart from few exceptions, most of the containers did not hold any longer their original content, clearly indicated on the tags attached to each box in the Saraqib storerooms, but mixed materials.

Therefore, our first task was to recognize and put apart the few, individual complete pieces or reassign together batches of materials, thanks to the presence of inventory numbers inked on them.

To make up for the chaotic state of the materials, they were sorted out by categories (pottery, bones, lithics, small finds) and put back into plastic boxes provided of tags. While keeping all boxes in good conditions, new ones have been bought in Aleppo to facilitate the transfer to their new location.

In addition to material finds, hard copies of the expedition archive, of which the originals are all in the University of Florence premises, had also been displaced here: all these materials were also sorted out and checked to be moved along with the objects.

On the whole 140 boxes were prepared to be moved to their final destination in Hama (Fig. 7.b).

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[4] The operation was planned by Stefania Mazzoni in accordance with the Directorate-General of Antiquities and Museums of Syria (DGAM), in the persons of the General Director Nazir Awad and the Deputy General Director and Director of Excavations Dr Houmam Saad, and generously funded by the Italian Ministry of Foreign Affairs and by the Fondazione Orme, to which goes our deepest gratitude. The team included, beside Stefania Mazzoni and the present writer, Safwan Bannan, member of the staff of the Aleppo Museum, who has helped us in all possible ways with great proficiency and kindness; Giuseppe Minunno, senior member of Tell Afis expedition, lecturer at the School of Specialization in Archaeology at the University of Florence, and Margherita Carletti, PhD candidate at Freie Universität Berlin.

[5] It was planned to stay in Aleppo and commute each day for a week to the town of Ma'arrat al-Nu'man to work on the materials which were housed there. That not solely for the practical reason that Aleppo was the only possible place where to find an accommodation at that time but also because of the presence of the team of the University of Florence, headed by Marina Pucci, working at the museum there. I wish also to thank warmly Marina Pucci whose help was fundamental in the organization and accomplishment of this task.

Fig. 7. Ma'arrat al-Nu'man Museum, Tell Afis materials before (a) and after our intervention (b) (copyright Afis expedition).

4. 2022: WORK IN HAMA

In 2022 two further campaigns were conducted in June and September to accomplish a more thorough check on the surviving materials from Afis excavations in the archaeological museum at Hama (Fig. 8.a).[6]

The activities included assessment and reattribution of a large proportion of items, restoration of some fragmentary pieces, arrangement for temporary storage in the basement of the museum. Preliminary inspections were also carried out to plan the preparation for an exhibition of a choice of materials from Tell Afis in a room at the first floor of the museum: such space could be furbished with informative panels on the long history of the site, from the Late Chalcolithic to its apogee, when the site became the capital of the kingdom of Hamath and Lu'ash (1st millennium BC). All the above-mentioned activities could be carried out thanks to the close collaboration with the Museum Director Hazem Jarhas and the Museum officials Yasmine Kasser and Ziad Alkahit.

Around 1700 pottery sherds could be identified and arranged in plastic bags according to excavation areas within separate boxes by years, totaling 50 new boxes.[7] Sherds with no inventory numbers have been checked through looking for joins with numbered sherds and put aside in boxes for further future controls. All these materials have been arranged in an area separate from the already processed ones. The most remarkable pieces both in terms of preservation conditions and of scientific relevance were put aside to be included in the temporary exhibit in the museum. To that end, some fragmentary pieces were handed over to the Hama Museum conservator Hend Al Khannas to be restored (Fig. 8.b).[8]

The inspections carried out to check the compliance with safety standards of the building and the availability of space for an exhibition could ascertain that the museum, open in 1999 in the actual location to house finds from the Danish excavations of the tell of Hama and neighbouring sites, did not suffer from significant damages

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[6] The first campaign team included: Stefania Mazzoni, Serena Cecchini, Giuseppe Minunno and Federico Mandorino, MA student at the University of Florence. The second campaign group consisted of the present writer, Stefania Mazzoni, Sebastiano Soldi (assistant curator of the National Archaeological Museum of Florence and lecturer at the School of Specialization in Archaeology at the University of Florence, senior member of the Afis expedition), Giuseppe Minunno, Emily Bolognesi (student of the School of Specialization in Archaeology at the University of Florence) and Laura Siciliano (MA student of Archeology at the University of Florence). In the Hama museum storerooms were also located materials from Ebla expedition house: Matthiae *et al*. 2022: 3, 4, note 6.

[7] Unfortunately, it is still impossible to calculate the total number of preserved sherds.

[8] The Object Conservation Laboratory of Hama was refurbished and equipped in the context of the project "Documentation, Conservation and Preservation of the Hellenistic Collection of the Archaeological Museum of Hama in Syria" carried out by the Technological Educational Institute of Athens in collaboration with the DGAM – Ministry of Culture of Syria and the Centre for Museum Studies of the National Kapodistrian University of Athens, from 2006 up to 2008: Panagiaris *et al.* 2014.

Fig. 8. Hama museum: a. work on the pottery from Tell Afis (copyright Afis expedition); b. pottery restoration (copyright Y. Kasser).

caused by the war and is in good conditions, although in need of some renovations. In particular, the large room at the second floor which could be chosen as site for the Afis exhibition has only broken windows glasses and collapses of false ceilings. The frequent lack of electricity in the museum as well as in the whole city makes any work with electrical devices difficult but that could be temporarily bypassed by using solar storage batteries.

5. CONCLUDING REMARKS

Since the outbreak of the conflict in Syria, activities on the site have by force become exclusively activities for the site, readdressing energies towards projects of digitization of the dig archive, study and publication of the excavation results.[9] Dissemination of knowledge about the site has been accomplished also in teaching activities at the University of Florence, where sampled materials from Afis, brought to Italy over the years for analyses and circumstantial studies according to past Syrian export regulations, have become an important dataset in students' training in the dedicated lab. In addition, participation into both specialists' conferences and public venues,[10] organization of focused workshops, as the one taking place in Florence in 2018 on pottery repertoires from the Yamkhad kingdom (Felli 2021: 125, 126, note 2), have played an important role in keeping scholarly attention on the site and its region through this long period of forced halt of fieldwork activities.

At least two more campaigns are needed to fulfill our planned task in Syria. Any future plan for the site appears inevitably subject to the evolution of the political situation in its region. The recent earthquake in February 2023 has caused a worsening of current living conditions in the whole area having the only positive effect of a temporary lift of sanctions by the United States. What effect would have in the long run is unpredictable, but certainly the path to recovery appears steep and difficult. Archaeology is clearly not the first entry in the agenda now, but it is a crucial field towards which continue to address attention and efforts both at a local and international level not only to protect the country's heritage but also to create new hope for a better future.

[9] Venturi 2020; Felli 2019, 2021; Di Michele 2022; Giannessi 2022.

[10] Preliminary accounts of individual campaigns have been presented orally in a number of venues, including the conference *Egitto e Vicino Oriente Antichi: Tra Passato e Futuro* held at the University of Rome 'La Sapienza' (July 2022).

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Living in the Lower Town at Kınık Höyük (Niğde). Preliminary Report on the 2021-2022 Campaigns in Anatolia

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Abstract. Excavations at the site of Kınık Höyük have brought to light over the past twelve years several occupational phases dated to the first Millennium BCE both on the acropolis and in the lower town, especially for the Middle Iron Age and the Hellenistic period. Since 2021 the University of Firenze joined the University of Pavia (Italy), NYU-ISAW (USA) and Dokuz Eylül University in Izmir (Turkey) in the excavations at the site of Kınık Höyük, and since 2022 the same university took over in the management of the project. This article is a preliminary report on recent excavations area D2-3, located in the lower town, where archaeologists could identify six phases of occupation and two large primary contexts dated to the beginning of the Middle Iron Age, that provide new insights on every-day assemblages and inventories produced locally and the architectural and archaeological context they are related to. The most interesting element in terms of urban layout and structure is related to the construction of the massive defensive fortification of the lower town, that seems to be related so far to the earliest occupation of the Iron Age lower town, i.e. possibly at the end of the Early Iron Age. A selection of the materials and a detailed report on deposits and architecture provides the reader with the archaeological data collected mainly in the campaign 2022 and 2021 in the lower town excavations, while a general overview on the urban fortification of the acropolis allows a general picture of the whole settlement defensive system and space organisation.

Keywords: Middle Iron Age, Cappadocia, Lower Town, Kınık Höyük, urbanism.

In 2021 the University of Firenze joined the University of Pavia (Italy), NYU-ISAW (USA) and Dokuz Eylül University in Izmir (Turkey) in the excavations at the site of Niğde-Kınık Höyük, and in 2022 the same university took over the management of the project. All four institutions continue to cooperate in this large archaeological project, focusing their research on different excavation areas and sharing the same aims and research goals. This collaboration fosters productive scientific discussion, connects students from different universities, and encourages teamwork, which is vital in supporting such a large enterprise.

This article is a preliminary report on recent excavations conducted in one area located in the lower town, Operation D. Furthermore, in an introductory section, we will provide a brief overview of archaeological research conducted at the site's mound, with a specific emphasis on the evidence originating from the southern slope (Operation C), which is of more direct relevance to the discussion of topography and urbanistic layout of the lower settlement.

The authors of the present contribution have been involved at different levels in the analysis and study of the archaeological evidence.[1] The results presented here also consider the activities carried out prior to 2021 in the lower town, as well as the precious work and documentation provided by other colleagues previously and still involved in the project.[2]

1. THE ARCHAEOLOGICAL SITE OF NİĞDE-KINIK HÖYÜK

Niğde-Kınık Höyük (N-KH) is located on the northern fringes of the Bor Plain, in southern Cappadocia. Excavations at the site stemmed from a survey conducted between 2006 and 2009, under the direction of Lorenzo d'Alfonso and Clelia Mora (Pavia University). The survey covered an area of about 800 km^2, stretching over the northernmost fringes of the Bor Plain and the southern and eastern slopes of the Keçiboydurandağ and Melendiz Dağları (Matessi, Gürel *et al.* 2016 , d'Alfonso, Balza *et al.* 2017). Among the 37 sites recorded, Kınık Höyük was selected for a long-term excavation project in light of its long occupation history – with surface materials spanning from the Early Bronze Age to the Ottoman periods – and its large dimensions, supporting the presence of a first-tier settlement. Furthermore, no modern constructions are present on the mound and in the surrounding terrace, in contrast to other key regional centres such as Niğde-*Nahita-Nahitiya* and Kemerhisar-*Tuwanuwa-Tuwana-Tyana*, which are buried underneath modern cities. Despite an undeniable historical interest, until recent decades southern Cappadocia has remained systematically overlooked by archaeological research (Matessi, Tommasini Pieri 2017). One of the main goals of the project has been, thus, to provide a new set of archaeological evidence for this region, which correspond to the core of the Iron Age kingdom of Tuwana and the Graeco-Roman Tyanitis.

Following geomagnetic and GPR prospections conducted in a preparatory campaign, excavations at the site began in 2011 as a collaborative endeavour of Pavia University (Italy) and NYU-ISAW (USA), under the direction of Lorenzo d'Alfonso. The site is composed by an elliptic (180×120 m), 20-m-high mound, set on a roughly square terrace rising about 2 m from the surrounding plain. Excavations are currently divided into five main operation areas (Fig. 1). Operation A is located on the northern slope of the mound, investigating the mound defensive

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[1] Dr. Mariacarmela Montesanto works as supervisor since 2021 in the excavations in Area D, in 2022 Sofia Bartolozzi, Federica Lentini and Margherita Carletti (MA) supervised different trenches in Operation D. Caterina Fantoni (MA) is writing a PhD thesis at the University of Pavia on the materials from the lower town, she is also small find registrar at the excavations, Corrado Alvaro together with Margherita Carletti are responsible since 2022 for the topography at the site; Dr. Lorenzo Castellano is supervisor in Operation C, he also conducts bioarchaeological research at the site since 2015. Burak Yolaçan is co-director and supervises excavations in Operation E on the acropolis. Marina Pucci is the current director of the excavations.

[2] We would like to acknowledge and thank Prof. Lorenzo d'Alfonso, former director of the excavations and current responsible for the acropolis investigations, who started and organized the excavations at the site and focused his attention on this specific region. Credits are due to Paola Vertuani, illustrator, and to Figen Türker, photographer, they have authored the pottery and small finds drawings and photos in this article, while the conservators Izel Gungor and Fazlı Açikgöz have been working on the pottery material in 2022. All students from the universities of Izmir, Pavia and Firenze provided a crucial contribution to the success of the 2022 season. To all these people goes our warm thanks.

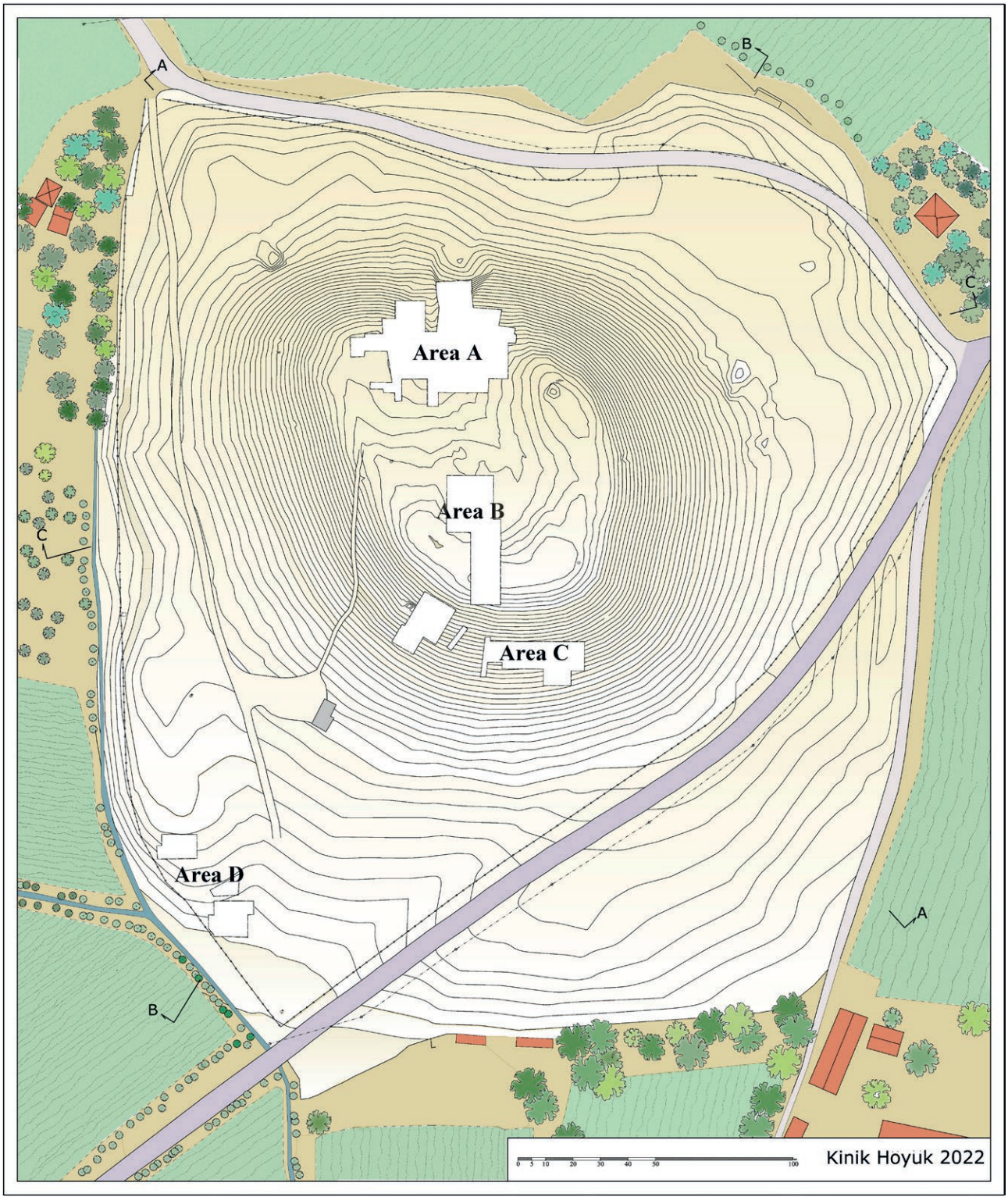

Fig. 1. Topographic plan of the mound (C. Alvaro).

structures (sector Aw) and building complexes to the inside of the citadel (sectors A1 and A2). Operation A is adjoined to the south by Operation E, focusing on public architecture dating to the Hellenistic and Roman periods. Operation B, divided into sector B1 (north) and B2 (south), is located on hilltop. In Operation C, on the southern slope of the mound, are under investigation the Iron Age fortifications and a coeval storage area in their proximity. Finally, Operation D, the focus of this contribution, investigates the occupation of the lower town. For a general introduction to the site, we refer to Highcock, Crabtree *et al.* 2015; d'Alfonso, Castellano 2018; Lanaro, Castellano *et al.* 2020; d'Alfonso, Yolaçan *et al.* 2020; and Yolaçan, Pucci *et al.* 2022.

2. THE TOPOGRAPHY OF THE SITE

We conducted a topographic survey during the 2022 campaign at N-KH that aimed to update and review the documentation at our disposal, since more than 12 years had passed since the first survey and some adjustments were required.[3] Moreover, given the evidence of the structures identified on the acropolis and in the lower town, we decided to draft several mound sections to provide the shape of the mound, its features, and the position of the defensive structures identified so far. This activity has been propaedeutic for the morphological analysis of the mound in connection to the main structures identified on the acropolis and in the lower town. The network of topographic reference points has been checked and when needed new ones have been set to thicken the polygonal network at the site.[4]

The archaeological site extends over a surface of approximately 9.5 ha, 7 of which are currently fenced; its maximum height from ground level is about 20 m and it is clearly divided into a central higher area, an approximately 3 ha mound, and the surrounding lower town. The section (Fig. 2) clearly shows that the north-eastern slope is particularly steep: the lower town just next to the mound is only 4.5 m higher than ground level (1199.5 m)[5] in this portion, while the slope of the mound is particularly steep and reaches here its highest elevation (1220 m). A paved road runs through the south-eastern portion of the lower town (Fig. 1) and gravel roads are found in the northern and western parts of the lower town. When archaeological excavations began in 2011 the mound was still intact.

The 1-m range isohypses naturally highlight the slope of the acropolis, which is very regular except in the northern sector. For the lower city, the morphology of the terrain highlights some interesting anomalies. In the south-western area, the curves show a wide depression that channels water in the direction of the south-western corner of the site. Considering that archaeological finds in Operation D (see Phase 6 below) point to the presence of a town wall and possibly a road network (cf. Phase 5), the above-mentioned depression could therefore indicate the presence of a gate access that, understood as a discontinuity in the supposed city wall, would have facilitated the formation of the depression itself.

A similar morphology, although not yet archaeologically investigated, is visible on the northern slope of the site; here a slightly smaller depression located very close to the bottom of the mound may also suggest a discontinuity in the mound-wall perimeter, thereby indicating the town wall is irregular. To the north-east the site presents a "protuberance", which could potentially be read in connection with a possible mound gate. A water course, now regimented, is located at the western border of the archaeological area. Even if its straight course is now artificial, a water source was present in the ancient landscape. A preliminary discussion of the broader environmental and geomorphological setting of the site is provided by Castellano, Campana *et al.* (2023).

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[3] The relative zero point for the coordinates has been set at the bottom left corner of the grid, the rotation error between the structures on the acropolis and those on the slope and in the lower town has been in part fixed. The original grid 100 by 100 m has not been changed, as well as the 10x10 squares.

[4] Topography operations have been carried out using a Leica Total Station Flexline TS 10, angular precision 0.1", range 3500 m, quadruple axis compensation.

[5] All elevation measurements provided in this article and in all other publications about the site should be considered relative and not absolute above sea level.

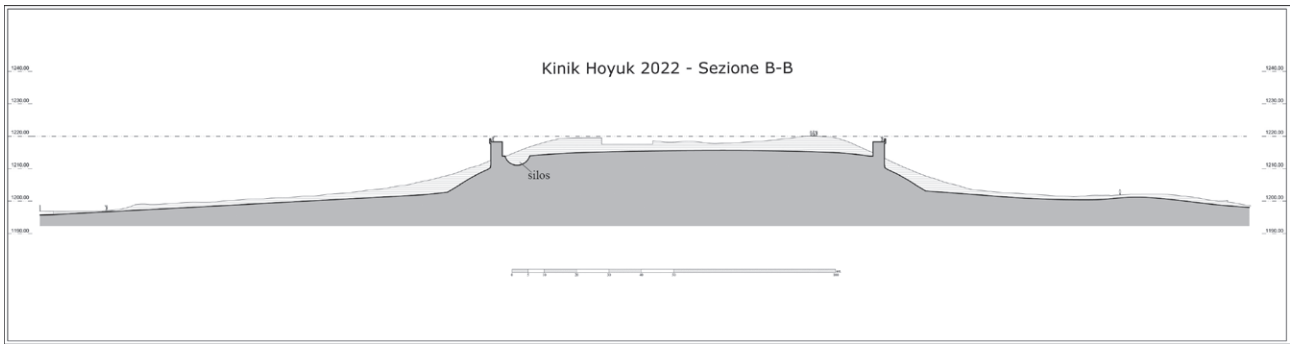

Fig. 2. Section connecting the mound to the lower town (C. Alvaro).

3. THE ACROPOLIS FORTIFICATION SYSTEM

The presence of a fortification on the acropolis of N-KH was initially documented through geomagnetic prospections conducted in 2010 (d'Alfonso, Mora 2011: 551). Following these findings, stratigraphic investigations were carried out in 2011, and two excavation areas were opened on the northern (Operation A) and southern (Operation C) slopes of the mound, respectively (Fig. 1). The results of the 2011 campaign confirmed the existence of walls enclosing the citadel in the Iron Age (Matessi, Capardoni *et al.* 2014). Subsequent fieldwork has been dedicated to studying the layout, construction techniques, chronology, and phasing of these structures.

Leaving to literature (e.g., Lanaro, Castellano *et al.* 2020) a discussion of the evidence from elsewhere on the mound, in this section we provide an overview of the southern slope fortification system, which more directly connects to the urbanistic organisation of the lower town exposed in the nearby Operation D (Figs 1 and 2). Research in this area of the site is ongoing; the considerations provided here are thus to be regarded as provisional.

a. Excavations on the southern slope

Excavations on the southern slope of the mound (Operation C) began in 2011 with the opening of four test trenches aimed at exposing the stone socle of the citadel walls (Matessi, Capardoni *et al.* 2014: 326-328). After a hiatus of three years, fieldwork in this area of the site resumed in 2015 and since then has been carried out in four main sectors: Cwalls (squares S15.17, S15.22, S22.1-2, S22.6-7), C3 (squares S15.8-9), C3walls (squares S15.2-3, S15.8), and C4 (square S15.17).

Sector Cwalls is a large-scale, open-area excavation covering approximately 435 m^2. The main objective of this sector is to investigate the general layout of the Iron Age defensive infrastructures. By removing a shallow sequence of reworked slope deposits, it was possible to expose the socle of the citadel walls for a total length of approximately 35 m. The width of the wall masonry varies between *ca.* 4.0 and 4.5 m. The core of the structure (C3505) was constructed using small unworked stones, with voids filled by a mixture of earth mortar and rubble. The two sidewalls (C3503, C3504) are made of comparatively larger unworked stones that are more coherently arranged. As we move eastward in the sector, the walls gradually descend to lower elevations on the modern slope (Fig. 3). In the easternmost portion of the sector, the outer façade of the walls is abutted by the stone socle of a square tower (C2586) measuring approximately 6.00 x 5.70 m. Another similar structure (C2602) was intercepted further to the east (Fig. 4). This evidence might suggest the presence of a gate flanked by two towers (Fig. 3), which is currently under investigation.

Sectors C3 and C3walls are situated in the north-western end of Operation C. Although these two trenches are adjacent to one another, they are considered distinct sectors due to the absence of any direct stratigraphic relationship: C3 is located upslope of the citadel walls, while C3walls is downslope. In Sector C3, Achaemenid (KH-P

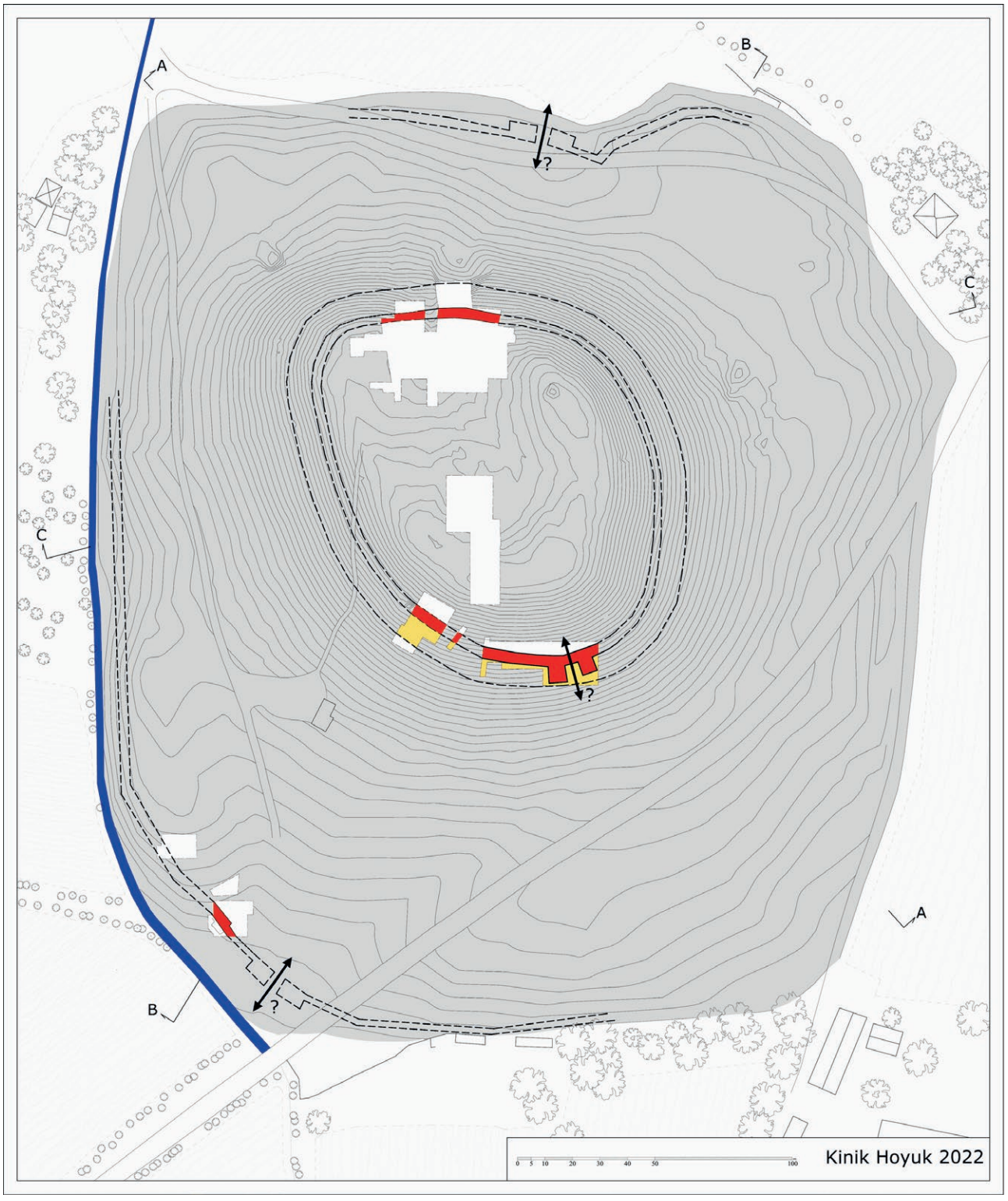

Fig. 3. Reconstruction of the possible layout of the defensive walls during the Iron Age (C. Alvaro).

Fig. 4. Sector Cwalls at the end of the 2022 field season. In the foreground are the citadel walls and the tower C2602. A second tower (C2586) is visible in the background.

III) and Hellenistic (KH-P IIB) evidence is to date completely missing, while a Seljuk-Ottoman presence (KH-P I) is documented exclusively by negative features (Level C3.1). This stratigraphic hiatus is likely a result of runoff that occurred after the abandonment of the citadel. Slope processes severely also eroded the top-most portion of the Iron Age deposit. Middle-Late Iron Age (KH-P IV) strata (Level C3.2) are, in fact, preserved exclusively in a narrow strip approximately 1 m wide along the north-eastern excavation limit. Although occupation surfaces are likewise eroded, foundations and negative structures dating to the Early-Middle Iron Age (KH-P VA) have been exposed in the entire excavation area (Level C3.3). To this level are attributed two large-scale underground granaries (C2522 and C2884), which are discussed at length by Castellano (Castellano 2018) (Fig. 5). It is plausible that these storage structures were constructed in conjunction with the citadel walls as part of a coherent urbanistic project. Thus far, deposits predating the construction of Level C3.3 infrastructure have only been reached at the bottom of a deep trench (Levels C3.4, C3.5, C3.6), providing little information in terms of spatial organisation and architecture. A sequence of radiocarbon dates allows us to frame the chronology of the stratigraphic sequence exposed in Sector C3. Radiocarbon analysis on cereal grains found in between two plastering phases of Silo C2522 (Level C3.3) provides a *terminus ante-quem* to its construction at 920±86 cal BC (95% probability). The uppermost unit (C2526) from Level C3.4 has been radiocarbon dated to 1065±138 cal BC (95% probability), which returns thus a *post-quem* term to the construction of Level C3.3 architecture. Finally, the lowest level (C3.6) intercepted in C3 has been radiocarbon dated to 1259±130 cal BC (95% probability; cereal grains from C3411).

Sector C3walls is located to the south of C3, downslope to the citadel walls. In this area, Late Hellenistic (KH-P IIB) structures (Level C3walls.1) are preserved in a narrow area approximately 2 m wide, close to the south-

Fig. 5. Sector C3, granary C2884 (Level C3.3), partially intercepted within the excavation limits.

western excavation limit. These include a glacis (C3432) made of large-flattened stones, which was likely built as part of a broader intervention of slope consolidation. Uphill from the Hellenistic glacis, beneath the topsoil we exposed a thick sequence of accumulations rich in mixed Iron Age materials (Level C3walls.3). Location and characteristics of these units suggest they were deposited either as part of an intervention for slope consolidation or as trash deposits (Fig. 6). Below the accumulations of Level C3walls.3, we uncovered an earthen rampart (C2673) (Level C3walls.4). The rampart consists of a compacted silty-sand mixture that is 10-20 cm thick (Fig. 7). Radiocarbon dating of a short-lived specimen from an accumulation (C3473) underneath this surface returned an age of 1117±102 cal BC (95% probability), which provides a *terminus post-quem* to its construction. The rampart surface lines to the socle of the Iron Age citadel walls (up to 1.20 m), forming a plaster that is further strengthened by the large ceramic fragments pressed into it (Fig. 6). A steep east to west slope is present, showing a gradient of approximately 56% (5.48 m rise over a 9.78 m run). While the overall slope appears regular, internal breaks are noticed. In the exposed area, the rampart does not show any significant reduction in the slope, thus further continuing towards the current base of the mound.

Sector C4, finally, is a deep sounding (ca. 2x15 m) excavated in Square S15.17 within the limits of a 2011 test trench. The main aim of this sector is to investigate the construction techniques used for the citadel wall and to expose the deposits underneath it. A recent review of the fieldwork conducted in C4 has been published (d'Alfonso, Matessi *et al.* 2020: 71-77), to which we refer for further information.

Fig. 6. Sector C3walls, rampart (Level C3walls.4), note in section the sequence of accumulations abutting the outer façade of the citadel walls (Level C3walls.3).

b. A view of the lower town from the southern slope

In Operation C, the uppermost portion of the occupation sequence has suffered significant erosion. These post-depositional processes directly impact the overall topography of the lower town near the slope's base, where deposits from the Iron Age and post-Iron Age periods are likely buried beneath a thick layer of later colluvium. Due to the limited available evidence, it's challenging to reconstruct the configuration of the slope and its topographic connection to the lower town during the Achaemenid and Hellenistic occupations. However, the presence of a Late Hellenistic stone glacis suggests a degree of monumentality in the late 1st millennium BC (Level C3walls.1; KH-P IIB). More substantial evidence is available for the Iron Age.

Available evidence suggests that the Iron Age citadel walls were built in the early 1st millennium BC (KH-P VA, 1000-800 BC) as part of a broader urbanistic reorganization of the mound (Lanaro, Castellano *et al.* 2020). It's plausible that during this period, a second fortification system existed in the lower town, as suggested by the structures exposed in Operation D, which are discussed in detail elsewhere in this article (see Phase 6 below). To the outside of the walls, an earthen rampart connects the citadel to the lower town via a steep slope. If we hypothetically consider an elevation of the Iron Age lower town at approximately 1196 m (based on Phase 6 surfaces in Operation D, see below), and assume that the rampart's slope is consistent, the latter would extend approximately 15 m beyond the current southeastern excavation limit of Sector C3wall, for a total length of about 24 m (Fig. 2). A citadel gate likely exists between the two towers exposed in the easternmost sector of Operation C (Fig. 3). Consequently, we may further speculate about the presence of a street connecting the gate to the lower settlement. Fieldwork in this sector is ongoing; additional information on the urban layout of this area may be thus provided in future excavation seasons.

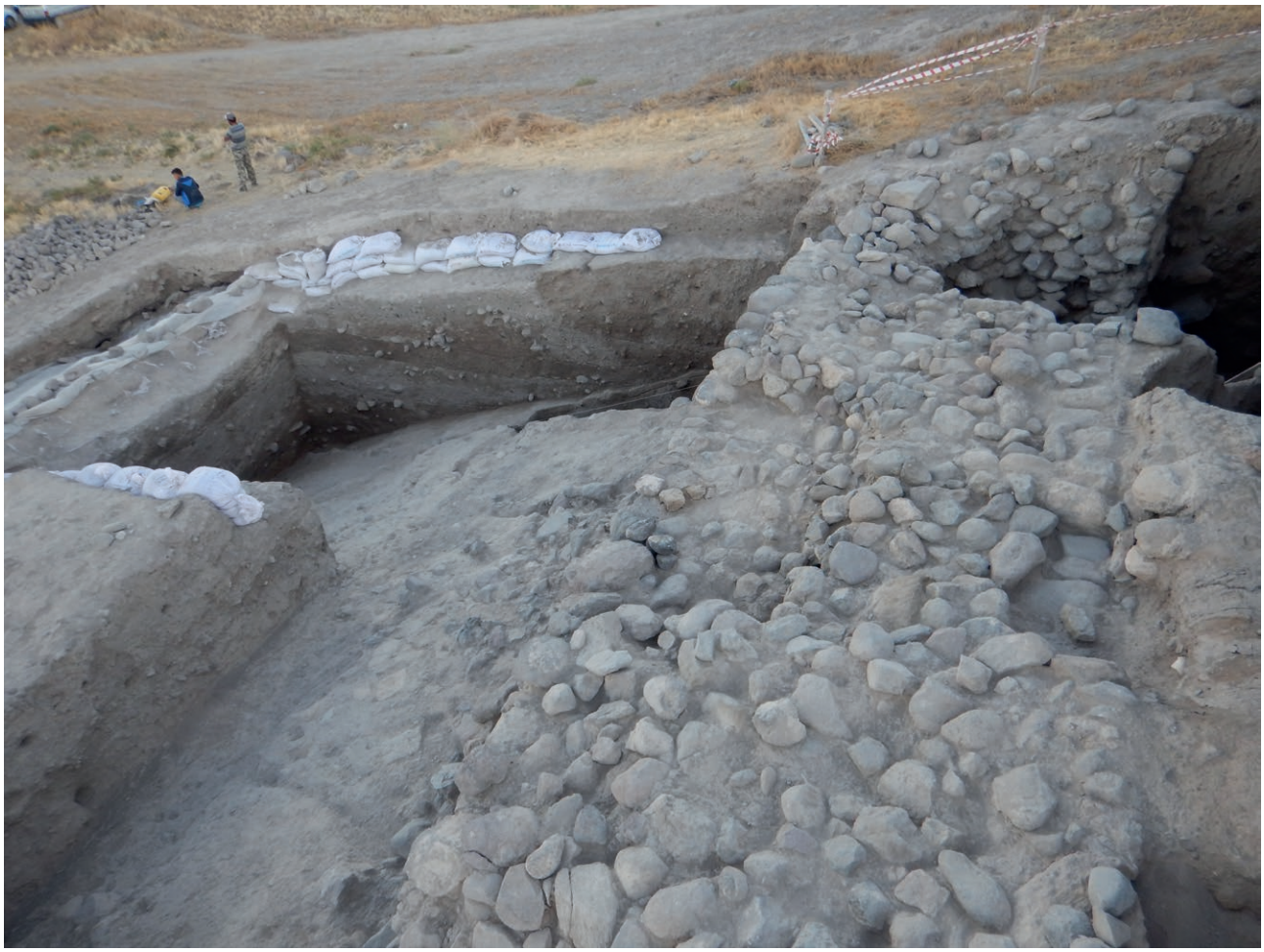

Fig. 7. Sector C3walls, panoramic view of citadel walls and associated rampart (Level C3walls.4).

4. EXCAVATIONS IN OPERATION D (SECTORS D2 AND D3)

Archaeological investigations in the lower town – specifically in Operation D – started in 2013 with the aim of exploring the settlement on the south-western edge of the terrace. Operation D encompasses two excavation sectors (D1 and D2+3) that are not archaeologically connected and are located 15 metres apart.

When the northern sector was opened in 2013 it was initially named D; in 2018 the name was changed to D1 (cf. Fig.1). Four occupational levels have been identified over an extent of 142 m^2 (cf. Table 1, left column, level D.1-4). Thus far the best-preserved architectural features are located in Level D.3 and date to the Achaemenid-Early Hellenistic period (KH-P III in the settlement periodisation): here a large domestic structure with an external courtyard and several fire installations was brought to light. In 2018 archaeological investigations were stopped in this specific sector to preserve this domestic structure, which is currently visible under a protective roof.[6] In the same year the team opened a new excavation sector – named D2 – to the south, in a portion of the settlement where the surface drops, probably because of the later removal of uppermost soil levels for construction purposes (see Phase 1 below). This feature of the terrain once led archaeologists to assume that the uppermost (Hellenistic

[6] The University of Pavia and NYU-ISAW promoted a roofing system that allowed for better air circulation and protection of the excavated areas (Morandotti, Zamperini *et al.* 2016).

and Achaemenid) occupational levels had already been removed from this portion of the lower town, and that the archaeological evidence underneath the current surface should be dated earlier than the Achaemenid period; they therefore numbered the occupational "levels" identified in D2 starting with the number 5, i.e. the one considered below the Achaemenid level D.3 (Lanaro, Castellano *et al.* 2020: 220). This assumption was based on the retrieval of stone foundations in the sounding in D2 north that could possibly be equated to the stone foundations of the structure to the north belonging to Level D.3. In order to obtain a general overview of the settlement sequence of the lower town and retrieve data useful for chronology, a small portion of the new sector D2, i.e. the northern triangle, was investigated vertically. In this very small trench, recently published (Highcock, Matessi 2021), archaeologists were able to identify an occupational sequence dating from the Early Bronze Age to the Achaemenid period.

During the 2021 and 2022 campaigns Sector D2 was further expanded (D3) to the south, east and north, reaching the current extent of 252 m^2. Archaeological excavations in this area aimed at better understanding the type of occupational sequence of this southern part of the terrace, the horizontal connections to the stratigraphy of the lower town identified so far, and the urban layout of this portion of the lower town during the Iron Age. This article presents the provisional results and the archaeological data related to the deposits and structures that have been brought to light. To clearly separate the "levels" identified in Operation D from the occupational phases, the term "phase" is used here to identify periods of occupation that are characterised by the same concept of built space: a general structural rearrangement or abandonment of the area identifies each phase.

a. Phase 1: the Abandonment

The topsoil in Areas D2 and D3 slopes towards the south-eastern part of the area, with a sudden drop in elevation of approximately 2 m when compared to the surface immediately to the north of D2. Underneath the topsoil, the archaeological features are scattered and do not represent a steady occupational phase. These are visible only in the eastern, western, and northern parts of the area. The main feature is a very compact and yellowish deposit made of sand and small pebbles (D4413) that slopes towards the south and the east (Fig. 8). On top of this compact layer and concentrated in the eastern part of the area are a series of small, elliptical, and very shallow lenses of ashes, probably the remains of small open fires (D4408, D4409, D4410, D4411, D4412).

A few installations were identified in the northern part of the sector as belonging to this phase, such as an irregularly shaped pit (D4443) filled with loose brown soil. Inside the pit many pottery sherds were found along with animal bones and three metal slags, two of which are probably linked to metal production activity. The filling of the pit, and consequently the artefacts found within it, are obviously not related to the primary function of the pit itself.

Remains of an E-W aligned structure/installation (D4454) consisting of stones and mud bricks were unearthed in the north-eastern part of the sector, but no clues as to its function are discernible.

An alignment of one course of stones (D4445) oriented NW-SE is located in the north-western part of the area and may represent scant remains of wall foundations. Thus, the archaeological evidence does not provide any clear data for an occupational phase during this phase, but rather points to a scattered, temporary, and discontinuous use of the area.

The ceramic material in the deposits belonging to this phase does not provide a functionally homogeneous assemblage but rather includes fragments belonging to many different classes. Rim fragments of cooking pots are the most represented in the assemblage and their shape varies greatly: externally thickened, rolled out, simple and flaring. Some of these also present a short neck or simple decorations, but very little can be inferred about their body shapes or bases. Fragments pertaining to food consumption, such as plates, shallow bowls with decorated painted rims, deep bowls, as well as lustrated or painted open shapes, are common. The few closed examples in the assemblage consist of jar fragments with different rims and decorations and one fragmented hole-mouth jar, as well as sporadic storage jar fragments, both with flanged or hole-mouth rims.

Fig. 8. Phase 1, Small open fires (D4408, D4409, D4410, D4411, D4412).

Two fragments of grey ware – one carinated bowl rim, one shallow bowl/rim plate rim (Summers 1994)[7] – are also part of the assemblage. This kind of ware is absent in all other phases of this area except for this most recent Phase 1; however, it is a well-known class on the acropolis (KH-PIV) and has been dated between the 7th and 6th centuries BC (personal communication of Alessio Mantovan). None of these findings can be considered in primary context.

b. Phase 2: Pitting

Archaeological evidence in Phase 2, consisting of several round pits and a few built structures and installations, shows a clearer pattern of occupation that extends over the entire area (Fig. 9). In the north-eastern section two different installations are visible: first, a semi-circular stone structure (D3345=3291) made from boulders, seemingly part of a larger installation; the second being a smaller NW-SE wall, also built in stone (D3366), that appears to be part of the same structure but is not archaeologically connected. These may have been used to divide two areas that were at different elevations: a lower area with large pits, located to the west and north of the structure, and an

[7] The classification of the grey ware inside the larger group of "Reduction Ware" proposed by A. Mantovan in his PhD thesis is currently under revision. Therefore, for the time being Summers' (1994) definition of grey ware is employed here.

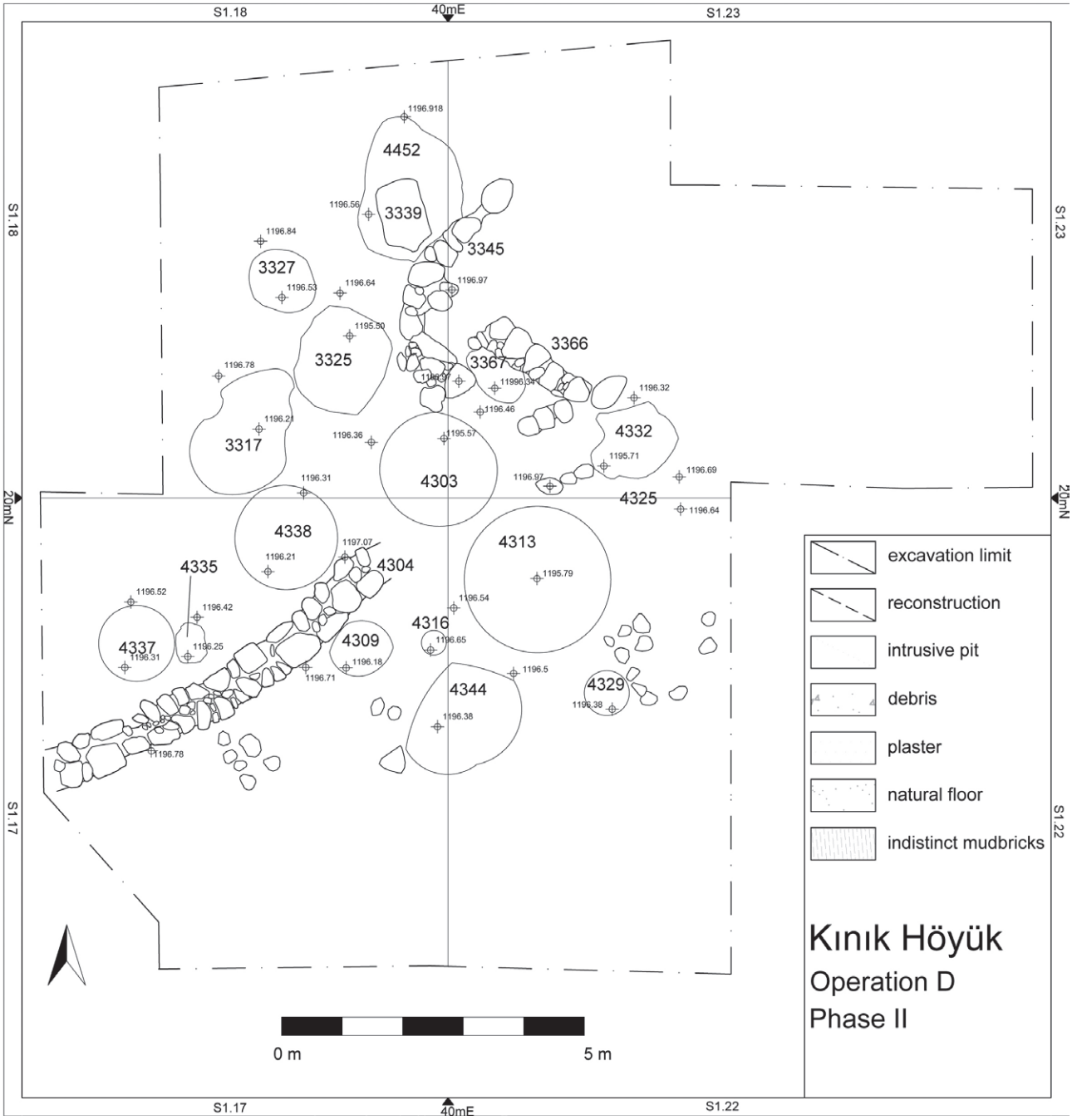

Fig. 9. Phase 2, Plan (editing M. Carletti and C. Alvaro).

eastern one extending over Square S1.23 without pits and characterised by a slightly thicker compact soil surface (Fig. 10). Deposits of compact earth (D3292-3318-3333) abut the structure on the eastern and western sides of the wall (D3305-3316).

In Square S1.17 a second, more solidly built stone wall (D4304=4330; Fig. 11) with a south-west/north-east orientation presents a slightly irregular alignment pointing towards the installation described above, but abruptly stopping just south of Pit D4303. Even though the construction technique used for D4304, i.e. two rows of stones

Fig. 10. Phase 2, D3345. Semicircular stone wall with north-east/south-west orientation on the northern side of the trench.

in width and two courses of stones in height, is different from the smaller and less precise D3366, we should not exclude the possibility that it originally extended up to Square S1.23. Occupational surfaces clearly related to both structures could not be found. The stratigraphic sequence points to the contemporary use of these structures and a series of pits located in the central part of the excavation area. Their cuts all appeared after the removal of the uppermost deposit, although the surface, from which they were cut could not be clearly identified. Although their primary function cannot be inferred, at the end of their use phase some of them were seemingly employed as trash pits, while others were left empty and later filled naturally with debris. Since their fill materials vary, it is possible to distinguish the different types of rubbish as follows: discarded installations and materials such as fragments of ovens, large pieces of pithos and other ceramics (D4313, Fig. 12); ashes (D4332); ashes and metal slags (D4309); as well as animal bones (D4338).

Debris such as stones and mud brick fragments are common, appearing in several pits such as the one in the centre of the area (D4303) and the one to the east in S1.22 (SU D4329), while a sort of collapsed material is very evident in the filling of the two pits (D4335 and 4337) on the western side of Square S1.17. All these installations seem to have been "filled". Only Pit D3367 located in between the stone installations in S1.23 has a different filling, characterised by large quantities of ceramic fragments; since this installation was dug into the room filling underneath (Phase 5), it is evident that a large quantity of material from this room became mixed into the filling of the pit itself.

The fillings in pits D4344, D3317 and D3327 lack any specific features to define their nature, most likely the result of being gradually filled in over time. Each of these three pits were dug into more ancient occupational levels, cutting one stone structure underneath, and the stones emerged on the bottom and on the sides of the pit. Howev-

Fig. 11. Phase 2, D4304. Stone structure with south-west/north-east orientation on the southern side of the trench.

er, only in Pit D3317 were fire traces detected on the side and bottom stones, while both D3317 and D4338 clearly cut a large mud brick wall belonging to the previous phase (D3353 in Phase 5).

A large pit (D4452- already D3365 in 2019) belongs to this phase. When it was partially excavated in 2019, its filling revealed soft earth, ceramic fragments, obsidian fragments and animal bones similar to the natural fillings observed in pits D4344 and D3317. In addition, a large, worked basalt stone (D3339) was found collapsed in the pit: the stone is roughly rectangular in shape, with long smoothed sides, and possibly represents an architectural element (Fig. 13).

All features seem to disappear just along an approximately E-W line located 15 m N: south of this "line" the deposits are natural accumulations (D4801-4817-4824-4805-4830) with scarce human traces (small pieces of ceramic and animal bones) and scattered stones. We deduced that during this phase, this southern area was not used for fixed installations.

Inside Pit D4313 two almost intact objects were uncovered (Fig. 14): one large krater (KIN21D4313F13) with a flanged rim, two strap vertical handles and a thickened raised low carination in the low part of the body. The base is missing. The surface presents an uneven coloration (bright orange/red on one side, dark brown on the other side) and is self-slipped and burnished; the traces of burnishing are clearly visible, and the strokes were made in different directions, pointing to hand burnishing. These traces of burnishing disappear below the carination, where there are two small holes indicating signs of an ancient restoration. The other intact object found inside the pit

Fig. 12. Phase 2, D4313. Pit with pithos fragments.

is a shallow bowl (KIN21D4313F15) with a vertical rim and a ring base. The surface is well smoothed with even colour, but it does not show any trace of further treatments, such as polishing or painted decorations. This shallow bowl is identical to another one found on the acropolis in Sector A (KIN22A4611F12), which has been dated to the Hellenistic period (Alessio Mantovan personal communication; Derada 2019, unpublished MA thesis). A partial grinder was also found in this assemblage.

The ceramic assemblage of this phase does not provide useful information on function or chronology of the area. Most of the uncovered fragments are associated with cooking ware (cooking pots and one shallow bowl). Several coarse ware fragments were discovered but are unrelated to any specific shape other than a pithos and a krater. Many fragments show signs of painted decoration or surface treatments, and they belong to shapes for food consumption, such as bowls or small jars. It's interesting to notice in the assemblage several fragments of Black on Red[8] and the presence of one Anatolian metallic ware fragment (Highcock, Matessi 2021).

[8] Black on Red or Cypro-Phoenician Ware is a well-known class of pottery, so far related to Cypriot production, and distributed in the eastern Mediterranean, in particular, Cilicia and the Amuq (Pucci 2019) during the 9th to the 7th cent. BC (Schreiber 2003).

Fig. 13. Phase 2, D4452. Pit with monumental, worked stone (D3339).

Fig. 14. Phase 2, KIN21D4313F15 and KIN21D4313F15, Krater and shallow bowl from pit D4313.

c. Phase 3: partial abandonment

Phase 3 is characterised by a series of thin, densely stratified deposits of pressed earth that are clearly visible in the southern half of the excavation sectors (Fig. 15). These deposits build a layer that is thicker in the south-western part, and it slopes towards the south-eastern part of the area (D4414) with a drop in elevation of approximately 0.30 m over a length of 13 m (Fig. 16-17). Each thin deposit seems to be the result of earth mixed with water

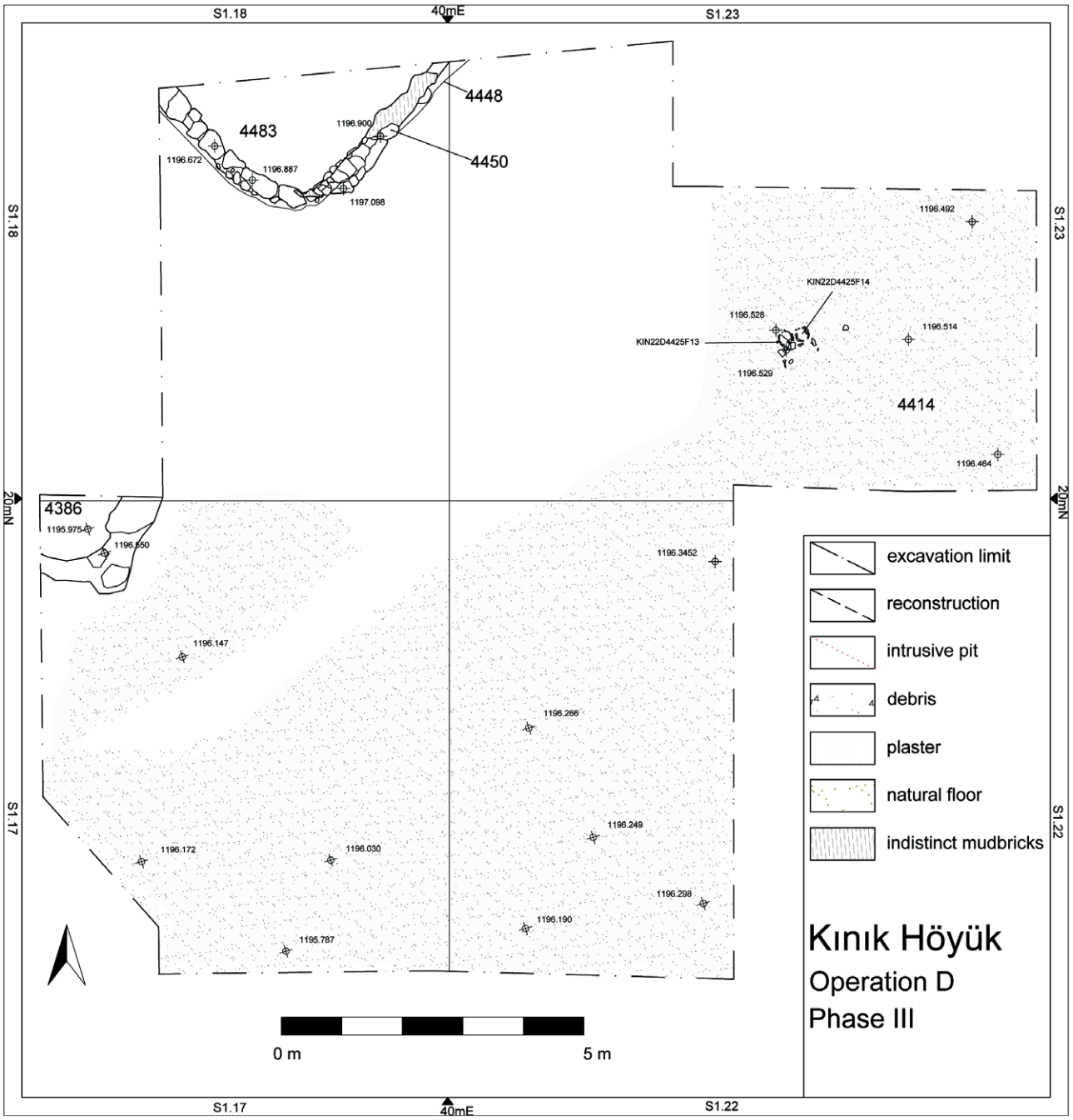

Fig. 15. Phase 3, Plan (editing M. Carletti and C. Alvaro).

Fig. 16. Detail of D4414, view from the eastern part of the area.

Fig. 17. Phase 2, D 4414. D4414, view from the west.

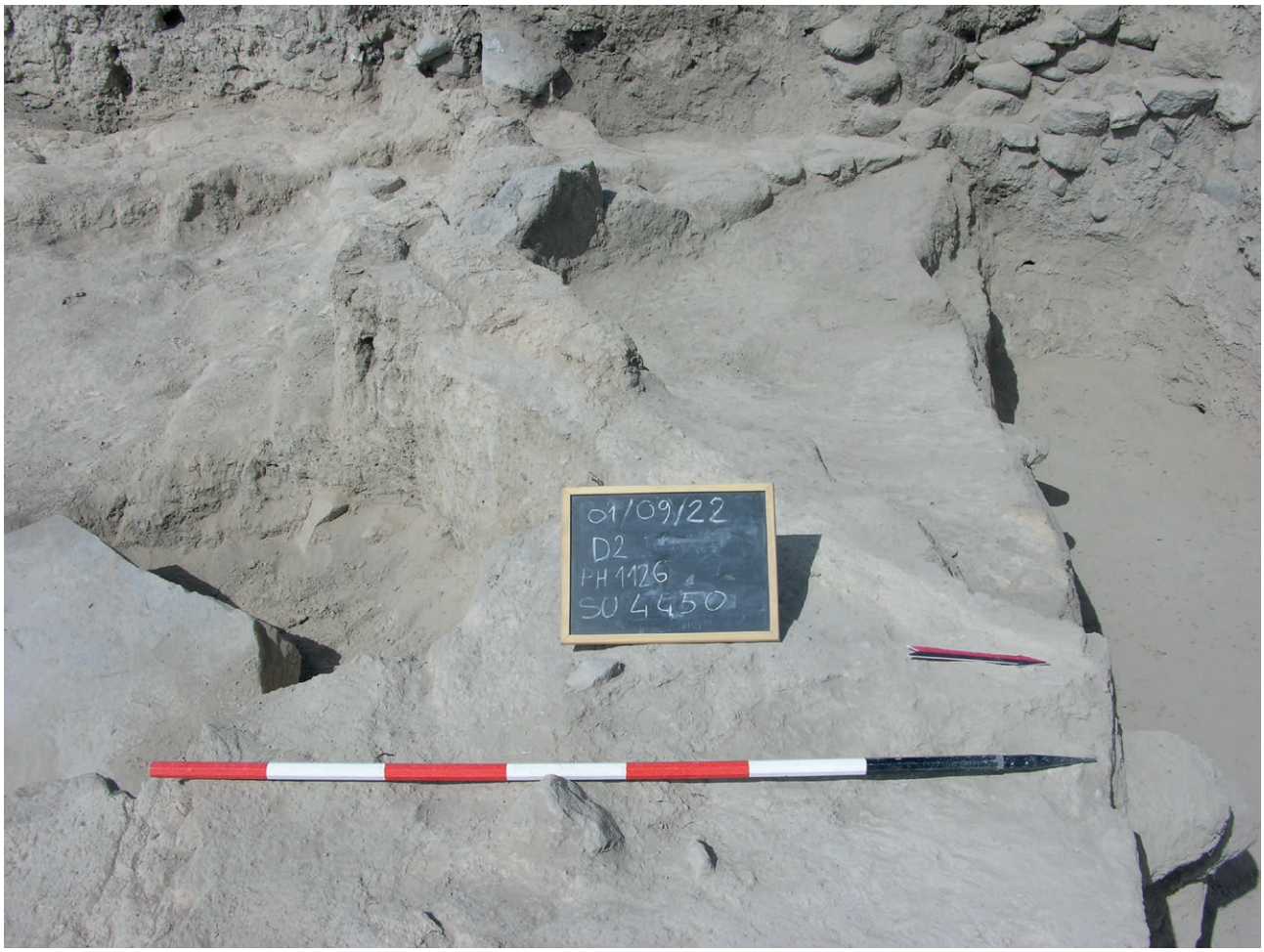

Fig. 18. Phase 3, Mud brick wall D4450 with part of stone foundation D4483 visible to the west.

and some straw stamped together, thus it was most probably used as a walking surface. This floor was interrupted by the construction of the later stone structure (D4330-4304; see Phase 2) and was not identified in 2019 in the northern part of the sector, probably due to the high concentration of pits (more recent features), and to the high elevation that this surface probably reached here. Therefore, connecting this "floor" to the foundations identified at the northern edge of the excavation area is difficult to brove based on the available archaeological data.

A mud brick wall (D4450) running in a SW-NE direction, partially preserved in its northern section was built on stone foundations (D4483) and connects, shaping a corner, to a second wall, visible only on its lower portion and foundation (D4448). This room corner has been attributed to this phase based only on the vertical sequence (Fig. 18). The foundations' cut is visible only where the stone are located and only on its southern side; the area to the north, which could be identified as a room, has not yet presented any evidence for a floor, probably not preserved in this part.

On the north-western corner of the excavated area in S1.17, part of a stone feature has been identified (D4386). It consists of a circular stone structure made of recycled stones[9], mud brick fragments and soil (Fig. 19). This construction emerges in part from ground level and appears to delimit a circular pit or, more probably, a storage unit like a silo; up to this point only about a quarter of the entire installation has been unearthed, therefore

[9] Most probably from D4368 (stone fortification, see phases 5 and 6).

Fig. 19. Phase 3 Silo D4386.

neither its filling (D4387) nor the bottom of the installation has been completely exposed. Yellowish soil with stones and a few ashes were retrieved inside this structure, possibly indicating that the silo was left empty, and part of its wall collapsed inside.

On top of the surface described above (D4414) a small, circular pit (D4424=4425, Fig. 20) was identified in the eastern part of the area (S1.23). Two jugs (KIN22D4425F13; KIN22D4425F27) and a cooking pot (KIN22D4424F14) were found here, providing the only materials in primary context related to this phase (see below).

The mixed ceramic assemblage from this phase provides some information on specific classes of pots. Two different kinds of cooking pots, one with a simple rim and a short neck (that we can describe as a collar) and the second with a hole-mouth. Shallow bowls and deep bowls with different rim-shapes, decorations (mostly black-painted on the rim) and surface treatments (such as red, orange and white slip) are numerous. The same kinds of painted decorations are visible on some body fragments with horizontal bands and lines. Some sherds are characterised by the same small concentric circle pattern that is commonly found in Layer IV of Alişar. Among the painted fragments a small cup with a flaring rim and a black-on-red decoration stands out: it seems to be an imitation of the typical "black-on-red" class seen above (Fig. 21).

The small circular pit (D4224) on the eastern side of the area contains one cooking pot and two trefoil jugs found completely smashed inside the pit (Fig. 15, 20 and 22). The cooking pot (KIN22D4325F14) has a short collar, simple rim, globular body, flat base and one vertical handle, not fully preserved but probably of the strap type. The surface shows traces of fire on the opposite side of the handle, according to the practice of cooking that involved placing the pot directly against the embers in the fireplace (Matsumura 2005: pl. 170 KL188-1002,1004,1006, dated Middle Iron Age, Phrygian phase). The better preserved of the two trefoil jugs,

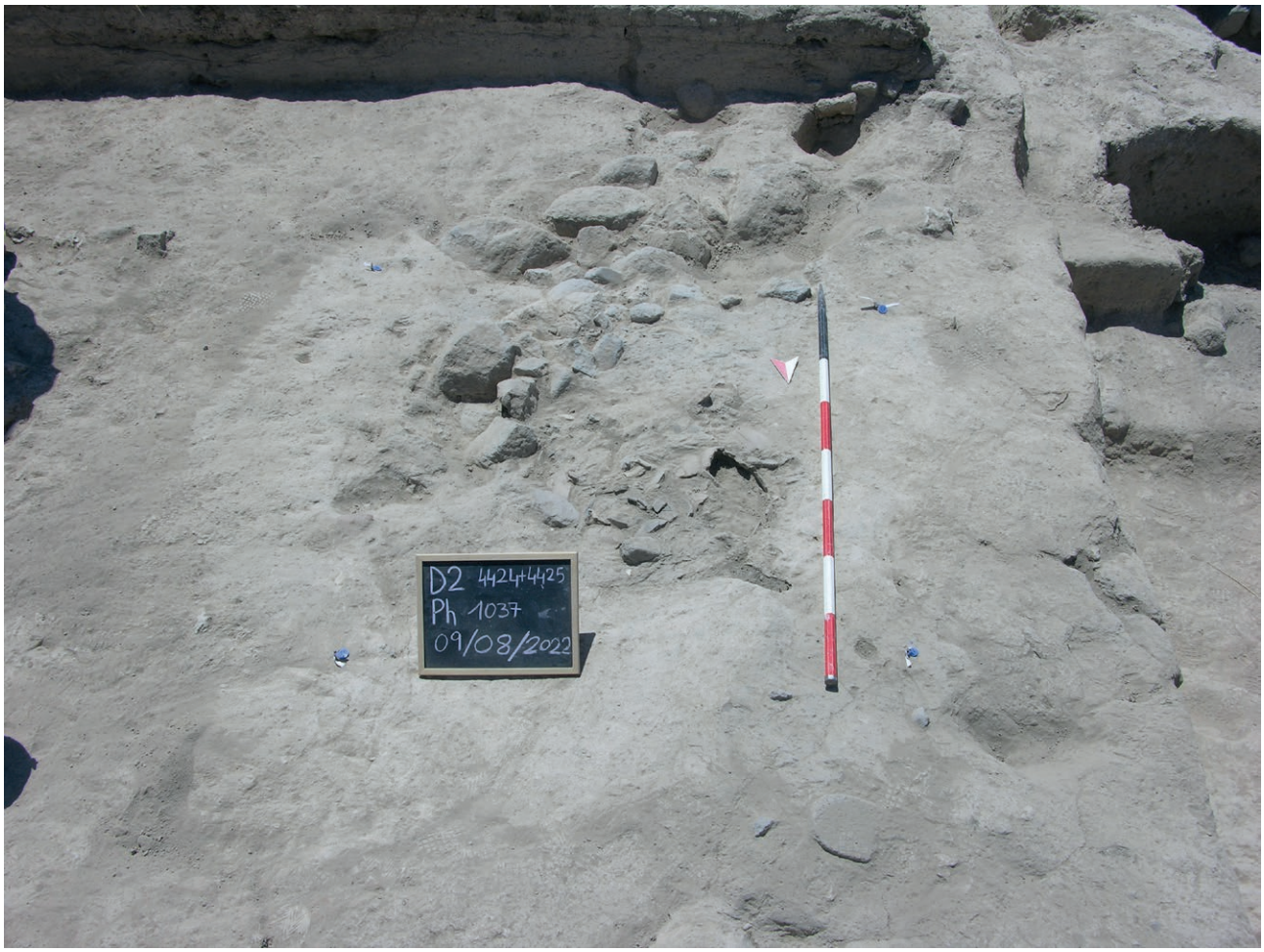

Fig. 20. Phase 3 Pit D4424 with details of material in situ.

KIN22D4325F13, has an ovoid shaped body and a large but very short neck. The body and the handle become narrower towards the base, which is not preserved. The folds shaping the trefoil are very deep; meanwhile the surface is smoothed, but other surface treatments are not present. Jug KIN22D4325F27 is very similar to the other trefoil jug, but all that survives is the rim (intact), part of the handle and the neck. The strap handle is attached directly to the rim, which is folded with the same deep folding of KIN22D4325F14. Its surface is smoothed, and some traces of hand-burnishing are visible near the rim. Similar trefoil jugs from Boğazköy have been dated to the Late Iron Age (Bossert 2000: pl. 41, no 386), as well as the one-handled cooking pots (Bossert 2000: pl. 48, no 492) that share with our example the same general body shape.

d. Phase 4: scattered occupation

This phase is the most ephemeral (Fig. 23), containing only two architectural features that are stratigraphically more ancient than those identified in Phase 3 but more recent than those in Phase 5. Although both features are located in the northern part of the excavation, they are not directly connected archaeologically. Several deposits that were identified underneath the floor of Phase 3 have been ascribed to this phase, being the result of debris or

of dumping that took place in the central and most of the southern portion of the sector, which was not used for activities or inhabitation during this phase.

In the northern part of the area two mud brick walls (D3352 and D4489) join in a corner; wall D3352 (Fig. 24) is about 5 m long and runs from southwest to northeast, while D4489 is 0.75 m long and runs from the corner with D3352 towards the north. The thickness of both walls is approximately 0.70 m. The space to the south of this

Fig. 21. Phase 3 KIN22D4423c7, Small bowl with painted decoration, probably a "black on red" imitation.

Fig. 22. Phase 3, SU D4425 finds group, Trefoil jugs and cooking pot from D4425 (from left to right KIN22D4425F13, KIN22D4425F27, KIN22D4425F14).

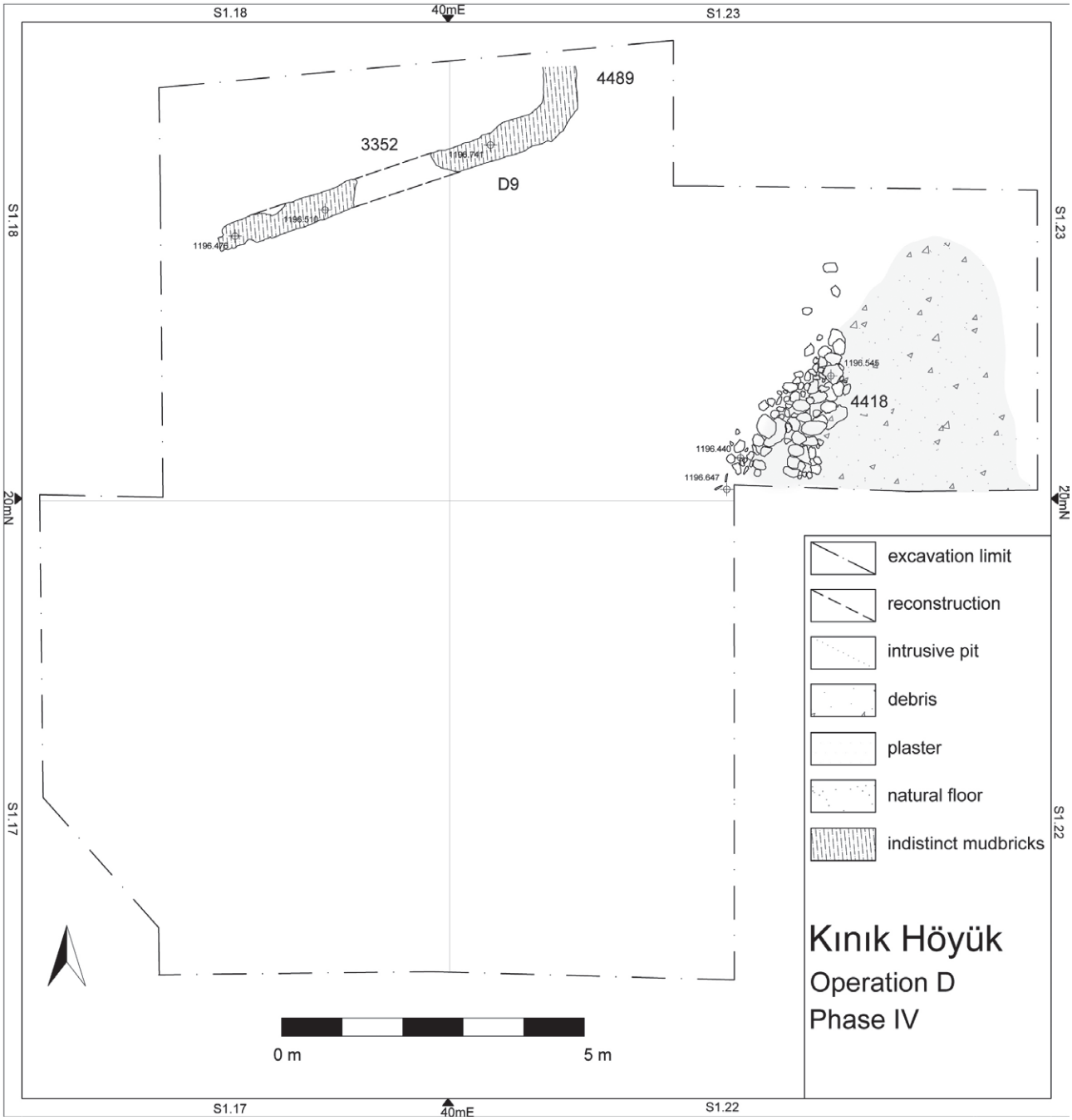

Fig. 23. Phase 4, Plan (editing M. Carletti and C. Alvaro).

corner is named Room Dr9, and provisionally ascribed to this phase: only the northeast corner of Room Dr9 is preserved, and its filling is partially excavated: the upper part of the filling D4480, which is located close to Wall D4486, is characterised by a brownish friable layer with many fragments of painted pottery. Under and to the east of this first deposit another brown and compact layer has been identified, but this has yet to be excavated (D4486).

The ceramic assemblage collected in the fill of Room Dr9 (D4480) is very similar to the one identified in a layer (D3332) associated with the stone structure: the decorative motifs (small triangles in bands) of some body

Fig. 24. Phase 4, D3352.

wall sherds belonging to a large shape have been dated to the Middle Iron Age at Boğazköy (Genz 2004: pl. 54). The same fill is particularly rich in shallow bowls with various treatments and decorations, mostly horizontal and wavy lines on the rim, and polishing and slip on the surface. The number of sherds that can be attributed to jars or jugs is minimal, as is that which can be attributed to cooking pots, but there are many sherds with a surface treatment similar to that of shallow bowls (slip, polishing and painted decoration) that can be related to closed forms.

In the western part of Square S1.17 a thick deposit made of loose beige earth and numerous burnt mud bricks (D4380) was found underneath a large amount of debris (D4378, Fig. 25) below the floor surface of Phase 3. Although the ceramic material from this deposit still needs to be analysed in detail, one almost complete jar (KIN21D4380F47, Fig. 26) it is worth mentioning. This long narrow-necked jar in black polished ware has a flaring and thickened rim and two vertical rim-shoulder handles, typically formed by joining together two coils. The body has a globular shape and is decorated with deep excised lines that are both vertical and diagonal; its lower section, including the base, is missing. Analysing the fracture point at the lower body, the base is more likely to have been of the ring or footed types rather than flat.

The morphological features of the vase are not common in the Iron Age material from Anatolia. The ware is fine, dark grey in colour and looks similar to that of grey ware (Summers 1994); the whole surface is covered with a thin black slip and later polished. In Anatolia, a vessel with similar decorations on the body and a double vertical handle was found in the Kültepe area (no date provided), although the neck appears wider and the surface is light grey without slip (Özgüç 1971: 69, fig.166). A similar shape, with a long neck and at least one vertical handle, was found in Boğazköy (Genz 2004: pl. 63, no 3) and dates to the Middle Iron Age, although in this case no surface treatment was used at all. From Gordion we find similar decorations on the side-spouted sieve jugs from Tumulus P and the "post-clay context" of the citadel made in black-polished ware (Sams 2012: 65, fig. 65.11-12).

Gjerstad's Black Slip Ware I trefoil jugs and contemporary amphorae may provide some comparisons (Gjerstad 1948: fig. 10); however, if the trefoil jugs have just one handle (besides a different kind of mouth), the necks and mouths of the Cypriot amphorae are much larger than those of KIN21D4380F47. There are analogies with the Cypriot repertoire even in the decoration incised on the body of the jar, with vertical and diagonal lines that recall the decoration of metal vessels. The black slip with grooved decorations applied to the shapes most reminiscent of KIN21D4380F47 from Cyprus have been dated from 1050 to 750 BC. Fragments from Gordion and Boğazköy have been dated between 900 and 700 BC. Considering that no exact match could be found for the example presented, and that black slip ware in Cyprus as well as grey or grooved ware in Anatolia are not very common, only further analysis of the ceramic materials found in the same deposit may shed some light on the chronology of this piece. For the time being, we may consider a time span from the 9th to 7th centuries BC.

In Square S1.23 a very large dump has been temporarily ascribed to this phase, although further analysis is required (D4418+4427+4438+4435+4423). Large and small-sized stones, many fragments of mud bricks, ashes, charcoal, bones, and pottery fragments were all dumped in this area. The uppermost stones were already identified immediately underneath the floor of Phase 3, however looking at the southern section of the square (Fig. 27) it becomes evident that this massive dump slopes towards the east and could possibly be intrusive from above.

The context of the large dump associated with 4418 shows, by its nature, a very mixed repertoire in which there is a predominance of cooking pots with different types of rims, but also hole-mouth jars with different rims and different surface treatments, mainly slipping and polishing. Ceramics associated with food consumption, such as shallow bowls, plates, and deep bowls, are also present. Shards of storage pithoi with different rim types were also found.

An interesting fragment (Fig. 28) belongs to a flat-rimmed crater with bichrome decoration on the body; the fragment has a white slip, and between the slip and the rim there is a broad band in red paint. Above the white slip there is figurative and geometric decoration: still visible are a series of red and black triangles, under which are found what resemble two faced curls (perhaps part of an animal) in the middle of concentric triangles where a triangle filled with red is contained within a larger triangle left white. On the upper part of the rim there are parallel vertical lines in black paint. This type of bichrome decoration, probably applied within a metope, is common in Middle Iron Age ceramic production (see Bossert 2000: table 68, no. 764, BKII; Genz 2004: table 56, no. 9). At

Fig. 25. Phase 4, D4378.

Fig. 26. Phase 4, KIN21D4380F47, Black polished long necked jar from D4380.

Kaman-Kalehöyük a bichrome decoration painted on white slip dates to the Middle Iron Age (Matsumura 2005: table 163, no. KL88-1009; table 179, no. KL88-1018 and KL90-P41). Examples of bichrome vessels have also been found in Arslantepe and date between the Early and Middle Iron Age (Manuelli 2012: 450, fig. 454, no. 456-457). In Tarsus, bichrome triangles date to the 6th century BC (Goldman 1963:pl. II, no 1190 and 1191).[10]

e. Phase 5: Domestic life in the Lower Town

Phase 5 is the best-preserved occupational period (Fig. 29) for these sectors and the only one that seems to extend over the whole excavation area. The arrangement follows a main northeast/southwest direction and can be divided into three sections: 1) an eastern part consisting of the reused stone foundations of the town wall (D4811), 2) the central paved alley (D4347) adjoining the mud brick wall (D4361) built on top of the stone foundations (D4811), and 3) two adjoining rooms, Dr7 and Dr8.

Starting from the east, Room Dr7 is the only one that has been completely excavated and is bordered to the NE and SW by two thin (0.35/.40m) walls made with stone slabs, mud bricks and mortar (D4357 and D 4358);

[10] Employing two colours, usually black and red, to paint the vessels' surface is a feature well known in the entire eastern Mediterranean and most likely the example from Tarsus belongs to this tradition: there is a Bichrome class in Iron Age Cypriot Pottery (Gjerstad 1948), a so-called Phoenician Bichrome (Gilboa 1999 ; Gilboa, Goren 2015), and the locally produced northern Levantine Bichrome (Gates 2010 ; Pucci 2019). Vessel shapes and patterns usually help in better defining the regional area, however the relationship between this Mediterranean tradition and the use of bichromy in Anatolia still needs to be investigated.

Fig. 27. Phase 4. Dump D4418+4427+4438+4435+4423.

Fig. 28. Phase 4, KIN22D4414c6, Painted bichrome krater.

these walls seem temporary, given they are not even straight and were frequently repaired as the stone slabs on top of mud brick seem to indicate (Fig. 30). The thickness of the NE wall (D4359) remains for the moment unclear; however, it seems to have been built exclusively with mud bricks. The connection of the room to the SE, i.e., towards the alley, is heavily disturbed by a later pit that destroyed most of the wall (D4356). A sort of bench was built in the northern corner of the room (D4376) with large stones and clay plaster, and similar installations were also found in the western corner (D4381). The most recent clay floor belonging to this room (D 4360) consists of clay plaster and adjoins the walls and bench; it was also discovered in the south-western side of the room, on top of a flat stone that has been interpreted as a possible threshold or step to connect the room to the alley (Fig. 31), therefore a door is also represented in the plan (Fig. 29).

Room Dr7 was filled by a slightly burnt greyish/black sandy layer (D4353) with mud brick debris, charcoal, pottery, and animal bones: the filling consists of numerous fragments of vessels, some of them fully preserved (Fig. 32), which were smashed on the floor and against the wall faces and bench. No wooden beams or large amounts of charcoal were retrieved from this filling; therefore, we may exclude the possibility of a sudden fire. It seems likely that the room was left with its intact inventory and once the walls collapsed, the inventory kept inside was smashed. Following levelling activities and soil compaction in the area, the deposit was reduced into a very dense layer of sherds and artefacts, on some occasion, sherds belonging to the same vessel were scattered over a large area as if the deposit had been levelled.

The uppermost, and most recent, floor of Room Dr7 (D4360) consists of a compact yellowish/grey clay plaster and represents only one of a long sequence of superimposed clay floors (D4377, 4394, 4401, 4415), forming an approximately 0.15 m thick floor package that has been sampled and will soon be analysed. The bottom and original floor of the room (D4415, Fig. 33) was built with the same clay material.

Since the primary context D4353 is the main topic of ongoing PhD research, the restoration of the inventory has not yet been completed and the bioarchaeological analyses connected to the deposit are still ongoing, only some examples from the pottery and artefact assemblage will be presented here. Up to now, it has been possible to identify the following: three globular jars; two small pitchers, one of them with a handle; two large kraters, both with painted decoration; one globular jar with painted decoration and two handles; one globular jar with neck and painted decoration; three small vessels painted with geometric and figurative patterns, one of which is a pitcher; one footed plate with painted decoration; one basin with two handles; one small amphora; six shallow bowls, mostly with painted decoration on the rim; six large trefoil jugs; three deep bowls/small basins; three pilgrim flasks with painted decoration; one globular jar with one handle and painted decoration; the bottom part of a small vessel; the body and base of most likely a globular jar with painted decoration; a fragment of a sort of pottery ring, hollow on the inside (probably a *kernos* ring). Additionally, 14 rims, 17 handles and four bases from cooking ware were identified, along with 69 other fragments of rims, bases, handles and body walls with painted decoration from table ware.

Beyond the ceramic objects, a bronze fibula (KIN21D4353F42), metal objects such as nails and bosses, three spindle whorls, obsidian fragments, two basalt grindstones, two andesite tools and one astragalus were also found in the same context.

KIN22D4353F54 (Fig. 34) is a small pitcher with a globular body and spout, flat base, and vertical strap handle. The whole surface has been carefully polished, with black painted decoration placed between the base of the neck and the maximum diameter of the globular body. Triple and double horizontal bands border the decorated field on the top and the bottom, respectively. The decoration is divided into three decorative registers of different heights separated by horizontal lines: the upper is composed of a row of triangles filled with a cross-hatched pattern inside bigger triangles. The second register, the shortest of the three, consists of a simple continuous horizontal wavy line that separates the first and the third registers. The third and bottom register is filled with a sequence of concentric circles with a central dot, possibly where the compass was set. Part of the handle and the upper part of the rim are painted with solid black paint. Upon seeking decorative comparisons elsewhere, an exact design emerges on a krater found at Alishar (von der Osten, Schmidt 1930:late II, dated to Layer III). The same decoration is also present in multiple sherds from Layer IV from the same site (von der Osten, Schmidt 1932: pl. XLIV, no 904, von der

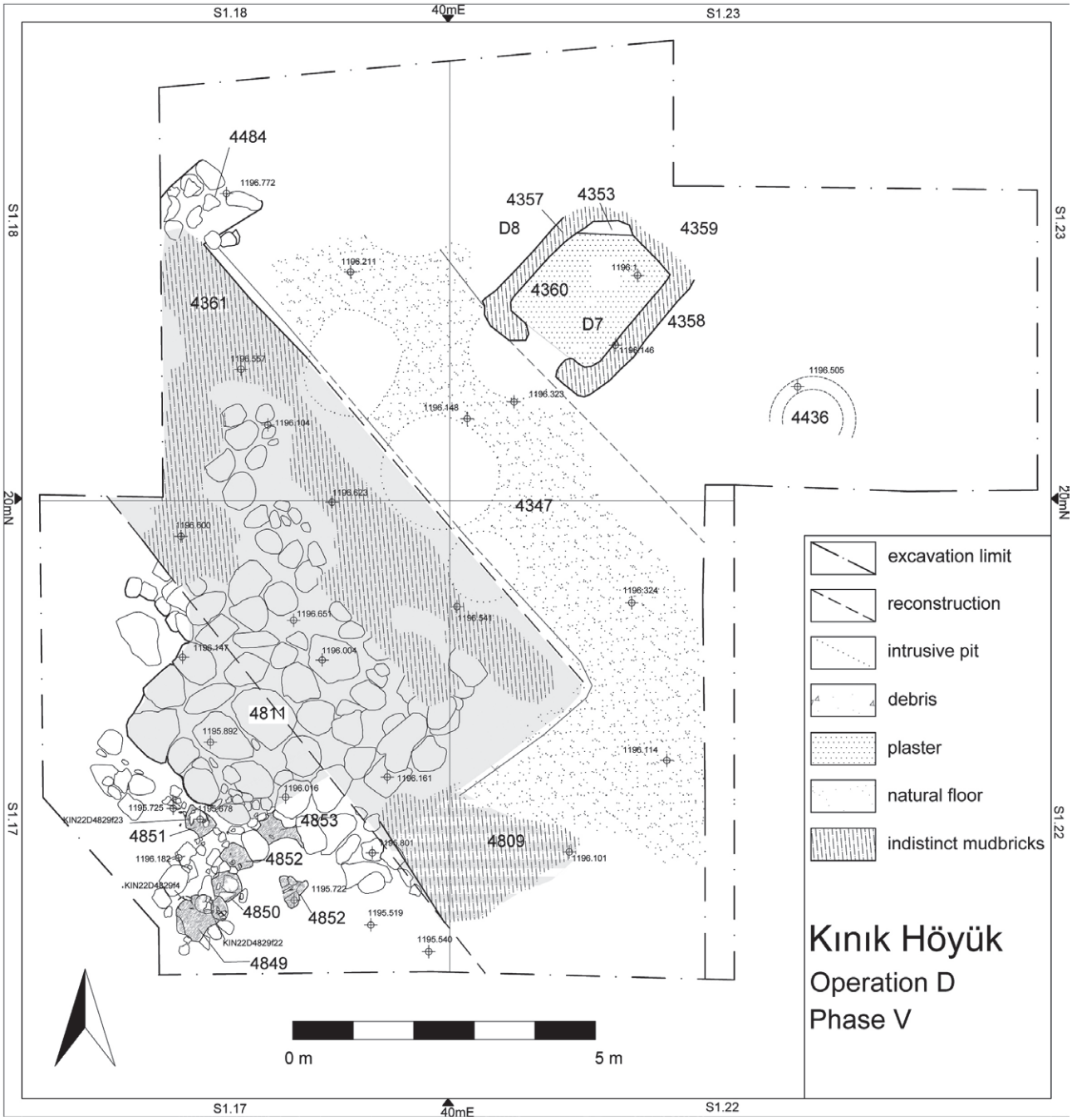

Fig. 29. Phase 5, Plan, (editing M. Carletti and C. Alvaro).

Osten 1937: fig. 471, no 472; fig. 449, no 413). Combining both the shape and the decoration we find at least two examples in Boğazköy (Genz 2004: table 61, no. 6-9; table 62, no. 1, dated to the Middle Iron Age). These all belong to the general class called Painted Geometric Monochrome Ware (d'Alfonso, Basso *et al.* 2022: 41).

KIN21D4353F59 (Fig. 35) consists of a small globular jar not fully preserved but characterised by a narrow neck, flat base, and likely a trefoil rim. The surface shows traces of burnishing in the lower part of the body; the upper part with the neck is polished and covered by a white slip. The non-slipped part of the surface is light red/

Fig. 30. Phase 5, Room Dr7.

peach in colour. The jar is decorated with three registers of painted decoration – with both figurative and geometric motifs in black and red/dark brown paint – separated by four groups of black horizontal lines and/or bands. The first register is placed below the rim, which is also painted in solid black paint in the upper part, and it is bordered by four and three horizontal lines on the top and on the bottom, respectively; the preserved decoration consists of traces of red paint, but the decorative pattern or motif is not recognisable. The second register, located on the shoulder, is the most visible: the field is divided in metopes (only two or probably three are preserved). A metope with a geometric motif separates two other metopes with figurative decoration. The geometric one consists of a net in black paint with central red dots, while the figurative metopes represent two quadrupeds: depicted to the right of the geometric metope and separated by four vertical lines is the rear of a hoofed animal with a long tail (maybe a bovine?), and the red dots on the upper part of the leg are probably made to depict the fur. Above this animal there is a simple wavy line. The second animal is painted on a sherd that does not join with the others but is clearly part of the same vessel: still visible are branched antlers, part of the neck, and almost the whole body from the rear to the front, representing likely a stag with a sinuous body shape. Its legs and tail are not preserved. The body of the animal is outlined in black paint, while the inner part of the branches of the antlers are in red paint. The texture of the fur is suggested through red and black painted dots and lines. The third register is composed of a series of alternating painted bands. From top to bottom we can see a row of black dots painted on the white slip, a red painted band enclosed between two thick black horizontal lines, and finally a row of red dots painted on the white slip.

Looking for comparisons in Anatolia, bichrome decoration is present at Gordion in contexts from the South Cellar dating from the late 8th to 7th centuries BC (DeVries 2005: 41, figs 44-45), as well as at Alişar in Layer IV (Von der Osten 1937: fig. 445, nos 3-5). Decoration with animal subjects – not wild goats/goats sampled in

Fig. 31. Phase 5, Room Dr7 opening to alley.

black Alişar IV style but animals with a black outline – has been identified in the Destruction Level and Post-Destruction Levels of Gordion (Sams 1994: fig. 29, no. 804 and 809; table 47, no. 1067-1069). The decoration with black crosshatching and red dots was employed in the assemblage of Alişar IV (Schmidt 1932: pl. XXXIV, no. b743:17; 903; Von der Osten 1937: fig. 444, no. 23) as well as in Tarsus during the Middle Iron Age (Goldman 1963: pl. 71, no. 564). Although there are no figurative decorations in Layer IV from Alishar similar to the one presented here, the black silhouette is employed for the wild goat/deer/stag representations. By contrast, similarities can be identified in the ceramic material from the excavations at Göllüdağ in the 1960s: fragments of large vessels show metope decorations containing geometric motifs and animals. Here, too, not only the black silhouette style is present but also the animals are depicted with a black outline on a white background, just as in the decoration of jar KIN21D4353F59. The Göllüdağ fragments are generally dated to the Phrygian period (Tezcan 1969 ; Tezcan 1992) but given also the presence of the silhouette style of wild goat/stag/deer it is possible to associate them with the Alişar IV horizon.

KIN21D4353F70 (Fig. 36): a large krater with a flanged rim, short neck, and four vertical strap handles with a ridge applied at the edge. The body has an ovoid shape and shows a sort of carination placed in the lower part of the vessel. The base is not preserved but considering the shape of the body it was probably simply rounded or had a ring base. The whole external surface of the krater and the inner part of the rim and neck were covered by a white/light brown slip and then polished: the polishing is more refined in the upper section, while the strokes of the tool used for burnishing are still visible in the lower plain part. A black painted decoration organised in three registers separated by triple horizontal lines covers the upper part of the vessel, from rim to carination. The lip and handles are also decorated; the lip with a wavy line and the handles with patterns like the ones employed on the body.

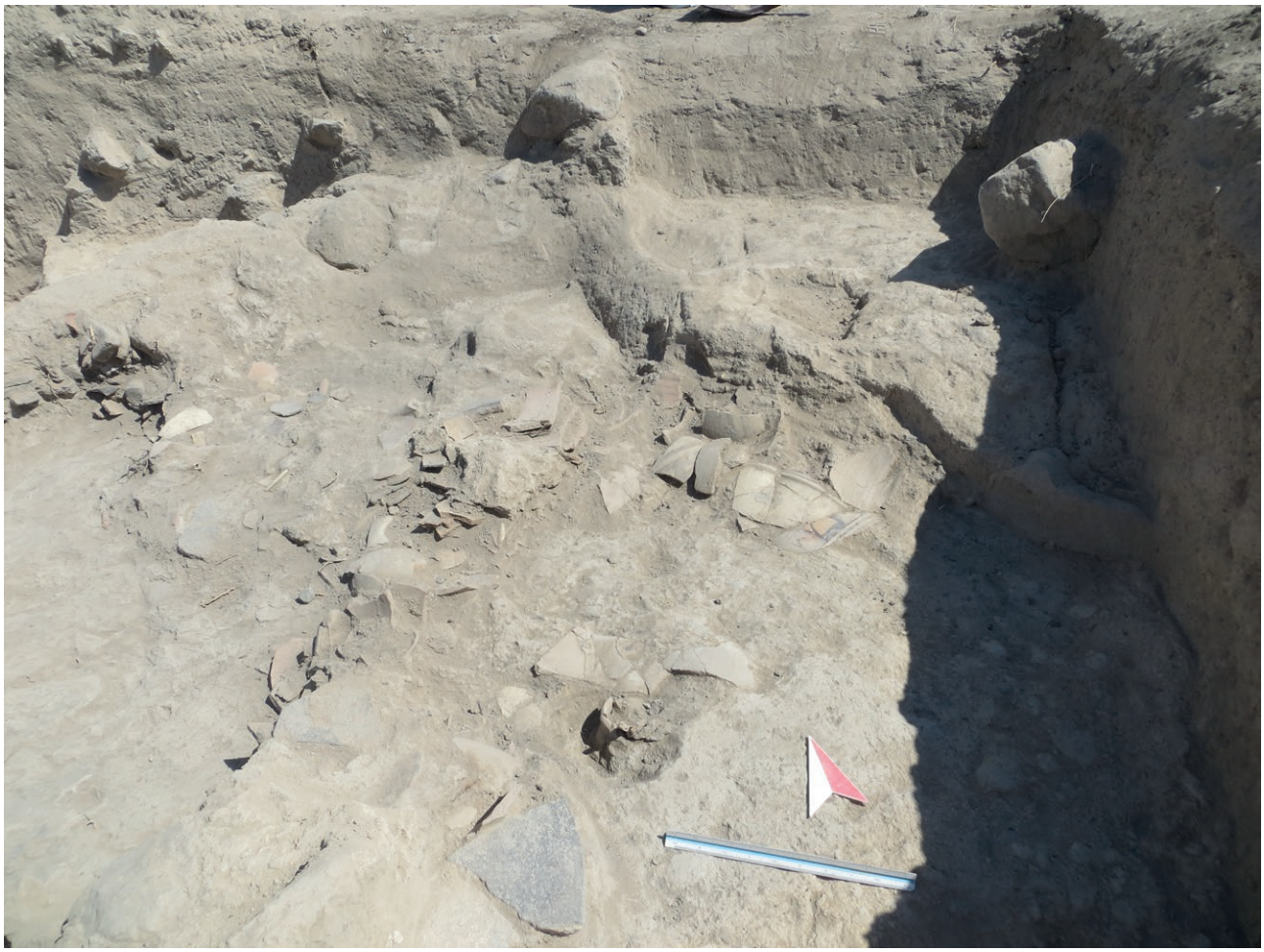

Fig. 32. Phase 5, Primary context D4353.

The uppermost decorative register includes a sort of guilloche or opposing wavy lines that originates from small concentric circles placed at regular intervals. Every element that forms the guilloche pattern is, in turn, filled with rows of small dots that create a wave pattern. The middle register, located on the shoulder, is divided into metopes, probably complying with the structure of the vessel given the presence of the four handles dividing the surface. The metopes fill the entire space between the handles and two alternating motifs are used: the first is a checkerboard motif made of squares of different sizes and patterns, where the larger squares are filled with a crosshatch pattern and the medium plain squares and smaller squares are filled in solid black with reserved central concentric circles. The chessboard is enclosed by two sets of four vertical lines on each side, in the middle of which is a row of concentric circles. It is interesting to note that the right row of concentric circles is not perfectly straight: whoever executed the decoration must have been right-handed and the presence of the handle influenced the accuracy of the design. Its counterpart on the opposite side of the vase is preserved just enough to recognize the same vertical lines bordering the checkerboard, but with one difference: between the lines a series of lozenges filled with a crosshatch pattern replace the row of concentric circles. The second motif employed is characterised by alternating painted sandglass shapes and plain almond-shaped elements, repeated four times. Each "almond" contains an inner one filled with a row of dots. Positioned between one "almond" and the other is a sandglass shape filled with a central cross and, on opposite sides, horizontal lines and a solid band with reserved concentric circles (three or four). The bottom register consists of a horizontal series of arches directly adjoining each other on top of horizontal lines

Fig. 33. Phase 5, Room Dr7, D4360.

below. The arches are alternately filled with a black band at the base and reserved concentric circles (varying in number from two to five, depending on the space available) or with two rows of concentric dots aligning with the shape of the arch. Only at one point the interchange between one type of arch and the other does not occur, probably due to an error. The vertical strap handles with a ridge applied at the edge are all decorated in the same way: on the top a checkerboard with horizontal lines underneath, vertical lines on the ridge and a series of horizontal lines enclosing a black cross on a plain black background on the side. A black line marks the junction point of the handle with the body. Comparisons in terms of both form and type of decoration can be found in Gordion (Sams 1994: pl. 125, no. 930); in Boğazköy (Genz 2004: pl. 69, no. 1); in Kaman-Kalehöyük (Matsumura 2005: pl. 96, KL90-P63; pl. 132, KL-P93); as well as in the excavations conducted on the Göllüdağ (Tezcan 1968: 232, fig. 23-25 and 1992: 15-17). A very similar decoration with arches can be found in the vicinity of Kültepe (Özgüç 1971: pl. 16, fig. 39) and in Layer IV at Alişar (Von der Osten 1937: fig. 408, no 7; fig. 444, no 18; fig. 445, no 7), while handles decorated in the same style were also found in Layer IV at Alişar (Schmidt 1932: pl. XXXIX). All comparisons have been dated to the Middle Iron Age.

KIN21D4353F42 (Fig. 37) is an almost intact copper alloy fibula; only the pin is missing. It is a U-shaped or horseshoe-shaped example with one arm (the one from which the needle starts) slightly more open than the other. The fibula has a rounded cross-section decorated with three mouldings, one in the centre of the arch and two next to the spring and the catch, respectively. The moulding close to the spring seems to be made of two or three discs

Fig. 34. Phase 5, KIN21D4353F54, Small pitcher with painted geometric decoration from D4353.

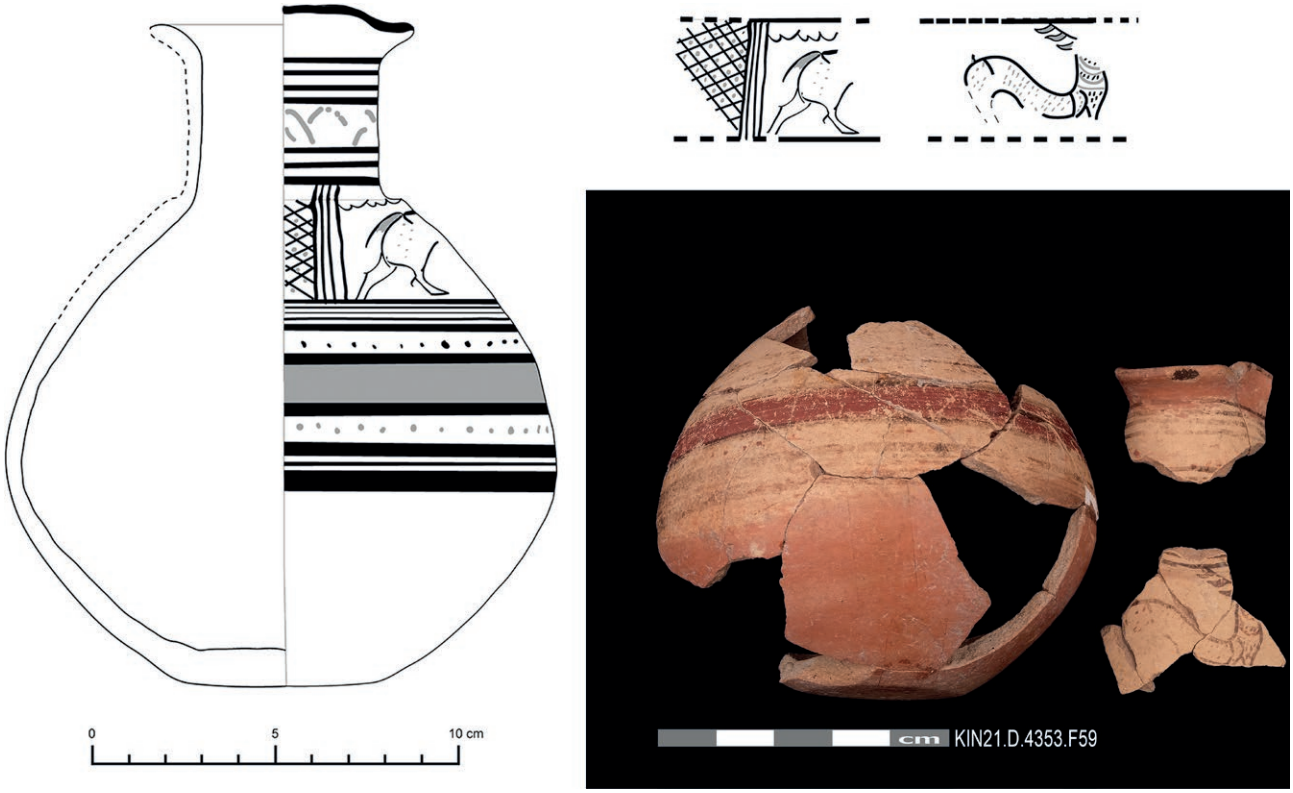

Fig. 35. Phase 5, KIN21D4353F59, Bichrome globular jar with painted animal decoration from D4353 with drawing reconstruction.

Fig. 36. Phase 5, KIN21D4353F70, Krater with painted geometric decoration from D4353.

joined together (perhaps one thicker than the others), but the surface is too worn to be sure; a similar composition is visible in the other two mouldings. The catch is modelled in order to have two incisions that create ridges recalling those of the fingers of a highly stylised hand. The pin would be inserted inside the squared end of the arch. According to Blinkenberg's classification of fibulae (Blinkenberg 1926), the fibula found in Kınık can be placed inside Group XII, the so-called "Types d'Asie Mineure", and to the sub-group XII,13 in particular. This type of fibula is composed of an arch that varies from semi-circular to horseshoe in shape and with an oval or circular cross-section. It usually has three mouldings (one in the centre of the arc and two at the ends) of various shapes and sizes. Muscarella (Muscarella 1967: 21) follows Blinkenberg's classification and sub-group division. This subgroup has been identified in Gordion in several Tumuli (K-III, IV, V, I cf. Blinkenberg 1926: 208): Tumuli S, E, I (Roman one), W, and MM (Muscarella 1967: pl. IX-XI). Only three of them have been recently re-dated (III, W, MM cf. Sams 2012: 57) to a period ranging from 850-740 BC[11].

Muscarella (1967) defines the fibulae identified in Gordion as Phrygian, including those belonging to Group XII,13. This specific type is usually described with three mouldings formed by rings, a ridged catch, the general

[11] Caner (1983) publishes four similar examples, three of which come from Gordion and one from Burdur (table 47, nos. 722-723,728-729), and ascribes these to the variant HII,3 (also table 46, nos. 701, 703 variant HII,1).

Fig. 37. Phase 5, KIN21D4353F42, Bronze fibula from D4353.

horseshoe shape, and the round cross-section of the arch. There is, however, one important element missing from the Kınık fibula: the two spurs/horns above the catch.

According to Muscarella (1967: 40), it is possible to recognize local copies of Type XII,13 fibulae: most of them lack the horns above the catch, and they are characterised by a more squared shape for the arc, which is generally thinner. He points to examples found mainly in Greece (both from the mainland and the islands) and on the western coast of Turkey, where these supposed copies were found together with "standard" XII,13 type fibulae. A second difference is represented by an asymmetrical arrangement of the arch: one arm being slightly more open and not perfectly symmetrical to the other, a feature shared with the Cypriot types. The fibulae defined as copies by Muscarella and the asymmetrical fibula are recognisable in Pedde's A2.3 group classifications and date between the 9th-8th centuries BC, coming from both Cypriot and Anatolian contexts (Alişar, Kaman-Kalehöyük, Alalakh; Pedde 2000: 109).

Given that the fibulae indicated by Muscarella as local copies are classified by Pedde as Cypriot production, and given that this fibula morphology is present in Anatolian sites such as Alişar and Kaman (but with some morphological differences), it is for the moment impossible to ascribe our fibula to the Phrygian cultural area, but a 850-750 BC date range seems to be the most likely.

Overall, at a first glance it is clear how many vessels are characterised by a painted and sometimes carefully executed decoration applied to a wide range of shapes. Such a rich assemblage appears to be in contrast with the simple and architecturally poor context of Room D7.

In the eastern part of Square S1.23 a curvilinear stone structure (D4436) was identified, consisting of one, sometimes two rows of medium-sized stones built against a sort of cut in the terrain. This was probably an oven since the filling of this structure consists of soft, loose and dark grey ashy material (D4437) (Fig. 38).

To the north of Room Dr7, a corner of another room (Dr8) has been identified (Fig. 33). However, its extension further north has not yet been uncovered; it is probably still underneath or cut by the mud brick wall belonging to Phase 4. Thus far only the filling of this room has been excavated (D4354), and it consists of a yellow compact deposit with brick debris and flat, squared stones. The south-western limit of this room should be the extension of Wall D4343 to the north, which is only visible in the floor of the neighbouring Alley D4347 that rises to adjoin the external face of the wall (Fig. 39). The small alley/street (D4347) has a northwest-southeast orienta-

tion, is approximately 2 m wide and consists of a whitish clay plaster probably mixed with some lime. The floor, although cut by several later pits, is clearly visible and rises towards the northeast and southwest against what was possibly the original face of the outer mud brick walls (D4343 and D4361).To the north, the floor is cut by the later foundation pit of Wall D3352 (belonging to Phase 4, see above), but no further continuation to the north was identified in the 2019 deep trench (D2north). A wall (D4484) made of stones mixed with mud brick fragments has been identified in the north-west part of the excavation. Its orientation is at a right angle with Wall D4361, possibly representing where the alley dead ends. Its connection to this mud brick structure will be examined in the next campaign, after the removal of the later structures.

Alley D4347 widens towards the southwest and slopes down in both directions. The floor of the wider section consists mostly of stamped clay and runs above and against possible remains of the wall (D4809). It forms a sort of corner with the end of the preserved part of D4361, suggesting a change in direction or a considerable drop in elevation of the structure at this level.

Whereas Wall D4343 is ephemeral and is only visible thanks to the layout of the streets (D4347), the mud brick wall (D4361), especially its northern portion, is well preserved. It was built on top of large stone foundations already visible in this phase, not only on the sides of the pit cutting into it but also mainly on its eastern part: here the large boulders employed in the foundations appear adjacent to the silo belonging to Phase 3. In Square S1.17 to the west of Wall D4361 the deposits tend to slope down southwards from 15m. Here several deposits have

Fig. 38. Phase 5, Oven D4437.

accumulated against the mud brick remnants (D4809) above the stone foundations (D4811), becoming thicker towards the south and the east. A layer of dark brown soil with small black pebbles (D4808, 4838) extends over this small area but is absent in the east. Indeed, here the deposit consists of sand, clay, and small stones (D4812-4813). Underneath D4808 a deposit (D4829-4831) of ashes and charcoal fragments cover several fire installations (D4849-4850-4851-4852-4853, cf. Fig. 29 and Fig. 40) located partially above and inside the stone foundations, and partially dug into a soil deposit of compact earth just outside of them. This deposit is rich in ceramic fragments and includes three complete vessels that were found still on top of the pyrotechnical installation (Cf. location in Fig. 29).

Two rounded cooking pots, one (KIN22D4829f24) with a loom weight inside (KIN22D4847F25, Fig. 41) and a second (KIN22D4829F22, Fig. 42) with one obsidian sample inside (KIN22D4829S54), were found on Fireplace D4849; a third cooking pot (KIN22D4829F23) with two grinder stones nearby (KIN22D4829F28 - KIN22D4829F17) were located on top of Fireplace D4851. This ashy deposit and the area with the fire installation seems to extend further to the west beyond the excavation trench; the fireplaces were built directly reusing part of the stone installation, inserting smaller stones to delimit the fire area and cutting a deposit that in part covered some larger stone, part of the wall socle. It seems therefore evident that all these installations were built taking advantage of a monumental structure that was no longer being employed in its full capacity.

The pottery assemblage found in the primary context of this area is still under restoration and analysis; at the end of the 2022 season, however, it came to light that many pottery fragments found in these deposits covering the fire installations could be joined together to form several whole vessels. Thus far it has been possible to restore and analyse two vessels: one hole-mouth cooking pot (KIN22D4829F22) with a globular body, rounded base and two

Fig. 39. Phase 5 alley D4347.

vertical loop handles (not fully preserved). The surface, although very poorly preserved, shows traces of burnishing made with a tool whose strokes are still clearly visible. There are a few comparisons for this object; for example, the same spherical body shape and position of the handles are also visible on the black slip jar found in Büyükkale (Bossert 2000: pl. 32, n. 292, dated to BK Ib, Late Phrygian). However, the Kınık example has a round base and it is grouped as cooking ware. In general, the hole-mouth shape is rather common from the Late Bronze Age levels until the end of the Iron Age as it is well attested at Kaman-Kalehöyük (Matsumura 2005, "Halslose Gefässe ohne Kragen"), but since complete cooking vessels are extremely rare, finding an exact match for this shape remains a difficult task.

Fig. 40. Phase 5, fire installation.

Fig. 41. Phase 5, Primary context with cooking pots.

The hemispherical bowl (KIN22D4829F31) with a straight rim, pointed base, burnished surface and a whitish slip on the outer surface was joined with fragments found in the deposit above the installations (D4829) and the inner surface shows secondary burnt traces. Hemispherical bowls are common in the Iron Age assemblage; the few that have survived intact show a flat or rounded base. There are few examples of hemispherical bowls with a pointed base: one is from the Late Bronze Age Kazankaya Cemetery (Özgüç 1978: fig. 22) and the other is from Layer II at Alişar (von der Osten, Schmidt 1932: pl. X, b2737).

Analysis of the other complete vessels, as well as a complete study of the ceramic materials coming from these deposits, is still ongoing. For the moment it is possible to add that the deposit included a majority of shallow bowl fragments with painted decoration and burnishing, and together with numerous cooking ware fragments obviously point towards an area for food processing and consumption.

f. Phase 6: the fortifications of the Lower Town

The oldest phase reached so far is related exclusively to the presence of the large stone fortifications of the town wall (Fig. 43) and to those deposits that are connected directly to its architectural features. The plan presented for this phase shows the evidence identified during the excavations and the stratified unit numbers employed to differ-

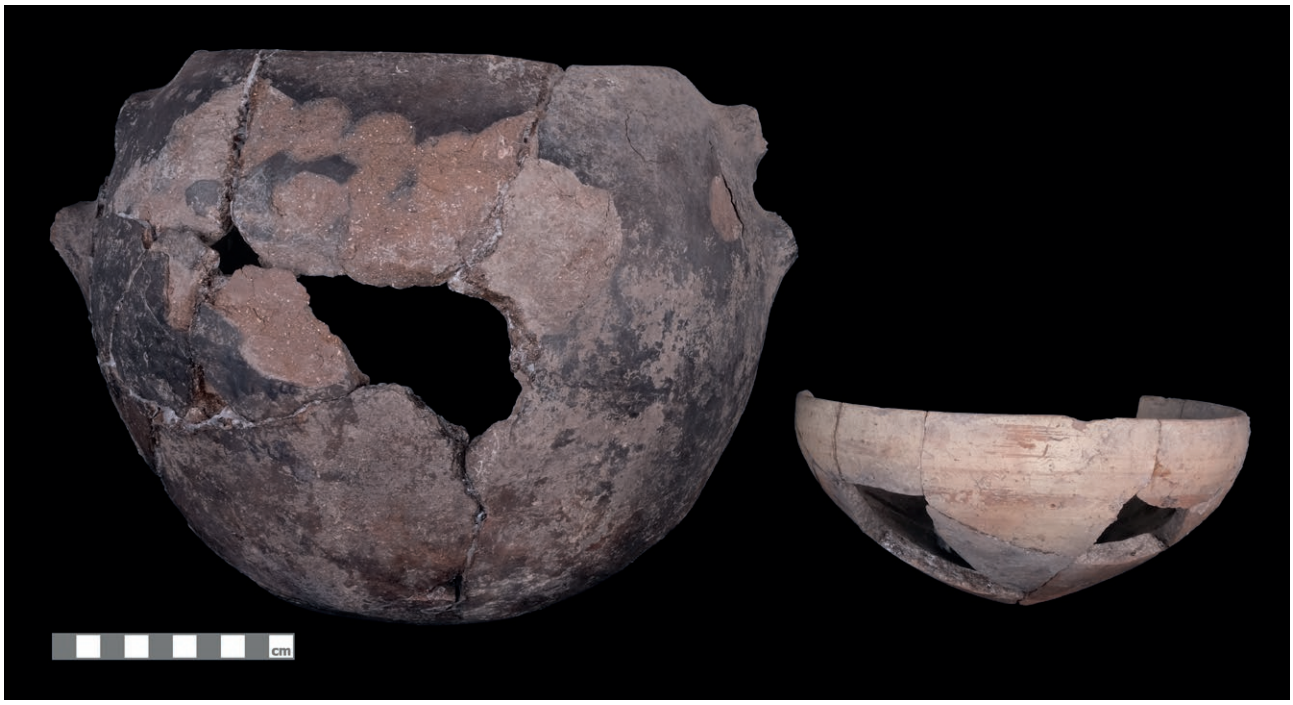

Fig. 42. Phase 5, Globular jar and shallow bowl from D4829 (from left to right, KIN22D4829F22 and KIN22D4829F31).

entiate it. It also presents a possible interpretation of the archaeological evidence based on the archaeological data collected during the 2022 campaign. D4361 identifies a mud brick wall that is preserved on the north-western part of the trench: this wall was built on top of stone foundations (D4811) and is preserved on three courses of bricks on its northern part. Unlike in typical mud brick construction the perpends are not contiguous across courses, and they are not visible on the bed of bricks; they are visible only in sections where the mud brick wall has been cut by later pits. Because the structure's poor state of preservation has only allowed for a few measurements to be taken, the sizes of the bricks may vary. The most common dimensions of a whole brick are 0.48 by 0.48 by 0.18 m; colour varies from pale brown to reddish brown, consistency is very hard, and, on most occasions, it was the main criterion to identify the structure during the excavations. The wall was damaged in part by later pits and by the natural erosion of the wall itself, which tends to disappear towards the south. The internal face of the mud brick wall is clearly visible to the north, where in Phase 5 it was adjoined by the plaster floor of the alley, but it is no longer preserved towards the south. The external, western, face of the same wall is visible on a small portion of the north-western section of S1.17; towards south east it is completely decayed, and on the northern corner near the excavation limit of S1.18 seems to be cut by the later construction of the silo D4386 (Phase 3) that has been left in situ in order to be excavated once the dig area is enlarged to the west. The approximate thickness of the mud brick wall measures 4.20 m. The portion of the mud brick structure identified to the south (D4809) has some features that do not allow us to connect it with any certainty to the rest of the wall: they are not directly connected to D4361, their perpends are not visible in section, and their lower bed (where the mud brick wall connects to the stone foundations) is much deeper than the rest of the structure. This is strictly connected to the architectural features of the stone foundations (D4811): they consist of large limestone blocks preserved on the eastern part of the wall up to four courses and clearly visible in the pit sections, while towards the west, the bottom of the foundation seems to be on a lower elevation and the stone courses are preserved on a few spots up to two stone courses. This structure is homogeneous, and the portion of the wall that is shaded grey on the plan was built without mortar (a sandy filling D4367 was identified between the stones). To the south, the surviving stones are very flat and are preserved approximately at the same elevation as the lowest row of stones identified to the north.

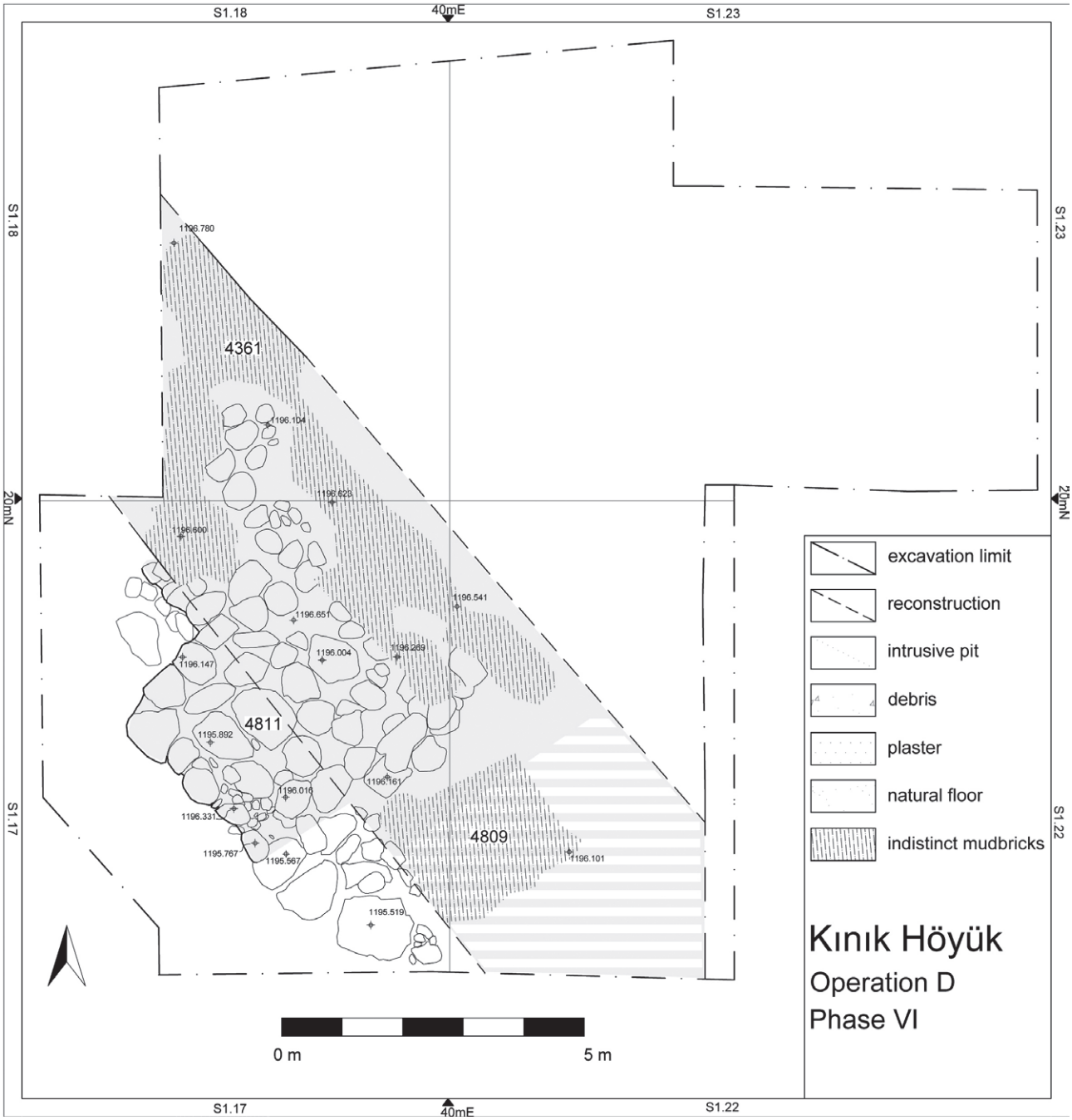

Fig. 43. Phase 6, plan (editing M. Carletti and C. Alvaro).

The reuse of the structure as described in Phase 5 does not provide enough evidence to explain this state of preservation: once the fireplaces were built in part reusing the stones of the wall, the south-western part of the stone structure, just south of D4809, was already entirely covered by an earth deposit (D4831) on which some installations were placed (e.g., D4852 in Phase 5). This evidence clearly implies that before the construction of the fire installations, the top of the southern preserved structure was much lower than its northern part. For this reason, Fig. 43 shows a grey hatched area in connection with D4809, emphasising the need for further investigation

to prove the existence of the wall in this portion. The stone foundations are under the level of the internal alley but probably visible from the outside; the bottom shows a gradual slope towards the west, as if they were constructed following the natural slope of the lower town. The stone socle is slightly larger than its mud brick superstructure (approximately 20/30 cm) except at one point, where it clearly shapes a rectangular feature that protrudes out for 1.9 m. The blocks employed for this construction are particularly thick and clearly define the limits of this "tower" to the north and the west. Defining the width of the tower is more complex since the southern portion was reshaped during the construction of the fireplaces belonging to Phase 5. The stones identified further south of the tower lay approximately 0.5 m lower and are very flat; these can be interpreted either as the lowest course of the foundations or as the embankment of the defensive structure. The reduced space at our disposal and the presence of the later fire installations on the south-western corner of the area have thus far prevented the identification of an external surface/floor connected to this structure. As a working hypothesis we may suggest that the original surface during Phase 6 sloped not only towards the west but also towards the south, identifying a disruption in the town wall perimeter that could hypothetically be related to a gate.

5. CONCLUSIONS

Table 1 presents a chronological chart that aims to correlate the archaeological sequence presented above to the general chronology of the site (KH periodisation) and to the evidence found in Sector D1 in the years 2013-2019, located to the north of D2+3. The correlation is based on the similarities between material culture and the assemblages found on the acropolis and/or to the absolute dating of specific small finds. The most ancient phase (6) reached thus far can be dated by an *ante quem* element: the wall was reused during Phase 5, so the fortification wall of Phase 6 was constructed before the mid-9th century BC. Moreover, the presence in room D7 of a long sequence of floor renovations (at least 10 clay floors could be identified), and the fact that radiocarbon analysis of a charcoal[12] in a deposit (KIN19D3260S144) cut by the fortification wall has been dated to 1255 ± 126.5 (call BC 95.4%), suggest that the lower town was fortified after the 14th and before the 9th century BC. However, material culture related to the deposits of the fortification is dated to the Iron Age horizon. Therefore, the construction period of the fortification can be dated to the Early Iron Age, possibly in the period between the 11th and the 10th century BC.

Given the presence of two very rich primary contexts in Phase 5, the chronological setting of this specific phase relates mainly to the complete vessels and the small finds found in the main primary context, i.e. D4353. The chronological range for the latest occupation of Phase 5 (see discussion above) can be ascribed from the end of the 9th century to the first half of the 8th century BC, between KH-P VA and KH-P IV. The absolute chronology of the other phases is based on the materials found in secondary and tertiary contexts, which have been positioned in the general chronological chart according to their similarities with or differences from the pottery from the previous phase. To provide an example, in Phase 4 and Phase 3, which saw a complete rearrangement of the area, the ceramic material is very similar to Phase 5 and ceramics belonging to the Achaemenid period are generally absent. Instead, the primary context identified in one of the pits related to Phase 2 provides examples related to the Hellenistic period, which represents the latest occupational phase for this area. Seljuk/Ottoman periods, the equivalent to Period D.1 to the north, are not preserved in this area of the excavations; this is possibly the consequence of the removal of the uppermost deposits for agricultural purposes, a recent event that took place around 30-40 years ago. As a matter of fact, the uppermost Phase 1 consists of a very recent deposit that includes modern artifacts and organic materials, the state of preservation of the latter seemingly pointing to the past 30-40 years.

From a cultural perspective, the archaeological sequence identified in Sectors D2+3 provides some clues on the Iron Age urban layout. During Phases 5 and 6 the lower town extended towards the south and was fortified with a large wall with stone foundations sloping towards the external area. In Phase 5 the settlement was built in part by

[12] Cf. Highcock, Matessi 2021: fig. 15.05.

Table 1.

Operation D (2013-2019)[1], Sector D1 and (*Sector D2*)	**KH Periodisation[2]**	**Sectors D2+3 (2021-2022) Phases**	**Date**
	Modern times	Phase 1	
Level D.1, sector D1	KH-Period I Seljuk/Ottoman	missing	1200-1300 AD
Level D.2, divided into 2a (construction) and 2b (destruction) (Sector D1)	KH-Period II Late Hellenistic period	Phase 2 Grain-storage pit and installation	400 BC-100 BC
Level D.3 (divided into a and b. (sector D1) (*Level D2.5a*)	KH-Period III Achaemenid Period	Phase 3 Abandonment and silo	550-400 BC
Level D.4 (sector D1) (*Level D2.5b*)	KH-Period IV Middle-Late Iron Age	Phase 4 Levelling	850-550 BC
(*Level D2.5c*)	KH-Period Va Early Iron Age	Phase 5 Reuse of fortification (900?-850 BC)	1100-850 BC
		Phase 6 Fortification (uncertain correspondence)	

[1] Occupational levels related to D (later D1) have been published in several articles (d'Alfonso, Gorrini *et al*. 2015: 630; Highcock, Crabtree *et al.* 2015: 115-117). Information about the D2 phases was recently published (Lanaro, Castellano *et al.* 2020).
[2] Periodisation refers to the settlement sequence that was established based on the first ten years of excavations (Highcock, Crabtree *et al.* 2015: 101; Highcock, Matessi 2021: table 15.11).

directly adjoining the fortification walls and constructing small domestic rooms, made with cheap building materials and frequently remodelled floors, on a slightly lower elevation than the neighbouring alley. If during Phase 6 a large economic effort went in to fortifying the lower town, it seems that the domestic architecture of Phase 5 uses a low-budget approach, reemploying older mud brick walls and using small slabs built directly against the previous walls to define the room perimeter. This architectural evidence emphasizes a difference between Phase 6, a period during which major urban changes were carried out, and Phase 5, when this monumental structure was reemployed, keeping the general urban setting, and rearranging the internal areas for domestic purposes. The still uncertain date for the construction of the fortification wall (Phase 6) prevents conclusive analysis on the cultural background that led to the general rearrangement of this part of the lower town, only some provisional observations can be made here. Considering that 1. the first Iron Age fortification wall on the acropolis (described above with the silo granaries) has been dated to the 11th century BC; 2. the subsequent rampart and the fortification wall reconstruction on the acropolis is set after mid-9th century BC (d'Alfonso, Matessi *et al*. 2020: 77; d'Alfonso, Yolaçan *et al*. 2020: 20), and that 3. the construction of the lower town wall should be ascribed to the period end of the 11th – 10th century BC (see above), we may suggest that both lower town and acropolis were fortified at the same time in a general replanning of the defensive structures of the site.

Examples of Early Iron Age lower town fortifications are very rare in southern Anatolia;[13] Sirkeli Höyük represents the best comparison in the geographical area: here the earliest Iron Age fortification wall of the lower town (SE-F0153, SE-F0399) has been identified in operation F and dated to Phase F(S) 9, Period U V i.e. to the 10th

[13] For a general overview see Osborne 2017.

century BC. The very small wall section[14] excavated so far consists of a stone socle of unworked stones in a shallow foundation pit with, possibly, rectangular towers (Sollee, Mönninghoff *et al.* 2020; 225-227), its thickness is estimated around 3-4 m. Even though building technique cannot be compared due to the very small surface excavated at Sirkeli, the political and economic context that allowed local settler to plan and build a fortified lower town might be similar, on a smaller scale, to the one in Sirkeli: according to Sollee (*et al.* 2020: 266) this fortification mirrors the economic and political stability reached by the state of Hiyawa during this period, enclosing a city of approximately 70 ha (Novàk 2020: 160,fig.113), ten times larger than KH.

Enlarging the picture, the urban layout of Phase 6, i.e. when the perimeter of the lower town was clearly defined and the acropolis was fortified, finds comparisons with urban rearrangements and reconstructions that took place in the second half of the Early Iron Age/Iron Age I identified both in Central Anatolia (Özyar 2014; Vergnaud 2016) and south-eastern Anatolia/northern Syria (Pucci 2008; Osborne 2021). During this period, starting approximately in the 10th century BC, the new political context fostered the birth of independent capital cities (different in size and consequently in dimension of their site catchment area) with fortified lower towns. Whether or not the defining of the boundaries of a lower town, inhabited or not, already took place at these early stages of re-urbanisation remains up for debate.[15] Very few of these lower towns have been investigated archaeologically and none of them provide direct comparisons with the evidence at Kınık: in Zincirli and Tell Ahmar lower towns the main occupation dates to the neo-Assyrian period and culture with elite residential buildings; at Gordion (25 ha) the settlement is organized along sectors/neighbourhoods,[16] each of them with a large defensive system. Tell Tayinat lower town (16 ha), even though it has only been surveyed, provides a clear spatial distinction between areas with dense occupation interspersed irregularly with sparsely occupied zones (Osborne 2017), showing a fortified lower settlement for the most part unplanned. Given the limited extent excavated, it is too early to state the existence of spatial distinctions at N-KH lower town, even in its latest stage of occupation; the archaeological evidence so far shows that this sector of the lower town was employed for short term storage (room D.7), food preparation (outside the citadel wall) and possibly textile production; all activities related to the domestic house.

Considering that the construction of city walls implies an amount of human and material resources that only a strong political power would have the capacity to gather, the archaeological evidence from Kınık builds upon the pre-existing data and confirms the working hypothesis of a 10th century BC re-urbanisation of the south Anatolian plateau, showing, as already stated by d'Alfonso (2020: 23) a fully-fledged urban site only in part reorganizing the Hittite legacy.

Archaeologists point out in Sirkeli, at the end of phase U V (end of the 9th century BC), large scale destructions and a general new reassessment of the city (Phase U IV), with a new double town wall built with ashlar masonry[17] indicating the political and economic success of the local dynasty (Sollee *et al.* 2020: 267). At Gordion, the lower town fortifications were erected in the early 8th century BC, i.e. immediately after the conflagration at the end of the 9th century, and no traces of previous fortifications or even use of that area for domestic purposes were ever found (Rose 2017: 138 footnote, 146). Both Gordion (300 km from N-KH) and Sirkeli (200 km from N-KH) experienced at the end of the 9th century a flourishing period that resulted in the new arrangement of the lower town and in the construction of ashlar masonry fortifications. Instead, the evidence at Kınık suggests that while the fortification system on the acropolis continued to fulfil its defensive function, the lower town lost its defensive function over time, with the external stone socle of the town wall partially reused during Phase 5 for fire installations. This southern part of the lower town was then abandoned and in part reoccupied only in the

[14] The wall is still underneath the phase F(S) 8 double fortification wall.

[15] At Gordion and Karkemish, and probably also at Karatepe, the lower towns were added in a later period (8th century BC), as if the town was "growing". At other sites such as Zincirli the question whether the lower town was fortified since its first planning in Iron Age I in order to clearly limit the town territory is still open (Pucci 2015; Herrmann 2017).

[16] Magnetometry carried out at Gordion on the mound of Kuştepe shows that the mound covers a bastion that is probably of the same layout and date as the one excavated at Küçük Höyük.

[17] This technique is very similar to the one employed in the fortifications at Gordion but never identified at Kınık, where the lower town seems to be abandoned and destroyed during the 8th century BC.

Late Achaemenid period when further to the north (sector D1) larger residential structures were built, levelling the southern sectors (D2 and D3), cancelling the presence of a fortification wall. The 4th century reoccupation of the Lower town was then not fortified, and its duration still needs to be fully investigated.[18] Therefore, it seems that the site was reduced during the Middle and Late Iron Age, after the end of the 9th century until approximately the 4th century BC, to the fortified acropolis, with a consequent decrease in population and possibly economic power.

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[18] Nancy Highcock is currently studying the Late Achaemenid house excavated in sector D1 with its large material assemblage.

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A Goddess and a City or How to Read the Hieroglyphic Luwian Sign MANUS+MANUS

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Abstract. This paper argues that the unusual determinative MANUS+MANUS of the goddess Pahalati in Hama that resisted explanation until now can be understood due to its new attestation in the logographic spelling of a Cilician toponym. It will be shown that an earlier attempt that identified MANUS+MANUS as a variant of MAGNUS, the city as Urušša, and the name of the goddess as a Phoenician-Luwian mixed phrase meaning 'Great Lady', is palaeographically, linguistically, and geographically impossible. A clue to the decipherment of MANUS+MANUS is provided by the homo(io)phonous settlement in Cilicia, Pahra-, which explains how the same sign could have been used both as a determinative and as a logogram in accordance with the regular rules of the usage of the determinatives.

Keywords: Hieroglyphic Luwian, Neo-Hittite Geography, Neo-Hittite Religion, Hama, Cilicia.

1. INTRODUCTION

The name of the goddess Pahalati is well-attested in the Neo-Hittite state of Hama (see the list of attestations in ACLT *s.v.*). As a divine name, it is almost always written regularly, i.e., with the determinative DEUS. However, in HAMA 8 §2 we find MANUS+MANUS instead of DEUS. This version is completely unparalleled and has no explanation. Hawkins (2000: 410) cautiously claimed that it 'may be easily understood to represent ideographically the protective character of the gods' (Payne 2019: 75 calls this 'convincingly argued' and claims that '[it] is most clearly [*sic*] an instance of iconic reinforcement of an underlying idea'). Nevertheless, such a claim is *ad hoc* and incompatible with the structure of the Hieroglyphic Luwian writing system, since the determiners are basically working as

semantic classifiers for a set of words and not as *ad hoc* semantic explanations or representations (I will return to this issue later). Until recently, there was no other attestation of this sign.[1]

2. THE CITY

The situation has considerably changed in the meantime thanks to the recently found ARSUZ stelae. Both texts deliver the second attestation of the MANUS+MANUS sign, in the name of the Cilician city MANUS+MANUS-*sa*$_x$-*na*(URBS) (ARSUZ 1 & 2 §14). The usage of the sign both as a logogram for a toponym and as a determinative already argues that this sign has a regular role in the Hieroglyphic Luwian writing system, unlike the role suggested by Hawkins and Payne. The passage is as follows (Dinçol *et al*. 2015: 64; translation following Yakubovich 2019: 549):

a-wa/i |PRAE-i CAPERE+CAPERE.L.417-na(URBS) *a-mi-na |L.273-i-na |hi-nu-wa/i-ha
[ ]CAPERE+CAPERE.L.417-na(URBS) *a-mi-na |L.273-i-na |hi-nu-wa/i-ha
'I moved my weapon up to the town X'

Two remarks are in order. First, due to the previous sentence, which refers to a campaign of a Neo-Hittite ruler called Suppiluliuma against Hiyawa, it is assured that this city is located in Hiyawa (Eastern Cilicia). This will later have an important role. Second, as we can see, the publishers transcribed the name of the city as CAPERE+CAPERE-L.417-*na*(URBS). But, as far as CAPERE+CAPERE is concerned, this is pure convention, as the editors too refer to the fact that this sign is otherwise known only from HAMA 8, where it is transcribed as MANUS+MANUS (Dinçol *et al*. 2015: 67). The publishers were also unable to suggest a reading.[2]

The case was further developed by Martien Dillo. First, he rightly observed that L.417 has an assured syllabic value <sa$_x$> in TOPADA, which could be employed here, too (Dillo 2016: col. 46). Second, he built up a chain of proposals leading to a reading of the city name (Dillo 2016: cols. 46-49):

1. The city attacked by Suppiluliuma is the Cilician harbour called Magarsus.
2. Magarsus is identical to the city of Urušša mentioned in the Šunaššura-treaty, since:
3. Both toponyms contain the word for 'great', *maga-*, as a 'possible variation' of Greek *mega-*, and *ur-* as 'a form of' Luwian *ura-*.
4. The Luwian sign for the word 'great' is MAGNUS, and MANUS+MANUS is its 'pictographic variant', while MAGNUS would be a 'cursive' form. This would be the reason why the toponym was written with MANUS+MANUS.
5. Accordingly, he does not see a determinative in the case of the goddess but identifies it as a part of a mixed Phoenician-Luwian phrase, MAGNUS *pahalati*, meaning 'Great Lady', which would be a title for Kubaba.[3]

Although in Yakubovich's view (2019: 550 n. 40) the identification of Urušša with the Cilician settlement is 'unconfirmed, but plausible', unfortunately all the steps of Dillo's argumentation are at least problematic or plainly wrong.

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[1] The sign in YALBURT block 4 §1 transcribed as MANUS+MANUS in Hawkins (1995: 98) is in fact graphically completely different (here the hands are directed upwards, not downwards, and are combined with forearms), and it is usually identified with the sign L.66* (MANDARE or DARE+DARE), see Poetto (1993: 34) and Hawkins (1995: 73 with refs.).

[2] HAMA 8 was not yet published at the time of Laroche 1960 and Marazzi 1990; 1998; thus, this sign combination does not appear in their sign lists.

[3] I will not investigate whether this goddess has anything to do with Kubaba, since this is beyond the scope of this paper. Also, the question will be left open whether a mixed Phoenician–Luwian phrase is realistic, since there is no need to assume such here (see below).

MAGNUS	MANUS+MANUS	
		
	ARSUZ 1 & 2	HAMA 8

Fig. 1. The Hieroglyphic Luwian signs MAGNUS and MANUS+MANUS (Dillo 2016: col. 50).

First, there is no evidence that the attacked city was on the seashore. This assumption is simply based on Dillo's arbitrary interpretation of the above quoted sentence, which would mean in his views 'I sailed my warship(s) in front of the city X' (Dillo 2016: cols. 45-46). However, there is not a single piece of evidence that *warpi-* means 'warship' and that *hinuwa-* means 'to sail' (see, most recently, Bauer 2021a; 2021b). Although he adds question marks and admits the speculative nature of his translation, this is still his starting point.

Second, there is no evidence that Urušša was located on the Cilician shore; based on its context in the Šunaššura Treaty (§54), it was rather located in the east, close to the Kizzuwatna – Mitanni border, since we are dealing with a Kizzuwatnean settlement that once stood under the rule of the Mittannian ruler (see the literature in RGTC 6/1, 6/2 *s.v.*).

Third, setting aside the toponym Magarsus, there is no by-form '*ur-*' of *ura-*, and the toponym Urušša cannot be regularly derived from the word *ura-* (nor from †*ur-*).

Fourth, even if we assume for the sake of the argument that there was a toponym *Urassa in Cilicia (which would be the regular derivative both from *ura-* and †*ur-*), the spelling MANUS+MANUS-*sa*$_x$-*na* can simply not be MAGNUS-*sa*$_x$-*na*, since the shape and form of the signs MANUS+MANUS and MAGNUS are completely different (Fig. 1). They obviously have nothing to do with each other (note also that the standard MAGNUS is not cursive; *contra* Dillo's claim, it has its own cursive version).

Accordingly, this city name cannot be read as Urassa, and it definitely has nothing to do with Urušša, and there is no reason to assume any connection with Magarsus. Thus, (MANUS+MANUS)Pahalati- cannot be read as MAGNUS *pahalati-* and cannot be translated as 'Great Lady'.

All in all, one still has to look for a solution.

3. THE CITY AND THE GODDESS

As a starting point, it is worth returning to the role of the determinatives in Hieroglyphic Luwian. They have two basic types: the first, most widespread type is a classifier, i.e., it tells to which semantic category the following word belongs (a typical example is DEUS preceding divine names). One may want to argue that MANUS+MANUS was also a semantic classifier for the semantic sphere of protection, including the gods with a sort of metonymical connection (and thus in a given sense saving Hawkins's interpretation), but in this case, one would definitely expect many more attestations due to the huge number of divine names. The second, rare type is a phonological tool: It is a hint to the correct reading and pronunciation of the following word. Two examples from

the broad spectrum of possibilities shall suffice: The sign CAELUM showing a bowl is used as a determinative preceding the word for 'sky', which can be understood only if there was a homophonous bowl type (Simon 2016). A similar case is L.314, which has the syllabic value *ha*, and that's why it is used as a determinative preceding various sorts of words starting with the syllable *ha-* (*hatastr*(*i*)- 'violence', *haziwid-* 'rite', *hastan*(*a*/*i*)- 'support', Payne 2018: 103-104). That the MANUS+MANUS sign appears once as a determinative and once as a logogram in a Hiyawaean city name implies that the Luwian reading of the determinative is a word that sounds identical or very close to the name of the Hiyawaean city. It may also mean that the name of the Hiyawaean city sounds identical or very close to the name of the goddess Pahalati, but this is not necessary if the determinative of the goddess was yet another type of classifier applied (at least) to divine names. The easiest way of making a decision is if we start with checking if there is any Hiyawaean toponym similar to the divine name, since many Hiyawaean toponyms are known, even if, obviously, not all of them.

There is indeed one city name that perfectly fits: Pahara, known from KARATEPE 1 Hu./Ho. §7 among the Hieroglyphic Luwian inscriptions (cf. ACLT *s.v.*). Due to rhotacism, the name of the goddess Pahalati and Pahara sounded identical (setting aside, of course, the last syllable in the divine name). Thus, if the reading of MANUS+MANUS is **pahara-* or **pahala-*, it could have been used as a determinative for Pahalati in the sense of a phonological tool and it could have been used as a logogram to write the name of the city of Pahara, which appears in the text as a genitival adjective, i.e., the Paharaean city (the sentence thus means 'I moved my weapon up to the city of Pahara).

Having said that, there are some philological details to be elaborated. I assumed that the name of the city had three syllables (Pahara) and the divine name had four syllables (Pahalati). This is a completely regular interpretation of the attested spellings, and it is exactly the environment, i.e., the intervocalic position, in which rhotacism works. Nevertheless, there are problematic circumstances. First, Pahalati is originally a Phoenician goddess called Ba^{c}lat.[4] In other words, it is entirely possible that the Luwian form was only Pahlati. Second, the name of the city is also known from Neo-Assyrian transmission as Paḫri (RGTC 7/1 *s.v.*; the Phoenician version of KARATEPE 1 shows P^{C}R). In other words, it is entirely possible that the Luwian form of the city name was only Pahra. It is important to note that Pahlati and Pahra are also completely regular interpretations of the attested spellings and there is no way to choose between them on Luwian grounds. Since rhotacism is restricted to the intervocalic position, in this case, the underlying words would not be completely identical. There are two possibilities: Either one can explain away these forms or one takes them at face value and tries to explain the situation.

First, one can always argue that the Neo-Assyrian transcription is distorted. But this is neither theoretically (i.e., linguistically) nor empirically supported. Transcriptions are not *l'art pour l'art*, but follow the phonological system of the transcribing language, and there is nothing in Neo-Assyrian that would require the syncope of the vowel. One may of course refer to a folk-etymology that Assyrianises the syllable structure. This cannot be excluded, but it is worth recalling the Neo-Assyrian transcriptions of the Neo-Hittite royal names: The overwhelming majority were phonologically perfect, and real distortions are very rare (see the detailed analysis in Simon 2018: 123-124, 127-129). Thus, I would rather take the Neo-Assyrian form at face value.

As far as the divine name is concerned, the key question is if there was any epenthetic vowel between the *^{c}ayn* and the *l* at all, and if yes, when it appeared. Note that the *^{c}ayn* was substituted with another laryngeal in Luwian, resulting in the completely regular consonant cluster *-hl-*, and for this reason no epenthetic vowel is expected in Luwian. Thus, the question is a strictly Phoenician problem. Unfortunately, due to the Phoenician writing system, it is extremely hard to give an answer and the Phoenician grammars also tend to avoid this problem. It is clear that in the Punic period the *^{c}ayn* was not there anymore, but it is unclear if this is due to the simplification of the

[4] This is the *communis opinio*, see esp. Niehr (2014: 166-167). Accordingly, in the following linguistic analysis, Phoenician data will be taken into account. Nevertheless, I. Yakubovich (pers. comm.) suggested that since Hama eventually becomes Aramaeanized, one may consider the possibility of an Aramaean goddess (and, accordingly, an Aramaic linguistic analysis). However, to the best of my knowledge, no such Aramaean goddess is attested (see the overview in Niehr 2014: 127-203), and Pahalati is only a part of a larger Phoenician religious influence upon Hama that survived even into the Aramaean period (see the discussion in Niehr 2014: 167).

consonant cluster or whether first an epenthetic vowel appeared and later the intervocalic *ʿayn* disappeared followed by the contraction of the vowels. Exactly this latter scenario was assumed by Krahmalkov (2001: 31-32) in his Phoenician grammar, although without further elaboration. Friedrich, Röllig, and Amadasi Guzzo (1999: 53 §96) argue, however, in their Phoenician grammar that the Greek spelling *Baal*, the Neo-Assyrian *Ba-ʾa-al*, etc. show only "scheinbar" (with emphasis in original) epenthetic vowels, since "hier handelt es sich einfach um die behelfsmäßige Wiedergabe von Lauten (Laryngalen) bzw. Lautfolgen (Doppelkonsonanz), die in der betreffenden Umschrift nicht adäquat dargestellt werden *konnten*" (emphasis in original). Nevertheless, it is worth having a look at the Neo-Assyrian spellings of Baᶜl- and Baᶜlat-names more closely. The Baᶜlat-names are not very helpful, since their spellings are ambiguous (*Ba-ʾa-la- / Ba-la- / Ba-al-te/ti/ta- / Bal-ti-*, PNA 1: 241-242) as far as the possibility of an epenthetic vowel is concerned in case of *Ba-ʾa-la-* and *Ba-al-te/ti/ta-*, and, more problematically, they are much later than our inscription from the middle of the 9th c. (they are attested during the reign of Sennacherib and during and after the reign of Assurbanipal). More instructive is the spelling of the Baᶜl-names (PNA 1: 241-242). Although the later spellings, i.e., those from during and after the reigns of Esarhaddon and Assurbanipal, are ambiguous in terms of the presence of an epenthetic vowel,[5] earlier spellings, and exactly those that are practically contemporaneous with our inscription, show a different picture: *Ba-ʾa-il* is a Phoenician king, possibly that of Ṣimirra during the reign of Shalmaneser III, and the name of the king of Tyre, *Baᶜl-manzēr*, again during the reign of Shalmaneser III, is spelled not only as *Ba-ʾa-li*-NUMUN, but also as *Ba-ʾa-il-ma-an-zi*. The *i*-vocalism appears also in the fragmentary personal name *Ba-il*-[...] and in the oronym *Ba-ʾi-il-ṣa-pu-na* from the period of Sargon II (RGTC 7/1 *s.v.*). These spellings argue that there was an epenthetic vowel, which was at this time, however, not (or not yet) an [a]. In the Luwian transmission, however, this is either [a] or zero. Since this epenthetic vowel was heard by a non-native speaker as [i], we would rather expect the same in Luwian (especially because Iron Age Luwian had only short and long *a i u*), but this is obviously not the case. It is worth noting that assured (but admittedly later) cases of Phoenician epenthetic vowels in this position tend to be [i] or something similar, but definitely not [a], see the examples in Friedrich, Röllig, Amadasi Guzzo (1999: 53): σοιρις / συρις 'root' < *šurš*, Συδεκ (Συδυκ, Σεδεκ) < *ṣidq*. This argues that the <a> of the Luwian form is an empty vowel, and we are dealing with a consonant cluster *-hl-*. This is logical: An epenthetic vowel is not necessarily heard and substituted by a non-native speaker, and the cluster *-hl-*, as mentioned above, was completely regular in Luwian and did not require any epenthetic vowel. All in all, these considerations argue that the name of the Luwian goddess was [Pahlati-].

Accordingly, it is probable that both the 'input' and the 'output', i.e., the original Phoenician form and the Luwian toponym contained consonant clusters, i.e. Pahlaº and Pahra-. But is it possible to use **pahra-* for Pahlati- or **pahla-* for Pahra-? This is definitely possible, because, first, as the attested cases show, the phonological link was not always homophonous, identical-sounding, but also homoiophonous, similar-sounding (see the case above where the identity of just the initial syllable was the reason for using the same determinative). Second, although it is not well understood or well investigated, we do have evidence for *l* ~ *r* interchange in postconsonantal position: The best-known example is COR-*la-ti-i-ʹ* 'person, self' for /atradi/ (abl.-instr.) in KULULU 4 §5 (Sasseville, Yakubovich 2017).[6] In other words, although it was not necessary from the point of view of the writing system that **pahra-* and **pahla-* sounded identical, this may well have been the case. Identical or not, both cases are completely regular. All in all, if we want to be very strict, we have the following possibilities:

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[5] *Ba-ʾa-li/lu* ~ *Ba-a-lu* (Ba'alu, King of Tyre); *Ba-ʾa-al-* ~ *Ba-al-* (the brothers of the king of Arwad: *Baʾal-ḫanūnu*, *Baʾal-iašūpu*, *Baʾal-maluku*); as well as *Ba-al-* and *Ba-li-*; see also *Ba-ʾa-li-* in toponyms (from Shalmaneser III via the Eponym Canon 803 until Tighlathpileser III, RGTC 7/1: 39-41).

[6] An anonymous reader pointed out that this case can alternatively be explained with an **Cn* > *Cl* change in the oblique stem. However, such a change has not been identified yet in Luwian and as the reader also admits, this must be excluded if *tara/i-sà* in İVRİZ 1 §3 is indeed the gen. sg. of this word (which is currently the most probable explanation, see Sasseville, Yakubovich 2017), since then there is no evidence for a different oblique stem, which, furthermore, appears lexicalised as COR-*ni-* 'soul, self' without any *-l-* (Yakubovich 2017a).

	Phoenician form	Luwian DN	Luwian GN	Neo-Assyrian form
A	Ba^{c}alat	Pahalati-	Pahara- (homophony)	Pahri ('distorted')
B	Ba^{c}alat	Pahalati-	Pahra- (homoiophony)	Pahri
C	/Ba^{c}lat/ [Ba^{c}ilat$^{?}$]	Pahlati-	Pahra- (homoiophony)	Pahri

As was shown, all three scenarios are theoretically possible and regular. It depends rather on personal choices which scenario is held to be more probable. Since I take the Neo-Assyrian spelling seriously, for me, scenarios B and C are definitely more probable than scenario A. Since the Phoenician epenthetic vowel is probably not reflected in the Luwian spelling, scenario C is the most probable in my view.[7]

Accordingly, the reading of MANUS+MANUS is **pah*(*a*)*la-* or **pah*(*a*)*ra-*, which thus must be a Luwian word. Such a Luwian word is not attested yet, so we can hardly say anything about its meaning. There is obviously a connection between the depiction (two hands in a protective position, see Fig. 1) and the word, which thus might have some protective meaning, in which case it is hard not to recall the Hittite verb *paḫš-* 'to protect', an *s*-extension of the root **peh*$_2$(*i*)- 'to protect'. This would require the restoration of the laryngeal from a position when it was followed by a consonant other than a stop (cf. Melchert 1994: 69), but its paradigm had many such cases. Although this verbal stem **paḫ-* (which may even be attested)[8] could have provided the base of a pre-Luwian noun,[9] and thus a connection is not impossible, it is obviously hard to prove without real attestations.[10]

4. CONCLUSIONS

The strange determinative MANUS+MANUS of the goddess Pahalati in Hama has no explanation. Hawkins's proposal neglected the structure of the writing system and was also called into question by a new attestation, a logogram for a Cilician toponym. Dillo's reading of the toponym and the determinative is palaeographically, linguistically, and geographically impossible. Nevertheless, exactly the combination of its usage both as a determina-

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[7] Annick Payne (pers. comm.) kindly informed me that the proposal of this paper is wrong since she identifies MANUS+MANUS with the sign CAPERE+CAPERE (allegedly following Dinçol *et al.* 2015, but this was only their transcription, the content of their claim was different, see above) with the phonetic value /ta/, which in her views excludes any other reading. Unfortunately, her claim is false: First, the sign in question (actually, CAPERE$_2$+CAPERE$_2$, L.42) is a different sign (unbound hands, such small details are significant, see, e.g., the different AVIS signs); second, Hieroglyphic Luwian signs can have both syllabic and logographic values (see, e.g., L.128 AVIS and the overview in Goedegebuure 2019). Finally, even if Payne's reading were correct, it does not explain the problems addressed here.

[8] Cuneiform Luwian *pa-* was booked by Melchert (1994: 162) as the possible Luwian cognate, but he himself claimed that the meaning 'to protect' was a 'mere guess' and the contexts (Ištanuwean texts) are indeed completely unclear (see the discussion in Simon 2020a with the critical assessment of other proposals; Melchert forthcoming *s.v.* provides a new solution and further discussion of more recent proposals). As I. Yakubovich kindly reminded me, this verbal stem may be attested in the Arzawan Luwic names *Anza-paḫḫadu* and ^{d}[I]M-*ta-paddu*, see his argumentation in Yakubovich (2010: 92-94, followed by Melchert 2013: 45), which is formally possible, but cannot currently be verified (cf. Simon 2020b, 2020c).

[9] The derivational morphology requires further investigation, but Yakubovich 2017b: 18-23 made a plausible case that *arla-* 'pedestal, altar (?)' and **arl*(*a*)- 'place' (known from its derivatives) are derived from **ar-* 'to stand' (cf. Hittite *ar-* 'to stand') with a *-la-*suffix, which would fit the derivation of **pahla-* from **paḫ-*.

[10] An anonymous reader suggests that one could read MANUS+MANUS only as "*pah*", which would be fitting as a determinative and it would be an abbreviated writing in the case of the toponym (such as *MÍ*(REGIO) 'Egypt' [ALEPPO 7 §7] or MONS.*TU* for Tudhaliya), which would even bypass the problem of the imperfect correspondence between the theonym and the toponym. In formal terms, the reader's suggestion would practically mean that we are dealing with a logogram for the verb 'to protect', which is certainly possible, but it has the disadvantage that the existence of the verbal stem **paḫ-* is currently only a theoretical possibility, as per above. Note also that the connection between the underlying word **pahra-* and the shape of the sign can also be explained in that way that the logogram was actually a logogram for the toponym *Pahra-* and not for a word **pahra-* (on logograms for toponyms in Hieroglyphic Luwian see now Schürr 2022). In this case, the shape of the logogram could have simply been created on the base of the assonance of the toponym with the (alleged) verb **paḫ-*.

tive and as a logogram provides a clue to its decipherment, since there is a homoiophonous or even homophonous settlement in Cilicia, Pahra-, which explains how the same sign could have been used in both functions in accordance with the regular rules of the usage of the determinatives. As a side-effect, we now know more about the geography of the campaign of Suppiluliuma in Cilicia.

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Maliya, Malija, Malis, Athena. From Kizzuwatna to the Aegean: Borrowings, Translations, or Syncretisms?

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Abstract. Notwithstanding her Kizzuwatnean origins, Maliya becomes part of the Bronze Age Hittite State Cult thanks to Queen Puduḫepa, who advocates a renovation of the dynastic cult. Therefore, Maliya and her temple became protagonists of the Hittite religious festivals. In the Iron Age, the goddess cult spreads to Western Anatolian milieus (Lycian and Lydian), developing apparent syncretic convergences with deities of the Aegean context. This paper investigates how Maliya and her Aegean counterparts converged, arguing and discussing the most debated positions.

Keywords: Maliya, Malis, Athena, Luwian and Hittite pantheon, Aegean transmission.

1. MALIYA IN THE BRONZE AGE

Among the so-called Festrituale, the (*ḫ*)*išuwa*-festival[2] was one of the more prominent Hittite festivals in which the king's participation was essential for the celebrations.[3] Initially celebrated in Kizzuwatna but already archived in Hattusa in the Middle Hittite period, the festival was

[1] Livio Warbinek, TeAI Project, authored sections 1, 2, 3, 5, 6; Federico Giusfredi, PALaC Project, authored sections 4. The project TeAI "Teonimi e pantheon nell'Anatolia Ittita" is funded by the Italian Ministry of University, F.A.R.E. programme, whereas the project PALaC has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 Research and Innovation Programme (Grant Agreement n° 757299). Both the projects are carried out at the University of Verona.

[2] CTH 628. According to Haas (1994: 848) 'die hurritische Bezeichnung *ḫišuwa*/*išuwa* könnte mit dem Namen des in diesem Ritual verehrten Adlers ^{D}Išuwa/^{D}Ešue zusammenhängen'. See KUB 22.218 ii 19 (Ešue) // KBo 15.49 i 7 (Ešuwa) and Hutter 2021: 169 with note 181.

[3] Haas 1994: 848-875; Popko 1995: 150.

rewritten when Queen Puduḫepa ordered the scribe Walwaziti[4] to find the original in Kizzuwatna and to prepare a new edition for the prosperity of the royal family.[5] The latest version was written down in 13 tablets, in which ritual acts are evidently Hurrian in character,[6] and it describes an annual festival of nine days held in Hattusa where the king's celebration was accompanied by that of the Storm-god of Manuzi (Haas 1994: 849),[7] followed by several deities[8] worshiped at Kummani.[9]

Among those gods who took part in the (*ḫ*)*išuwa*-festival,[10] Maliya[11] was a relevant and well-attested[12] deity of vegetation referred to as "mother of wine and grain"[13] and associated with rivers.[14] As a vegetation god, Maliya was firstly the patroness of gardens[15] and vineyards[16], often accompanied by the hypostasis *Maliyanni*, where the

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[4] NH 1486.

[5] See Lebrun 1982: 127; Haas 1994: 848-849; Popko 1995: 151; Rutherford 2020b: 330; Hutter 2021: 169-170, 250-251. Most likely, in connection with the so-called Hurrian "dynastic pantheon", see Taracha 2009: 92-95, 115; Hutter 2021: 29, 192.

[6] Haas 1994: 848-849; Popko 1995: 151; Hutter 2021: 169, 234.

[7] On the Storm-god of Manuzi, see Van Gessel 1998: 804-805; Hutter 2021: 169; RGTC 6: 259-260; RGTC 6/2: 100-101 (city and mountain in Kizzuwatna).

[8] Particularly, Išḫara, Allani, Ḫudena-Ḫudellurra, Zimazzalla, the Nubadig-deities, Maliya, Adamma-Kubaba, Annaliya, Ninatta-Kulitta, Kunzizi, Kuzzina-Kuzpazena, Tiyabendi-gods, Kurra.

[9] Haas 1994: 848-849; Popko 1995: 101, 151; Hutter 2021: 169-170 with note 180. On the Kizzuwatnean holy city of Kummani, the later *Comana Cappadociae*, see RGTC 6: 221; RGTC 6/2: 83-84.

[10] Haas 1994: 401: 'Im (*ḫ*)*išuwa*-Festritual sind Maliya, Išḫara und Lelluri die wichtigsten Göttinnen'. See also Hutter 2021: 170.

[11] Laroche 1946/47: 85-86; Lebrun 1982; Haas 1994: 410-411; Van Gessel 1998: 294-297.

[12] KBo 2.16 obv. 4 (CTH 527); KBo 3.8 iii 14, 15 (CTH 390); KBo 4.13 i 16, ii 17, iii [35], iv 20, [45], vi 10 (CTH 625); KBo 7.45 rev. r.col. 10' (CTH 628); KBo 9.133 obv. 2[(CTH 628); KBo 10.27 iv 30' (CTH 649); KBo 11.32 obv. 19, 24, 36 low.e. 37, 40 (CTH 645); KBo 13.238 rev. 2[(CTH 529); KBo 14.88 ii 8', 12'[(CTH 694); KBo 15.49 iv 10, [13] (CTH 628); KBo 19.128 ii 6, 39 (CTH 625); KBo 20.114 vi 9, 21 (CTH 628); KBo 20.118 ii 10[(CTH 628); KBo 23.49 iv 2 +KBo 24.110 iv 7 (CTH 652); KBo 23.68 obv. 9' (CTH 670); KBo 24.40 obv. r.col. 4, 10, 11[(CTH 628); KBo 25.109 iii 10, 20 (CTH 652); KBo 25.191 rev. 11, 12] (CTH 630); KBo 29.33 r.col. 7, 9 (CTH 694); KBo 30.69 iii 24], 33 (CTH 616); KBo 30.71 iii 13 (CTH 628); KBo 30.119 rev. 21 (CTH 332); KBo 31.181 rev. 1 (CTH 628); KBo 33.194 vi 25 (CTH 628); KBo 35.262, 17[, [22] (CTH 628); KBo 43.75, 7' (CTH 645); KBo 43.184+ i 25' (CTH 628); KBo 45.27 obv. 11' (CTH 625); KBo 45.29 iii 1' (CTH 616); KBo 45.82b r.col. 22[(CTH 652); KBo 45.214 obv. 12 (CTH 470); KBo 47.71 obv. 10' (CTH 628); KBo 47.241 rev 13[(CTH 645); KBo 55.39 i 27[(CTH 456); KBo 59.87 ii 19' (CTH 591); KBo 59.183 obv. 4 (CTH 458); KBo 70.109 (ex KUB 57.106) ii 15] (CTH 527); KUB 2.3 iii 35 (CTH 627); KUB 2.8 iii 34[(CTH 617); KUB 2.13 iii 22, iv 24 (CTH 591); KUB 12.26 ii 20 (CTH 441); KUB 20.24 iii 26 (CTH 645); KUB 20.49 i 8[, 14 (CTH 628); KUB 20.67 +IBoT 2.77 vi 9 (CTH 669); KUB 25.27 iii 4 (CTH 629); KUB 32.99 v 4 (CTH 628); KUB 35.135 rev. 15'[(CTH 772); KUB 38.33 obv. 5' (CTH 526); KUB 40.101 rev. 8' (CTH 682); KUB 40.103 i 12 (CTH 628); KUB 41.23 iii 12[(CTH 458); KUB 43.23 rev. 50 (CTH 820); KUB 43.30 iii 10' (CTH 645); KUB 44.1 rev. 12[(CTH 526); KUB 46.17 iv 8 (CTH 529); KUB 50.32 ii 1, iii 2 (CTH 568); KUB 54.31 obv. 9] (CTH 694); KUB 55.39 i 27] (CTH 591); KUB 55.54 i 33, iv 5 (CTH 652); KUB 56.45+ iii 11' (CTH 591); KUB 57.58+ ii 7[(CTH 389); KUB 58.3 iii 20 (CTH 670); KUB 58.23 i 9 (CTH 670); KUB 58.38 i 27, ii 10, 12, 19 (CTH 645); KUB 58.106 iii 10 (CTH 780); KUB 60.111, 1] (CTH 590); ABoT 1.14 iv 6[(CTH 568); ABoT 2.141 vi [10' (CTH 628); IBoT 2.23 rev. 11 (CTH 670); IBoT 2.108 rev. 5' (CTH 529); IBoT 3.1 rev. 79 (CTH 609); VSNF 12.28 iii 11 = VAT 7683 ii 11 (CTH 628); VSNF 12.100 iii 6 (CTH 386); HFDC 12, 4] (CTH 670); Bo 3302 obv. 11[(CTH 645); Bo 5480, 8 (CTH 616); Bo 5593 ii 3', 10'-14' (CTH 628).

[13] E.g., KUB 43.23 rev. 50'-51': ^{d}*Ma-a-li-ya* GEŠTIN-*aš ḫal-ki-*<*aš*> AMA-*ni*, Haas 1988: 136-137, 141. See also Haas 1994: 156, 410, 478; Hutter 2003: 231; Taracha 2009: 116; Serangeli 2015: 382; Weeden 2018: 351; Payne 2019: 236, 242; Rutherford 2020a: 206; Rutherford 2020b: 331; Hutter 2021: 144, 295.

[14] The well-attested ^{ÍD}Mala and the less-attested ^{ÍD}Maliya (RGTC 6: 537-538). Particularly, the river Maliya occurs in KBo 2.16 rev. 4, KBo 47.76 rev. 5'], and KUB 38.33, 5; to which should be added KBo 14.88 ii 12' "ÍD-*aš* ^{d}*Ma-l*[*i-ya*" according to Trémouille 2002: 355. See § 2 below.

[15] E.g., KUB 43.23 rev. 49': *ŠA* GIŠ KIRI$_6$, Haas 1988: 136-137, 141. See also Lebrun 1982: 127 with note 17; Haas 1994: 478; Serangeli 2015: 382.

[16] E.g., KUB 12.44 iii 10'-11': GIŠ KIRI$_6$.GEŠTIN ^{d}*Ma-a-li-ya-an-ni-uš a-ša-an-zi*, Haas 1988: 138-139, 142. See also Lebrun 1982: 127 with note 17; Hutter 2003: 231, 250; Taracha 2009: 115; Weeden 2018: 351.

Maliyanni-deities[17] were probably some types of nymphs.[18] In addition to her patronage of the natural environment, Maliya was also the patroness of some workers,[19] possibly through the connection between water-related work activities and rivers.[20] Moreover, she also had a variety of "Maliya's male gods": DINGIR *pešneš* ^{d}*Maliya=aš* / ^{d}*Maliya=aš* DINGIR.LÚ^{MEŠ}*-aš*,[21] whose role as Maliya's *parhedroi* is far from being clearly understood.[22] Finally, she is once referred to as "Maliya of the horn".[23]

1.A. Concerning religious geography, Maliya was originally worshiped in Kummani, but then also in Tapala[24] and Ḫattuša, where her temple[25] hosted the holy horse Erama, which was a cultic animal fed by the Hittite king himself.[26] Furthermore, Maliya's name possibly shares the root with many other geographical names: the cities of ^{URU}Maliyaša, ^{URU}Maliluḫa, ^{URU}Malita, the rivers of ^{ÍD}Mala and ^{ÍD}Maliya (below, § 2), and the mountain ḪUR.SAG-Malimaliya.[27] For what concerns the cities, we are far from understanding their proper localisation within the Hittite Empire because they are sporadically mentioned in cultic texts. Conversely, Mt. Malimaliya has been identified with the Mamu Dağ, N-E of Tokat,[28] far away from Maliya's traditional places of worship: Kizzuwatna (Kummani) and Hittite core (Ḫattuša and Tapala).

1.B. Chronologically, Maliya is attested in textual evidence no earlier than the 14th century BC. The oldest cuneiform tablets in which we read the name Maliya are paleographically middle-Hittite[29] and much fewer in number than the later ones.[30] The *post quem* benchmark is Puduḫepa's reign and her cultic renovation of the (*ḫ*)*išuwa*-festival:[31] from there, the Hurrian/Kizzuwatnean gods are more frequently attested. Maliya is no excep-

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[17] Attestations: KBo 27.108 iii 24, 27, 29; KUB 12.26 ii 21; KUB 12.44 iii 11, 12.

[18] Identification based on the Luwian diminutive suffix *-anna/i-* (Lit. 'the small Maliya-deities', Melchert 2003: 196) and the Greek nymphs Μελίαι/Μελιάδες. See Laroche 1946/47: 86; Lebrun 1982: 123-125; Frantz-Szabó 1987: 305; Haas 1988: 142; Haas 1994: 313, 470; Van Gessel 1998: 297; Hutter 2003: 231; Taracha 2009: 116; Serangeli 2015: 377-379; Steitler 2019: 132; Payne 2019: 242 with notes 41, 45; Hutter 2021: 144.

[19] "Of the leather worker": *pa-ra-a-ma* <*ŠA*> ^{LÚ}AŠGAB ^{d}*Ma-li-ya-aš* (KBo 10.27 iv 30, see Steitler 2019: 131 with note 41; Cammarosano 2021: 84); "of the carpenter": ^{d}*Ma-li-ya-aš ŠA* ^{LÚ}NAGAR (KUB 57.58 ii 7', KBo 70.109+ ii 15, see Cammarosano 2018: 112, 446-447; Cammarosano 2021: 85; Rutherford 2020b: 331); "of the GAD.TAR-functionary": $^{d]}$*Ma-li-ya-aš ŠA* ^{LÚ}GAD.TAR (KUB 46.17 iv 8, see Cammarosano 2021: 85; Steitler 2019: 133-134).

[20] Steitler 2019: 133; Hutter 2021: 284.

[21] KBo 4.13 i 16; KBo 11.32 obv. 19, 24, 36-37], low.e. 40 // KUB 43.30 iii 10'-11'; KBo 23.49 iv 2 +KBo 24.110 iv 7; KBo 25.109 iii 10, 20; KBo 29.33 r.col. 9]; KBo 59.183 rev. 4; KUB 2.13 iii 22, iv 24; KUB 55.39 i 27]; VSNF 12.28 iii 10-11; Bo 3302 obv. 11]; Bo 5480, 8. See Van Gessel 1998: 296. For the equation *pešneš* = LU^{MEŠ}, see Neu, Otten 1972: 183-185 and Carruba 1994: 14-16.

[22] Lebrun 1982: 128; Carruba 1994: 15-16 with note 7; Haas 1994: 274, 614, 646. Archi (1979: 11) raised the possibility that they could be some spirits of Maliya's river even though we have no evidence for it; whereas Klinger (1996: 581) argued that they could be 'die Heptaden' ^{d}IMIN.IMIN.BI. However, this last equation is contradicted by VSNF 12 ii 10', where IMIN.IMIN.BI and DINGIR LÚ^{MEŠ} occur in a row.

[23] KUB 35.135 iv 15: ^{SI}*ša-ú-i-it-ra-aš* ^{d}*Ma-li-ya*[*-an*], see Starke 1985: 322; Hutter 2021: 147.

[24] ḪUR.SAG Tapala, see RGTC 6: 397 and Van Gessel 1998: 297.

[25] Maliya's temple is attested in KBo 7.45 rev. r.col. 10', KBo 9.133 obv. 2; KBo 15.49 iv 10; KBo 20.114 vi 9, 21, KBo 20.118 ii 10, KBo 24.40 obv. r.col. 4, KBo 30.71 iii 13, KBo 31.181 rev. 1, KBo 35.262, 17, KBo 47.71 obv. 10', KUB 20.49 i 14, KUB 32.99 v 4, KUB 40.103 I 12, ABoT 14 iv 6. See Lebrun 1982: 127 with note 18; Haas 1994: 411, 850, 855; Popko 1995: 101; Van Gessel 1998: 296; Taracha 2009: 115.

[26] For instance, Bo 5593 ii 2-9 with duplicates. See Haas 1994: 417, 856; Van den Hout 2004: 488; Serangeli 2015: 380-381.

[27] Respectively: RGTC 6: 256, 257, 537-538; RGTC 6/2: 99. See also Lebrun 1982: 125-126; Frantz-Szabó 1987: 305. The broken piece of evidence of KUB 40.80 obv. 9 ^{URU}*ma-al-*[(RGTC 6: 255) can be referred to whatever town whose name starts with *Mal-*.

[28] See RGTC 6: 255; Frantz-Szabó 1987: 305 with references.

[29] Particularly, KBo 14.88, KBo 23.49, KBo 23.68, KBo 25.109, KBo 25.191, KBo 29.33, KBo 45.82b, KUB 43.30, and KUB 43.23. About the assumed old ductus of KUB 43.30, see Taracha 2009: 51 with note 261 'early Middle Hittite script'.

[30] Ca. 11,50% of all attestations, *contra* the 69% of jh. and 19,50% of sjh.

[31] Statistically, the *ḫišuwa*-festival (CTH 628) is by far the most attested typology (24%) among all Maliya's attestations, and in general Maliya's major attestations (64%) concern festivals (*Monatsfest*, *Mond-fest*, AN.DAḪ.ŠUM, *ḫišuwa*, EZEN$_4$, KI.LAM). Finally, to

tion, becoming a central deity of the new State Cult (Lebrun 1982: 126-127, 129) at the time in which new Hurrian dynastic gods were introduced in Ḫattuša.[32] However, onomastics seem to show a larger chronological diffusion for Maliya (§ 1.C).

1.C. Concerning onomastics, proper names related to Maliya appear from the age of the *kārum* at Kültepe (with a group of names that may conceal a form like ^{f}Mal(i)awašḫai[33]) until the late Karkamiš kingdom (prince ^{m}Maliya-^{d}Teššup[34]), thus displaying the long cultural survival of the divine name.[35] ^{f}Mal(i)awašḫai contains the Luwian element *wašḫa-*,[36] thus providing a clue for some Luwian linguistic presence in East Anatolia already in the Old Assyrian period. Of course, even assuming the analysis of the forms is correct, the presence of a theophoric personal name does not demonstrate the presence of a cult in Cappadocia in the Middle Bronze Age (§ 5.A).

1.D. Remarkably, with reference to the state of the art, Maliya has been at the center of two misinterpretations. Firstly, even though the temple inventory text KUB 38.33 obv. 5' reports a female iron statuette of $^{<ÍD>}$Maliya, the determinative in the lacuna is not clearly consistent with a ÍD, as recently pointed out by Cammarosano,[37] thereby removing any element for speculation about an iconographic and epigraphic evidence of Maliya as a river-goddess.[38]

Secondly, Maliya has been correlated with Ištar because the two goddesses appear together in a few rituals and because Ištar is traditionally connected with gardens just like Maliya.[39] For these reasons, the text KUB 40.101 obv. 8', reporting GAŠAN Maliya "Lady Maliya", has often been quoted as another clue for a correlation between Maliya and Ištar.[40] However, the proper reading of line 8' is: *A-NA* ḪUR.SA]G *Kam*$^{!}$*-ma-li-ya* 1 NINDA *tu-ḫu-ra-i*.[41] Indeed, although the photo BoFN02002 of KUB 40.101 clearly shows the sign GAŠAN (HZL 336), the duplicate KBo 11.40 v 3' reports without any doubt *A-NA* ḪUR.SAG *kam-ma-li-ya*, not to mention that the context of KUB 40.101+ obv. 3'ff. deals with offerings towards mountains.[42] Therefore, the GAŠAN sign of KUB 40.101 obv. 8' has to be considered as a *lapsus calami* for KAM (HZL 355), so the correlation of "Lady Maliya" with Ištar is incorrect. The two goddesses are close to each other in some texts, but there is no reason to identify one with the other.

1.E. Finally, Maliya is considered to be part of two so-called circles: the "circle of Kaniš"[43] with Pirwa, Ḫaššušara, Ašgašepa, and Kamrušepa,[44] on the one hand; and the "circle of Ḫuwaššanna" of Ḫupišna on the oth-

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my knowledge, all the findspots related to tablets in which Maliya is attested refer to Ḫattuša, and, even considering the limits of this *argumentum ex silentio*, it is important to note the lack of reference from other (Kizzuwatnean?) findspots so far.

[32] Taracha 2009: 92-95, 115; Hutter 2021: 29, 192.

[33] NH 723-724. See Yakubovich 2010: 220 table 28. See also Lebrun 1982: 125 with note 9 and Frantz-Szabó 1987: 305.

[34] NH 727. See Lebrun 1982: 125 with note 9; Frantz-Szabó 1987: 305.

[35] See Lebrun 1982: 125; Bryce 1986: 177.

[36] CLL: 264 'sacralized object (or sim.)'. See also Hutter 2003: 257 and Yakubovich 2010: 219.

[37] Cammarosano 2021: 85 with note 344. See also Steitler 2019: 132.

[38] Haas 1994: 410; Hutter 2003: 231; Taracha 2009: 115; Serangeli 2015: 377.

[39] For instance, KBo 30.71 iii 12'-13'; KBo 3.8+ iii 14-17; Bo 5593 obv. 2-9, rev. 10'-14'. See Haas 1988: 124 with note 30; Haas 1998: 411, 412, 850 with note 11, 856 with note 33; Serangeli 2015: 380-381 with note 14.

[40] So Lebrun 1982: 123 note 1; Frantz-Szabó 1987: 304; Hutter 2003: 231.

[41] According to McMahon 1991: 126-127. For the Mt. Kammaliya, see RGTC 6: 167; RGTC 6/2: 61.

[42] See McMahon 1991: 117, 126-127.

[43] Also referred to as "Pantheon of Kaniš/Neša", "kanisische- Gruppe/Gottheiten", "der kappadokische Kreis" but literally "Gods of Kaniš" DINGIR^{MEŠ}-*aš* ^{URU}*Kaniš* (e.g., KUB 56.45 ii 7). See Otten 1971: 32 with note 36; Lebrun 1982: 126-127; Frantz-Szabó 1987: 304; Haas 1988: 124; Haas 1994: 281, 412-413, 439, 614, 776, 779, 781; Popko 1995: 89; Klinger 1996: 581; Hutter 2003: 231; Taracha 2009: 30, 133; Cammarosano 2021: 84; Hutter 2021: 48; Warbinek 2022: 12-13 with n. 149.

[44] For Ašgašepa and Kamrušepa, see respectively Warbinek 2022: 3, 5-6.

er.[45] However, even though Maliya is attested in KBo 29.33 iii 7', 9',[46] this is not enough to integrate Maliya into the so-called Ḫuwaššanna's circle.[47] Generally speaking, the definition of "circle" is a rather problematic one. It usually refers to a group of gods with different features that often listed together.[48] The idea of a *circle* of gods could indeed be an excellent methodological filter, considering that it potentially combines textual, geographical, and linguistic elements. But since very different features characterize the single divine figures, the whole notion of *circle* can easily become misleading. Therefore, we prefer to focus on the features of the single deity in order to attempt a safer contextualisation. For this reason, the (*ḫ*)*išuwa*-festival plays an essential role in our debate. As mentioned above, this festival shows a Hurrian character in the ritual, which was held in the Hittite capital and originally celebrated in Kizzuwatna.

2. MALIYA'S RIVERS

Of special interest is Maliya's affinity with rivers, particularly regarding $^{\text{íD}}$Maliya and $^{\text{íD}}$Mala. On one hand, $^{\text{íD}}$Maliya, although less-attested (KBo 2.16 rev. 4; KBo 47.76 rev. 5']; KUB 38.33, 5; *plus* KBo 14.88 ii 12' "ÍD-*aš* $^{\text{d}}$*Ma-l*[*i-ya*" according to Trémouille 2002, 355), undoubtedly matches the name of the goddess.[49] On the other hand, the name Mala could also be related to two different rivers, the Euphrates (RGTC 6, 537) and another homonymous one in Anatolia. According to Frayne and Stuckey, $^{\text{íD}}$Mala was an 'important sacred river on the eastern frontier of the Hittite kingdom. The Luwians celebrated a cult of the Mala and the Hurrian god Nubadig. As a result of an oracle indicating how to remove a plague that had beset the land of Ḫatti, King Muršiliš II travelled to make offerings at the "Festival of the River Mala". The towns mentioned elsewhere in campaigns of the Hittites reveal that the river flowed near modern Ortaköy [...] located north east of modern Kayseri in Turkey. Lexical texts equate the River Mala with the Puratti, the Hittite name for the Euphrates' (Frayne, Stuckey 2021: 375).

In addition to this picture, Lebrun advanced the hypothesis that $^{\text{íD}}$Maliya was a variant of $^{\text{íD}}$Mala/Euphrates, thanks to the graphic alternation between *-tiya* and *-ta* (for instance, $^{\text{íD}}$Marassantiya/ $^{\text{íD}}$Marassanta)(Lebrun 1982: 125 note 8). While possible, this reconstruction is based on identifying Maliya with the Mala/Euphrates, a hypothesis that is still far from being proven. Instead, $^{\text{íD}}$Maliya and $^{\text{íD}}$Mala in all likelihood referred to two different rivers: whereas Mala can be located in an Eastern context compatible with a Hurrian land next (or equated) to the Euphrates, Maliya could have been a river in the Kizzuwatnean area[50] or even somewhere in the North-East.[51]

3. MALIYA IN THE IRON AGE

Even though there are no attestations of Maliya in Anatolian hieroglyphic texts so far, Maliya's cult spread towards Lydia, Lycia, and the Aegean, where she is mentioned as Malis/Malija and seems to be equated to Athe-

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[45] On the so-called "Ḫuwaššanna's circle" in Ḫupišna (classical Kybestra and modern Ereğli) see Taracha 2009: 117; Hutter 2003: 243-244, 273-274; Hutter 2021: 148-150. For the connection of Maliya with Ḫuwaššanna see Trémouille 2002: 354-355; Hutter 2021: 144-145.

[46] Part of the festival for Ḫuwaššanna (CTH 694), see Hutter 2013: 182.

[47] See Taracha 2009: 117; Hutter 2013: 186.

[48] This, however, does not exclude the religious and cultic importance of such groups, see Warbinek 2022: 13.

[49] See Frantz-Szabó 1987: 304; Lebrun 1982: 123, 127; Lebrun 1987: 242; Hutter 2003: 231-232; Lebrun 2007: 458, 461; Serangeli 2015: 376; Payne 2019: 236, 242 with note 41; Cammarosano 2021: 84-85.

[50] RGTC 6: 538: 'Südosten? (In Kontext die Bergnamen Suwara, Daliya und Arwali[ja])'.

[51] According to KBo 47.76, the river Maliya occurs next to the spring Ku(wa)nnaniya (RGTC 6: 536-537; RGTC 6/2: 206-207) and Mt. Talmakuwa in a context related to the river Zuliya (RGTC 6: 559-560; RGTC 6/2: 212) nowadays identified with the modern Çekerek. See Lebrun 2007: 461 and Carnevale 2020: 86, 89.

na.[52] In fact, even though the routes of transmission from the Bronze to the Iron Age are uncertain, theonyms could have survived the collapse of the Hittite Kingdom.[53]

3.A. Traces of this continuities are firstly found in Lydia, where in the Iron Age 'Maliya scheint in der Gestalt der Malis, einer Schlüsselfigur in der Genealogie der lydischen Könige'[54] and with a strong connection with water, wine, and grain(Payne 2019: 236, 242). The connection of Lydian Malis with the Bronze Age Maliya is mostly based on the syncretism between Herakles and the Anatolian war-god Šanda, with respect to which Malis/Maliya would be the *parhedra*. Furthermore, one can count on the presentation of Malis as one of the three water nymphs in the Argonauts' event in the Propontis (Theocr. 13: 45).[55] As for the western interface, Malis has been syncretically equated to Athena, an identification based on the Lydian-Greek bilingual inscription (LW 40) from the Athena Temple at Pergamon and the two literary fragments related to Hipponax of Ephesus and Hesychius of Miletus.[56]

3.B. Cognate of Lydian Malis (Rutherford 2020a: 54, 194), the Lycian goddess Malija was one of the most frequently attested Lycian deities of the 1st mill. BC.[57] In Xanthos, Malija shared a temple with Artemis and the "Lord of Kaunos",[58] whereas in the Pamphylian city of Side the so-called "Artemon-inscription" is most likely dedicated to Malija, a Greek-Sidetic bilingual text (S I.1.1) (Rizza 2019: 543-544) whose language 'is most plausibly part of the Anatolian branch of Indo-European', suggesting, 'an affiliation to the Luvic group in particular' (Rizza 2019: 536). Most importantly, the Lycian Malija has been equated with Athena[59] thanks to several pieces of evidence. Firstly, the inscription TL 80.3 reports the epithet *malija hrixuwama* ("who watches over"), which is a structural calque of Athena ἐπίσκοπος.[60] Secondly, two inscriptions from Rhodiapolis report the epithet *malija wedrẽñni* (M. "of the city/country"), i.e., the Lycian Malija was the protectress of the city (Rhodiapolis), as well as Athena Poliás.[61] However, this correlation does not clarify whether one epithet has been a model or one is the local translation of the other. In fact, it seems to me a case of borrowing between epithets which does not prove any direct parallelism between gods. More decisive is a pottery scene of the "Judgement of Paris" where the Athena figure is labelled as Mal[ija] (N 307.c, see Barnett 1974).

The attributes of the Bronze Age Maliya as protectress of gardens, wine, and grain are not present both for Malis and Malija, thus casting some doubts on a direct association, so that according to Watkins (2007: 123) the link between these gods 'is rather tenuous, and rests largely just on homophony.' Nevertheless, and in accordance with the above considerations, it is possible to indirectly associate these deities: Bronze Age Maliya – Lydian Malis – Lycian Malija – Greek Athena. In Rutherford's words: 'The equation of Athene with the Lydian goddess Malis, and with the related Lycian Malija is now well established. The question arises of the relation of these 1st

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[52] Lebrun 1982: 124; Frantz-Szabó 1987: 304; Lebrun 1987: 241-243; Hutter 2003: 231; Serangeli 2014: 137-138; Serangeli 2015; Payne, Sasseville 2016: 78; Steitler 2019: 132; Hutter 2021: 144 note 87, 317; Cammarosano 2021: 84.

[53] Payne 2019: 245; Rutherford 2020b: 330-331 with reference to the gods Trqqas and Sanda.

[54] Haas 1994: 411. See also Hutter 2003: 232.

[55] Watkins 2007: 122 with reference; Rutherford 2020b: 330.

[56] Neumann 1967: 35-37; Lebrun 1982: 124 with note 6; Watkins 2007: 122; García Ramón 2015: 131; Payne, Sasseville 2016: 66-67, 69-70, 77-79; Payne 2019: 241; Rutherford 2020b: 329.

[57] Thanks particularly to the inscriptions TL 26: 12; TL 44a: 43; TL 44c: 5, 7-8; TL 75: 5, 6; TL 76: 5; TL 80: 3; TL 149: 2-3, 9, 12; TL 150: 6-7. See Neumann 1967: 35-36; Lebrun 1982: 129-130; Bryce 1986: 174, 177-178; Keen 1998: 202-204; Hutter 2003: 231-232; Melchert 2004: 36; Taracha 2009: 115.

[58] Bryce 1986: 178, 181-182; Lebrun 1987: 243; Keen 1998: 203; Payne 2019: 239-240.

[59] Neumann 1967: 37-38; Melchert 2004: 36 'native equivalent of Athena'. See also Watkins 2007: 122-123 and García Ramón 2015: 131, 132.

[60] See García Ramón 2015: 126-136; Serangeli 2014: 136, 138; Serangeli 2016: 193 with reference.

[61] TL 149, 2-3, 9, 12; 150, 6-7. See Neumann 1967: 34-37; Lebrun 1982: 129; Lebrun 1987: 243; Bryce 1986: 178; Keen 1998: 203; Watkins 2007: 123; Serangeli 2014: 136-139; Serangeli 2015: 382-384; García Ramón 2015: 131-132; Serangeli 2016: 193; Parker 2017: 40; Rutherford 2020b: 330.

millennium goddesses to the Hittite-Luwian goddess Malia, known from the *ḫišuwa*-festival and many other texts, including one from Istanuwa. *Prima facie* she looks different, being associated with rivers and vineyards, whereas Athene's defining features are craft and war',[62] but 'there are similarities; LBA Malia was associated with horses, like Athene Hippia in the classical period,[63] and a central Anatolian cult inventory mentions "Malia of the Carpenter", which seems anticipate Athene's association with carpenters [i.e., Athene Ergane].[64] No other Anatolian associations of Athene are convincing' (Rutherford 2020a: 194-195). The last statement is correct, even though scholarship[65] has stressed the equation even further thanks to the association with watercourses, their nymphs, and horses, taking into account the alleged match of Maliya's features with the traditional attributes of Athena Tritogeneia and Hippia (Tab. 1).[66]

4. ANALYSIS OF THE THEONYM

The name of the goddess Maliya and those of the related goddesses from the Lycian and Luwian world have been connected to an Indo-European root **mel/mol*. In the present section, we will first discuss the words that would derive from this root, leaving aside, for the moment, the very theonym. After that, in light of the evidence collected and discussed, we will go back to the problem of the very etymology of the divine name Maliya. The group of common nouns and verbs that are attested in the cuneiform sources and that would go back to this root are:

1. Hittite
   - *a.* *māl*, a neutral gender abstract substantive, for which the meaning "power of the mind, mental power" has been cautiously suggested;[67]
   - *b.* *mala(i)-* and/or *mal-*, a verb whose meaning, synchronically, seems to be "to approve";[68]
2. Luwian
   - *a.* :*māl*, a neutral gender abstract substantive, for which the meaning "thought, idea" has been suggested, mostly on etymological grounds (Melchert *in press*, s.v.);
   - *b.* *mal(a)i-*, a verb with the meaning "to approve, consider"[69] in at least one occurrence (KBo 4.14 ii 78), while all other contexts are fragmentary (Melchert *in press*, s.v.);

This family of words may be related to the Greek verbs μέλω and μέλλω. If **mel* is indeed a verbal root, it would build a simple present **mel-e-* to account for Greek μέλω[70] and probably also for Hittite *mal*(*a*)-, while Greek μέλλω may result from **mel-ye/o-*. Following Sasseville (2020: 216-218), we could posit **mel-éye-* for the Luwian verb *mal*(*a*)*i-*, although the presence of the plene writing of the /a/ makes it likely that rather than being built on a ver-

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[62] However, Carruba (1994: 15 note 7) pointed out that 'auch die Malija zeigt kriegerische Eigenschaften durch die engeren Beziehungen zu Kriegsgöttern, wie u.a. ^{D}*Ištar* und der Wettergott'.

[63] See Serangeli 2015: 380-382.

[64] Rutherford 2020a: 195 notes 75-77; Rutherford 2020b: 331-332 with note 8 in reference to ^{d}*Maliyaš* ^{LÚ}NA.GAR. See also García Ramón 2015: 131 and above, § 1 note 18.

[65] See, for instance, Hutter 2003: 232 and Serangeli 2015: 377-379.

[66] So Serangeli 2014: 138; Serangeli 2015: 380-382, with reference to Paus. IX 33: 6-7; Apollod. I 3: 6; Hdt. IV 180: 5; Pind. Ol. XIII 82; Soph. Oed. Col. 1067-1073. See also Rutherford 2020b: 331.

[67] See Kloekhorst 2008: 546 with reference to CHD M: 124 and Rieken 1999: 49-51. This interpretation moved Carruba (1994: 15 note 7) to present Maliya as 'die Mutige'.

[68] See Serangeli 2014: 139; Serangeli 2015: 385; Serangeli 2016: 183, 186; Pozza 2020: 16; CHD M: 126-127, 128-129; HED M: 21; CLL: 132.

[69] For correct morphological analysis see Sasseville 2020: 220-221.

[70] See the discussion in Serangeli 2016: 183-186, 188-191, 192.

bal root this was, in fact, a denominal.[71] Of course, if we are dealing with denominals, the connection to the Greek verbs would be more complex (at least in the case of μέλω), and a different scenario would probably emerge.

Limiting ourselves to the Anatolian material, in order to explore this option, it is necessary first to account for the only nominal that is clearly attested: the noun *māl*. This, according to Kloekhorst,[72] would simply be a root noun on the o-grade **mol*, a possibility that is formally acceptable, but quite isolated in the scenario of Anatolian nouns. If, instead, the final /*l*/ was not part of the root, we should hypothesize that it was part of a suffix, added to a root ending in a consonant that eventually disappeared. Craig Melchert (pers. comm.) drew my attention to the possibility of a derivation from **meh$_1$*, which can be achieved positing a syncope from an original **me/oh$_1$-lo-m* > *maHlm* > *māl*.[73]

This picture, and especially the meaning of the words involved, should be kept in mind when the forms of the Anatolian **mel*-words are compared, with the similar and parallel root **men*, that is the base for the name of the Italic goddess *Menesua* (Minerva).[74] Watkins's proposal (2007: 124) that the two roots were the same should be refuted. Invoking *l/n* alternation in Anatolian, which is what Watkins suggested, is certainly not a viable path, unless one could collect evidence for a proper sound law. As for the possibility of an original root **meh$_1$-*, which we just mentioned, although reconstructing **meh$_1$-lo-* could in principle work for Anatolian, there is no possibility of accounting for all the words that go back to **men* (see LIV^2: 435) as going back to an original **meh$_1$* with some morphological extension containing a nasal element.

Once we have sketched a description of the **meh$_1$-lo* or **mol-* word family (and ridded ourselves of an unlikely connection to the root **men*), we may proceed to examine whether the name of Maliya must, indeed, be ascribed to the group. As a matter of fact, while this is possible in principle, the following observations are in order:

1. While all other *mal*-words present a consistent rendering with plene writing of the etymologically long /a/, this does not happen regularly for the divine name, which has no long /a/ in more than half of the occurrences;
2. Nothing in the characterisation of Maliya indicates a connection with the semantic field "to approve", which represents the only meaning that is positively attested in the Hittite corpus for the word family under discussion ("thought" and "mental power" are, indeed, speculative meanings based on the very hypothesis that Maliya should derive from the same root and bear a relationship to Menesua and Athena);
3. The idea of a common origin for the divine features shared by Maliya and Athena/Menesua is mostly based on four features listed by Serangeli (2016): relationship with watercourses, relationship with horses, role in protecting the city, role in punishing mortals. Of these, only the first two emerge (not vividly) from the cuneiform corpora, and they are not shared by Italic Menesua, but only by the Non-Indo-European (Pre)-Greek Athena. The latter two features, on the other hand, are typical of Lycian Maliya and are to be explained as late development deriving from a local syncretism (Tab. 1).

In light of these points, both the connection of cuneiform Maliya to Athena/Menesua and the relationship between her name and a group of words that are connected to the semantics of "approval" (rather than "thinking") are significantly weakened, leaving us in an undecidable situation. It is possible that the name of the goddess was originally derived from the same Indo-European root as an *-iya-* adjective to *māl*. On the other hand, it is equally possible that the name was simply that of a divine river (which is geographically located in the Eastern regions of Anatolia and not close to an alleged Aegean-Anatolian interface area), and that the late Micro-Asiatic Maliya – Malis – Athena equation, which is the only documented phenomenon, was also the only connection that ever existed between Athena, Menesua, and Maliya.

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[71] We thank Craig Melchert, pers. comm. 10 June 2022, for pointing this out to us.

[72] Kloekhorst 2008: 546; followed by Serangeli 2016: 183.

[73] A process that was already identified by Rieken 2008: 242. One should however notice that if the root were, in fact, *meh$_1$*, the hypothesis of a connection to *meld^h-* discussed by Kölligan (2018: 231-233) would at least require reformulation.

[74] See Serangeli 2015: 385-386; Serangeli 2016: 193-194 with references.

5. HISTORICAL CONSIDERATIONS

After discussing the etymology of *māl*-words and the limits of a possible connection to the divine name Maliya, two points require discussion: Maliya's affinity with the Luwian milieu in Anatolia on one hand, and her mode of spreading over the Iron Age on the other.

5.A. Concerning the first point and according to Hutter's lists of Luwian gods,[75] Maliya has to be considered a proper Luwian great goddess, although her 'origin is not to be sought with the Luwians, but she was highly esteemed among them too'.[76] The evidence supporting a Luwian solution concerns both the textual typology and contents, as well as linguistic elements. Particularly, Maliya is surrounded by Luwian deities both in a Middle Hittite ritual (KUB 43.23: Mamma, Kamrušepa, Ala, *taknaš* ^{d}UTU),[77] and in the inventory lists (e.g., KUB 43.40 iii 5' with Kuwanša gods, ^{d}Ḫilašši, and ^{d}Waškuwattašši).[78] Indeed, Maliya's association with the Luwian milieu can be reinforced by the Luwian suffix *-ašši* in the name of some gods, and by the suffix *-anna/i-* used to refer to her hypostasis Maliyanni (Melchert 2003: 196). Particularly, Hutter pointed out that there were three Luwian-speaking environments in the Bronze Age Anatolia: the Hittite Lower Land, Arzawa and Kizzuwatna,[79] but, given the fact that Maliya was worshiped only in Kummani among those lands, a Kizzuwatnean origin can be inferred for this deity. However, methodologically speaking, this does not necessarily imply that Maliya was originally Luwian. As far as we know, she may have "become" Kizzuwatnean when she was "imported" in Ḫattuša by Pudeḫepa, who aimed to assert a royal family throughout the worship of a dynastic cult in Hurrian sense.[80] Most likely, at the time of Pudeḫepa this cult renewal did not rely on the origin of a single god; instead, it embraced deities and religious practices considered culturally Hurrian because they came from the East. Most likely, as the royal house was promoting a new Hurrian dynastic cult, gods of different milieus -like Maliya- were accidentally hired for the cause.

5.B. Regarding the path of diffusion of Maliya – Malis – Malija – Athena throughout different places in different periods, a methodological question of their equations arises. Indeed, the spreading and the reception of the goddess from the far East (Kizzuwatna) into the very West (Lycia and Lydia) is a methodological issue: there is not only a chronological and geographical hiatus between different Maliya-goddesses, but also an epistemological distinction between the Bronze Age (cuneiform texts) and the Iron Age (epigraphs/inscriptions). While the exact details are impossible to reconstruct, and it would be unproductive to speculate about them. Connections certainly exist, but these may have been gradual, indirect and mediated by complex historical circumstances.

We should, instead, briefly consider the possible ways in which two different cultures could equate or associate their gods. According to Rutherford (2020a: 77), when different religious traditions came into contact, the following possibilities of interaction may occur: no influence at all, borrowing, translation, syncretism. Leaving aside the first case that is clear for itself, *borrowing* refers to the adoption by one group of one or more foreign deities; *translation* is the identification of one deity with another god; while *syncretism* consists in the process of creating a new composite deity, which includes the features of both gods.[81]

For our purpose in this paper, *translation* concerns the sharing of divine skills and features (e.g., the equine cultic traits in Athena and Maliya), whereas *syncretism* concerns equating two gods *in toto*. According to this, *translation* refers prototypically to the Roman *interpretatio*, the traditional religious Roman practice of identifying a god of another cultural milieu with the (assumed) equivalent of Rome's pantheon (Parker 2017: 33-34).

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[75] Hutter 2003: 219; Hutter 2021: 142. See also Taracha 2009: 100, 101, 107; Hutter 2021: 144, 295; and Cammarosano 2021: 84.
[76] Hutter 2003: 231. See also Payne 2019: 12.
[77] Haas 1988: 131, 136-137. See also Popko 1995: 88 and Hutter 2021: 144 with note 87.
[78] Popko 1995: 73. See also Melchert 2003: 188, 196.
[79] Hutter 2003: 212, 214, 217-218, 251.
[80] Above, § 1 with note 4.
[81] See Rutherford 2020a: 77, 187-195.

While Athena and Lycian Malija can be considered to represent a syncretic deity according to the vase scene of the "Judgement of Paris", the same cannot be said for Maliya and Malis/Malija, also because the transmission routes are often uncertain.[82] However, it is noteworthy to say that these are only traces of continuity, not a direct development of the Hittite-Luwian beliefs in the Aegean milieu. It is now appropriate to quote Hutter's words: 'Lycia cannot be considered as continuing Luwian culture directly. Lycia clearly had religious concepts of its own, of course also sharing some Luwian traditions (e.g., some gods), but also integrating "Greek" and other traditions'.[83]

6. CONCLUSIONS

According to the evidence we have, Maliya has to be considered as a goddess of vegetation whose cult spread from the city of Kummani (and therefore in an Anatolian, not Hurrian, context), and became a central deity of the new State Cult in the Hittite Kingdom of the Late Bronze Age. Notwithstanding that the deity is attested from the 14th century BC onwards, there is onomastic evidence related to Maliya from the *kārum*-period to the Neo-Hittite kingdom of Karkamiš.

Moreover, there is no clear evidence to define Maliya as a proper Luwian goddess according to the epigraphic evidence. We consider, however, a Luwian/Kizzuwatnean origin of Maliya as the most likely scenario, thanks both to contextual and linguistic analysis.

Geographically speaking, Maliya's cult spread from Kizzuwatna to the entire Hittite Empire, moving towards the west of Anatolia in the Iron Age. This development could explain both her "fame" –because the capital gave her more opportunities to spread throughout the country– and her "survival" after the collapse of the Hittite Kingdom. This spread does not necessarily imply early syncretic situations outside of Anatolia.

The adoption of the Kizzuwatnean Maliya into the Hittite State Cult should be considered to be a case of religious borrowing; the equation of Lydian Malis and Lycian Malija with Athena as a pure case of syncretism. As for the Bronze Age, however, Maliya and Athena share some features (patroness of the city and carpenters, association with horses), but they do not share their main ones (Maliya as river/water goddess of vegetation; Athena as goddess of wisdom and craft). For this reason and as far as the linguistic analysis and the available evidence is concerned, Maliya and Athena should not be considered to be the same syncretic deity (Tab. 1).

Table 1. Gods' main features in comparison (X = not shared feature).

Deity	**Features**						
Bronze Age Maliya	Of the gardens, wine-grain	River goddess (+Maliyanni)	"male gods" *parhedroi*	Holy horse Erama	Patroness of some workers	X	X
Lydian Malis	X	Malis as water nymph	X	X	X	X	*Parhedra* of Šanda/Herakles
Lycian Malija	X	X	X	X	X	*malija hrixuwama*	*malija wedrēñni*
Greek Athena	X	Athena Tritogeneia	X	Athena Hippia	Patroness of Carpenters	Athena Episkopos	Athena Poliás
Roman Minerva	X	X	X	X	X	X	X

[82] Payne 2019: 245. See also Popko 1995: 163-171.

[83] Hutter 2003: 265 with reference to Bryce 1986: 172-202 and Keen 1998: 193-213.

ABBREVIATIONS

ABoT K. Balkan, *Ankara Arkeoloji Müzesinde bulunan Boğazköy Tabletleri*, Istanbul 1948.
CHD *The Hittite Dictionary of the Oriental Institute of the University of Chicago*, Chicago 1980ff.
CTH E. Laroche, *Catalogue des textes hittites*, Paris 1971.
CLL H. Melchert, *Cuneiform Luvian Lexicon*, Chapel Hill 1993.
HED J. Puhvel, *Hittite Etymological Dictionary*, Berlin – New York – Amsterdam 1984ff.
IBoT *Istanbul Arkeoloji Müzesinde bulunan Boğazköy Tabletlerinden Seçme Metinler*, Istanbul – Ankara.
KBo *Keilschrifttexte aus Boghazköi*, Leipzig 1916-1923, Berlin 1954ff.
KUB *Keilschrifturkunden aus Boghazköi*, Berlin 1921ff.
LIV^2 H. Reix, M.J. Kümmel, *Lexikon der indogermanischen Verben* (2nd edition), Wiesbaden 2001.
LW R. Gusmani, *Lydisches Wörterbuch*, Heidelberg 1964.
NH E. Laroche, *Les noms des Hittites*, Paris 1966.
RGTC 6 G.F. del Monte, J. Tischler, *Die Orts- und Gewässernamen der hethitischen Texte*, Wiesbaden 1978.
RGTC 6/2 G.F. del Monte, *Die Orts- und Gewässernamen der hethitischen Texte. Supplement*, Wiesbaden 1992.
TAM *Titvli Asiae minoris* (Vol. 1, *Tituli Lyciae lingua Licya conscripti*), Wien 1901ff.
TL *Tituli Lyciae* (see TAM).

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