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The Early Bronze Age occupations at Gird Lashkir (Erbil, Iraqi Kurdistan): New data on the third millennium BCE in Northern Mesopotamia

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ABSTRACT

This paper presents new archaeological data from the site of Gird Lashkir (Erbil Plain, Iraqi Kurdistan), contributing to ongoing debates concerning the character and development of Early Bronze Age societies in northern Mesopotamia. Excavations conducted over ten seasons have documented a well-preserved and stratified sequence comprising seven occupation phases attributed to the Ninevite 5 horizon (ca. 3000–2500 BCE). This sequence provides a rare opportunity to analyse long-term settlement dynamics within a single site, addressing persistent challenges related to the scarcity of radiocarbon dates and the lack of continuous stratigraphic records in the Upper Tigris region.

The study integrates architectural, stratigraphic, radiocarbon and mortuary data in order to refine the internal chronology of the site and situate it within broader regional frameworks. The results reveal a constant reorganisation of domestic space, architectural investment, and specialised installations, reflecting evolving patterns of household and community organisation. Mortuary evidence further indicates structured funerary practices and emerging social differentiation, while the presence of sealing practices points to the integration of administrative behaviours within economic activities.

Taken together, the evidence highlights the role of small settlements as active participants in broader socio-economic networks rather than peripheral rural units. The data also highlight the variability of the Ninevite 5 horizon, supporting its interpretation as a flexible and regionally articulated cultural framework. By providing securely dated and contextually integrated evidence, this study contributes to a more nuanced understanding of social organisation, economic practices, and settlement development in northern Mesopotamia during the third millennium BCE.

1. Introduction

Following the disruption of Uruk at the end of the fourth millennium BCE, several regional cultural traditions emerged across Southwest Asia at the beginning of the third millennium BCE. One of the most prominent of these is associated with the spread of so-called Ninevite 5 pottery, a

term derived from the stratified assemblage of painted and incised/excised ceramics recovered from a prehistoric pit excavated at Nineveh by Max Mallowan in the early 1930s (Thompson and Mallowan, 1933), clearly differing from both the preceding Late Uruk material and the subsequent Early Dynastic ceramics.

The Ninevite 5 period is generally dated to the Early Bronze Age

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(hereafter EBA), more specifically to the period between c. 3000 and 2500 BCE (Rova, 1988, 2003; Roaf and Killick, 2003; Weiss, 2003), corresponding broadly to Early Tigridian (ETG) phases 2–4 (Rova, 2019). Ceramics attributed to this horizon are widely distributed across northern Mesopotamia, from northern Iraq to north-eastern Syria, extending from the Upper Tigris basin to the Syrian Khabur region (Schwartz, 1985; Roaf and Killick, 1987; Rova, 1988; Forest, 2003; Rova and Weiss, 2003; Rova, 2013; Grossman, 2014; Badra, 2015; Laweka, 2016; Arrivabeni, 2019). Within this extensive geographic area, however, Ninevite 5 should not be understood as a homogeneous cultural identity. Rather, it represents a mosaic of communities sharing a repertoire of decorated ceramic styles whose forms vary regionally and do not always conform to rigid typological frameworks (e.g., Lewis, 2024).

This transitional period is of particular importance for discussions of socio-political transformation and increasing complexity in northern Mesopotamia, including the reorganisation of settlement systems, the emergence of early urban centres and the restructuring of interregional exchange networks. Several scholars have interpreted the development of Ninevite 5 communities as a response to the contraction of Uruk-period interaction spheres, arguing that the fragmentation of earlier exchange networks fostered new, regionally grounded economic and social strategies (Schwartz, 1987, 2003; Weiss, 2003). These developments were likely accompanied by considerable political and cultural diversity, potentially involving multiple local polities rather than unified territorial entities.

Over the past decade, archaeological research in the Upper Tigris region has expanded considerably, particularly through excavation and survey projects conducted in Iraqi Kurdistan (e.g. Morandi Bonacossi et al., 2018; Pfälzner and Qasim, 2018; Ur et al., 2021; Renette et al., 2023; Koliński, 2024). These investigations have significantly increased the available dataset and revealed a high degree of variability in settlement patterns, material culture and site organisation. At the same time, important advances in chronological resolution have been achieved through the integration of radiocarbon dating, ceramic seriation and regional comparative frameworks, most notably within the ARCANE project, which has refined the temporal framework of the EBA within what was defined as the Tigridian region (Rova, 2019). Together, these developments have highlighted the dynamic and regionally differentiated nature of EBA societies in the Upper Tigris and challenged established cultural and chronological models, many of which still rely heavily on data derived from old excavations.

Despite this progress, significant limitations persist in our understanding of the EBA in the Upper Tigris. The archaeological record remains unevenly documented, with persistent issues concerning the definition, internal chronology and interpretation of EBA communities. While decorated pottery is relatively well studied, other key aspects of the archaeological record, such as the architecture, settlement organisation, economic practices and exchange networks, remain poorly explored. Moreover, many sites are known primarily from surface survey data, and only a limited number have been investigated through long-term stratified excavations (Couturaud, 2024), hindering the reconstruction of continuous occupational sequences within single sites to better contextualise this period. This problem is compounded by the scarcity of radiocarbon dates and the absence of well-dated, internally coherent stratigraphic sequences in the region (Renette et al., 2023). Additionally, the limited availability of textual sources referring to this region, which mostly derive from southern Mesopotamia and often date to the mid- to late third millennium BCE (Colonna d'Istria and Clancier, 2024), has contributed to an interpretative imbalance in which northern Mesopotamia remains underrepresented in broader narratives of socio-political transformation. These constraints underscore the need for regionally grounded, stratigraphically robust and methodologically integrated studies capable of addressing the specific trajectories of Upper Tigris communities during this critical period.

This paper addresses current limitations in the available data for the

EBA in the Upper Tigris region by presenting new evidence from the site of Gird Lashkir (Erbil, Iraqi Kurdistan) (Fig. 1), generated over ten seasons of fieldwork by an interdisciplinary team. Excavations at Gird Lashkir in Iraqi Kurdistan between 2015–2019 and 2021–2025 have documented a continuous sequence comprising seven occupation phases, all attributed to the early EBA, providing a key opportunity to construct a stratigraphically anchored local sequence within a single archaeological site.

New data on the stratigraphy and architecture of the EBA levels at Gird Lashkir, supported by new radiocarbon dates, have refined the site's internal phasing and contributed to broader discussions of comparative regional frameworks for this period. New funerary records have led to better characterisations of the site from social and economic perspectives, thereby enhancing our understanding of the communities inhabiting the Erbil Plain during the EBA and northern Mesopotamia more broadly.

The study of the EBA period is essential for understanding the processes that linked the post-Uruk world to the emergence of early states and empires. At the same time, the marked regional variability observed within the Ninevite 5 pottery record cautions against rigid cultural definitions and highlights the importance of context-sensitive, comparative approaches. The present study contributes to this ongoing debate by providing new evidence for the Upper Tigris region within its broader archaeological and historical framework.

2. Excavations at Gird Lashkir

Gird Lashkir is located on the Erbil Plain, between the modern villages of Bnaslaw and Kasnazan, in close proximity to the city of Erbil. It is a relatively small site consisting of a low round-shaped mound approximately 12 m high, covering an area of about 4 ha (Fig. 2). It is bordered by two small wadis coming from the north-east and currently lies between a residential and an industrial area. Despite these modern structures, the archaeological deposits in the mound have proven remarkably well preserved.

The site was first recorded in the *Atlas of the Archaeological Sites of Iraq* (Iraq Directorate General of Antiquities, 1976), where it was described as a small settlement yielding surface material attributed to the Bronze Age, Iron Age and Islamic periods. At that time, Gird Lashkir had not yet been excavated but was protected by the General Directorate of Antiquities. Subsequent revisits to the site identified additional Late Neolithic and Chalcolithic ceramic material on the surface, indicating a longer occupational history than previously recognised.

Systematic archaeological investigations at Gird Lashkir began in November 2015 as a joint project between the Autonomous University of Barcelona and Salahaddin University–Erbil, under the supervision of the General Directorate of Antiquities of the Kurdistan Region. The first phase of the project (2015–2019) aimed to assess the chronology, preservation and spatial extent of the site, as well as to characterise the range of activities carried out across different areas of the settlement. To this end, a total of twelve test trenches were opened, distributed along north–south and east–west axes across the mound (Fig. 2b).

The results of these initial seasons, partially published in Gómez-Bach et al. (2019) and Molist et al. (2019), demonstrated that Gird Lashkir was a substantial settlement during the EBA, with limited but clear evidence for earlier occupation. The earliest levels documented to date correspond to the Middle Uruk period, dating to the fourth millennium BCE. These deposits were identified in Trench 7, located in the south-western sector at the base of the mound, at a considerable depth below the present surface (c. 2.5 m). The depth and stratigraphic position of these levels not only pose significant logistical challenges for extensive future excavations but also highlight a rapid rate of sediment accumulation at the site, with important implications for understanding both occupational intensity and site formation processes.

The most extensive and best-preserved occupations at the site date to the third and second millennia BCE and are identified across several

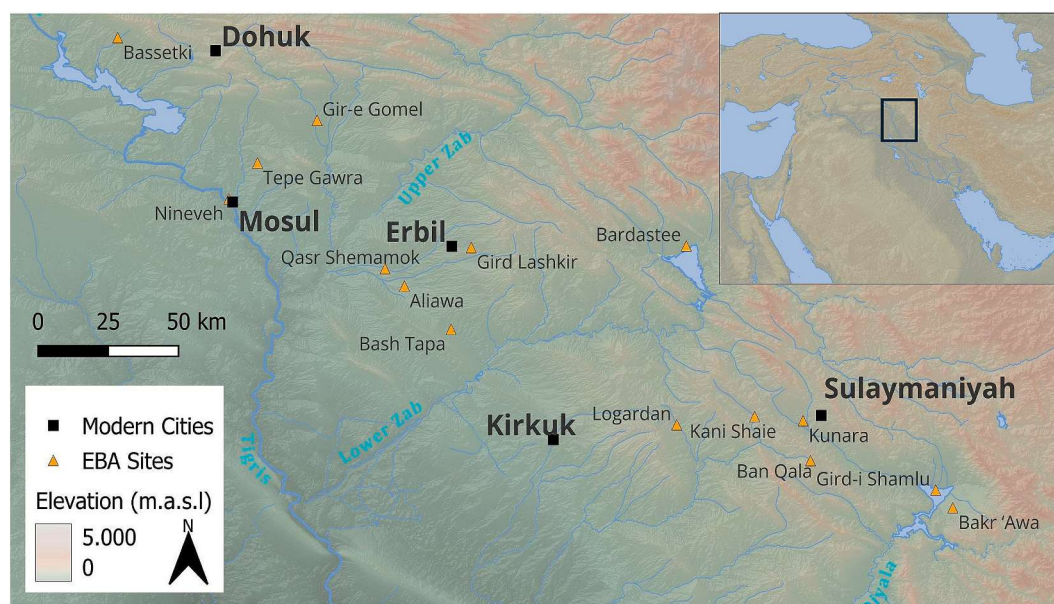


Fig. 1. Location of Gird Lashkir and other EBA sites in the Upper Tigris.



Fig. 2. General view of the site. A) View of Trench 3; B) Topographic map showing the location of the excavation trenches.

areas of the mound. Based on stratigraphic integrity and preliminary results, trenches 1, 3, 6, 7, 9, and 11 were expanded during subsequent seasons until 2019, enabling the definition of successive occupation phases and the documentation of well-preserved architectural features.

Following a hiatus, fieldwork resumed in 2021 with a renewed focus on Trench 3, selected due to the presence of particularly well-preserved earthen architectural remains dating to the EBA, as indicated by the abundance of Ninevite 5 pottery (Fig. 3) and supported by radiocarbon dating (Molist et al., 2019). This second phase of research was designed to address significant gaps in our understanding of the EBA in the Upper Tigris, with particular emphasis on architectural planning, in order to gain deeper insight into settlement organisation, building practices and

the use of space. At the same time, the excavation strategy sought to establish a long and continuous stratigraphic sequence within a single area of the site, allowing a better assessment of the duration, intensity and internal development of EBA occupation at Gird Lashkir.

Overall, the excavations conducted at Gird Lashkir have revealed a long and well-preserved sequence of occupation, highlighting the site's potential to contribute significantly to current debates on EBA settlement dynamics, architecture and social organisation on the Erbil Plain and in the Upper Tigris region more broadly.

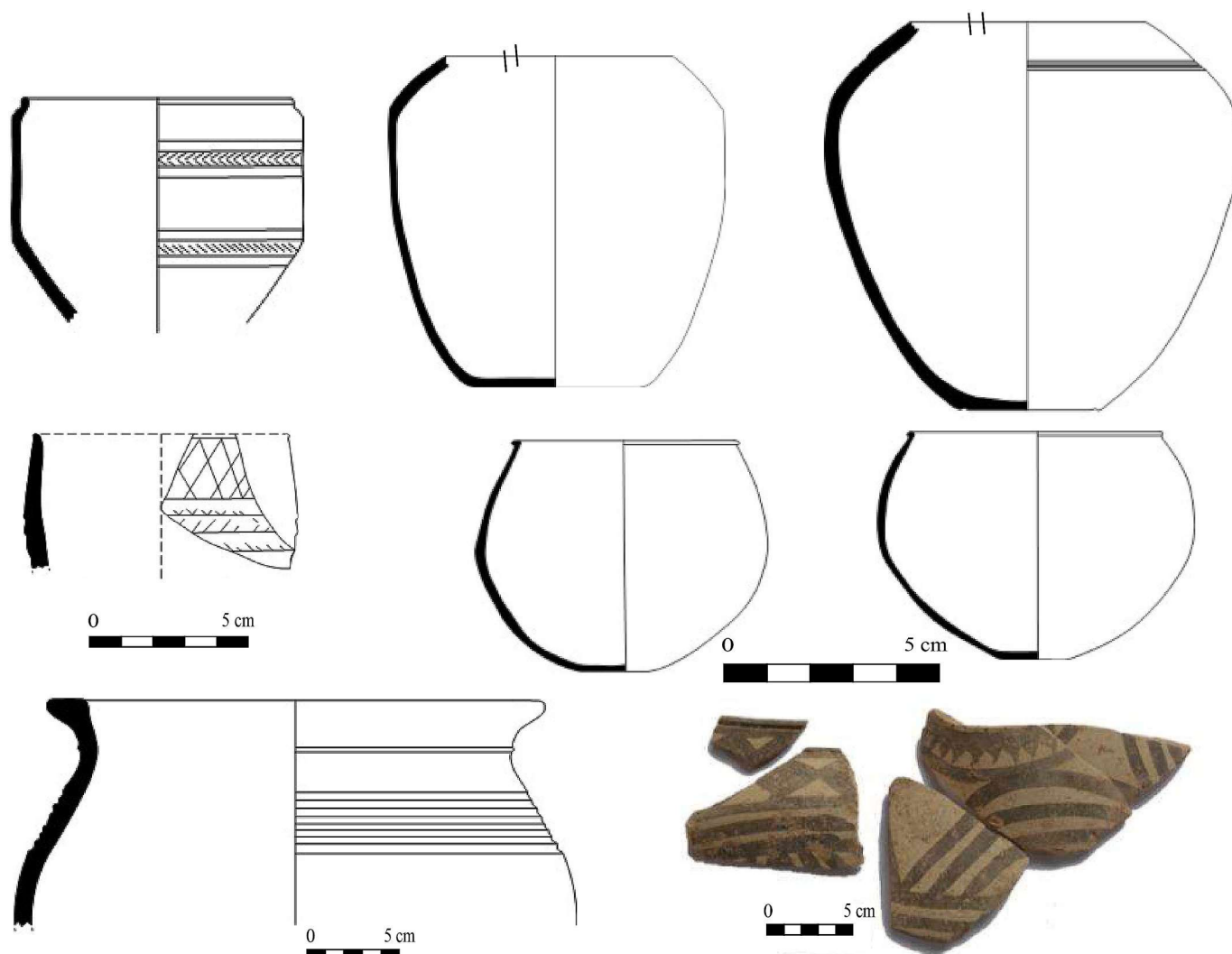


Fig. 3. Examples of Ninevite 5 pottery recovered from Trench 3.

2.1. The Early Bronze Age occupations at Gird Lashkir

The data presented in this article relating to the EBA occupation of Gird Lashkir derive primarily from Trench 3, although EBA levels have also been identified to a lesser extent in other areas of the site. Trench 3 is located midway along the southern slope of the mound and has been the focus of excavation since the first field season in 2015. Over successive campaigns, this area was progressively expanded, eventually connecting with Trench 4 to the south and reaching a total excavated surface of approximately 174 m². This strategy aimed to provide extensive horizontal exposure of EBA architectural remains and to obtain clearer stratigraphic and contextual information for this period.

Excavations and stratigraphic investigations in Trench 3 have documented up to c. 4 m of superimposed EBA deposits. These deposits reflect a rapid succession of occupation episodes characterised by alternating phases of dense architectural complexes and periods dominated by large open spaces, with instances in which both configurations coexist. The stratigraphic sequence reveals a highly dynamic settlement during the first half of the third millennium BCE, marked by continuous rebuilding and reorganisation of space.

At least seven main EBA occupation phases have been identified to date, distinguished primarily on the basis of changes in architecture and spatial layout, comprising five radiocarbon dates (Fig. 4). Some of these phases have been further subdivided into sub-phases, defined by minor modifications in the arrangement or reconstruction of structural

elements and domestic features that do not fundamentally alter the overall architectural pattern. This reflects the intensity and continuity of the occupation, where frequent refurbishments, repairs and reconstructions of domestic features occurred within a stable spatial framework rather than through large-scale reorganisation of the settlement layout.

3. Stratigraphic sequence

This section presents the stratigraphic sequence of the EBA occupation at Gird Lashkir, based on the seven phases identified to date in Trench 3. The upper archaeological deposits immediately below the present surface are only partially preserved, a condition largely attributable to the sloping morphology of the mound. As excavation progressed to lower levels, both the quality of preservation and the horizontal extent of the exposed deposits improved significantly.

3.1. Phase I

The first and upper documented EBA levels comprise a series of thin, discontinuous deposits that reflect intermittent, short-lived episodes of occupation. These uppermost strata are characterised by isolated combustion features, shallow cuts, concentrations of ceramic sherds and semi-buried jars, occasionally separated by brief abandonment phases. Structural elements are notably scarce: only one poorly preserved

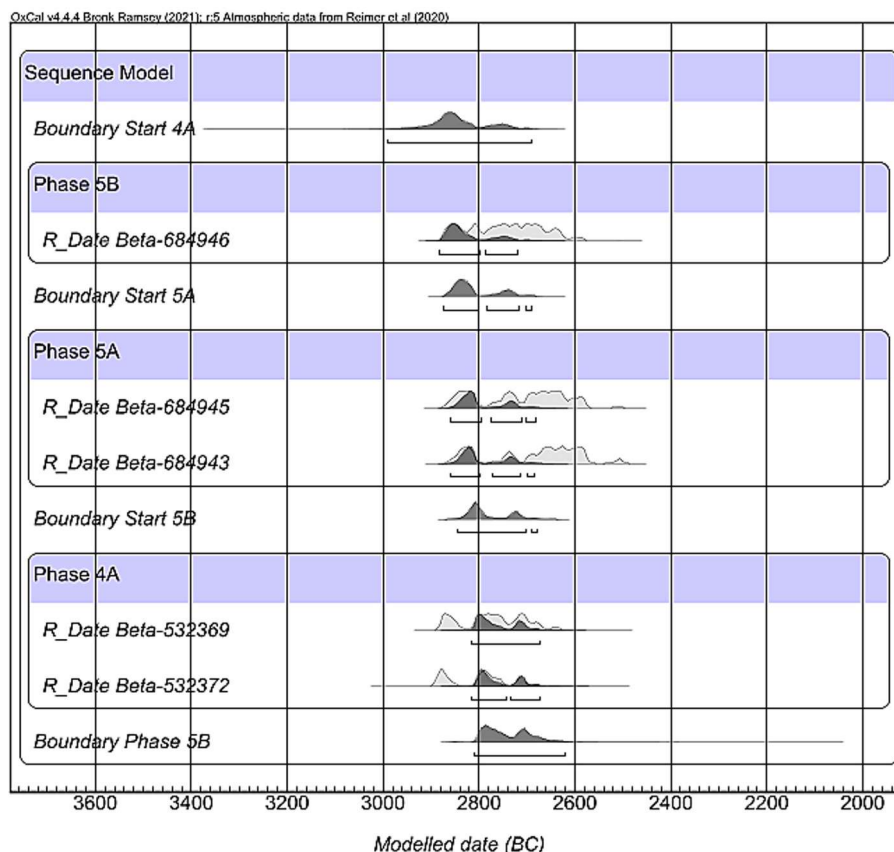


Fig. 4. Three-phase Bayesian Sequence model implemented in OxCal 4.4.4 (Bronk Ramsey, 2017) using the IntCal20 atmospheric calibration curve (Reimer et al., 2020).

mudbrick wall with a stone basement was found at the very edge of the excavated area.

Of particular interest, several cuts (L.29; 2016/4 and 2016/16) were filled by exceptionally distinctive materials. These included six quadruped animal figurines in varying states of preservation, a mould used to produce metal artefacts, and a range of macrolithic tools (Gómez-Bach et al., 2019; Molist et al., 2024; Sisa-López de Pablo et al., 2024).

Clear occupation surfaces or prepared floors are absent from these levels. Instead, the sediment is composed primarily of detrital accumulations mixed with disaggregated earthen construction material, suggesting secondary deposition rather than in situ architectural collapse. Taken together, these characteristics indicate that the excavated area functioned predominantly as an open space, used intermittently rather than as a zone of permanent habitation. Based on their stratigraphic position, depositional characteristics and material assemblages, these early deposits have been grouped into Phase I, which represents the last occupation documented in the excavated sequence.

3.2. Phase II

Below Phase I, Phase II marked a clear shift in the organisation and use of space, characterised by the construction of walls that subdivide the excavated area into a series of distinct units, including both exterior and interior spaces (L.62, L.63 and L.74) (Molist et al., 2019; Fig. 4). This phase represents the earliest stage recorded at the site in which spatial differentiation is clearly expressed through architecture, accompanied by the first evidence for differentiated treatment of occupation surfaces, likely reflecting variations in function, use or exposure.

The exterior areas (L.62 and L.63) are separated by a partially preserved mudbrick wall resting on a stone foundation. A marked contrast is observed in the treatment of surfaces on either side of this wall. While

no distinctive floor preparation was identified in the western exterior space (L.63), the surface in the eastern space was paved (L.62). This pavement consists of a 15–20 cm thick, compact layer of tightly packed pebbles (2017/24), bounded with clay. Such a construction could represent a technical solution to improve drainage in an uncovered or partially covered space. Towards the northern end of this area, however, the prepared surface terminates abruptly and gives way to an earthen packing. This zone contains two open hearths and is characterised by patches of burnt clay, ash and charred material, indicating repeated episodes of thermal alteration. Taken together, these features suggest that these areas (L.62 and L.63) functioned as a semi-covered space or as a distinct activity zone associated with fire-related tasks.

An accumulation of pebbles differing in size was identified at a specific point within surface 2017/24. This concentration marked the presence of an oval-shaped cut (2018/34) filled with a high density of artefactual materials (L.64.2–L.62.2), including ceramics, a caprine mandible, up to eight grinding tools, and three clay figurines: a wheeled vehicle, an equid likely associated with the aforementioned vehicle, and the posterior part of a quadruped animal (Gómez-Bach et al., 2019; Molist et al., 2024). Due to the diffuse boundaries of the negative feature, the filling material, and the exceptional material found, it is possible that this deposit formed contemporaneously with the surface and may represent a foundation-related deposit. Its excavation partially truncates layers attributed to Phase III.

The interior space identified in Phase II (L.74) consists of a quadrangular room located in the north-eastern corner of the excavated sector, extending beyond the limits of the exposed area. In this room, two circular ovens were found against one wall. These installations feature open domes and small basal openings for fuel introduction and closely resemble traditional tannur-type ovens. Their presence suggests that the room was likely used for food processing. However, given the

limited excavated surface of this space (c. 2.4 m²), it remains unclear whether these activities were of a domestic nature or related to more specialised productions.

3.3. Phase III

Phase III is characterised by an open space, with no architectural elements that define or subdivide the area. The occupation associated with this phase is dominated by a single, large fire-installation (2018/38), which constitutes the main architectural and functional feature identified (Molist et al., 2019: Fig. 5).

Following the excavation of Phase II, thin fill deposits were documented, marking the transition to Phase III. These deposits are characterised by irregularly distributed concentrations of charcoal and ash, associated with small quantities of ceramic material. Beneath these transitional layers, an occupation level was identified within an open space (L.80), defined by the presence of the large combustion structure 2018/38 and its surrounding refuse and ashy deposits, among which fragments of clay seal impression were found.

Structure 2018/38 consists of two superimposed combustion structures, representing successive construction episodes. The most recent structure measures approximately 120 × 100 cm in surface area, while the earlier installation measures c. 100 × 100 cm. Stratigraphically, the earlier fire-installation rests directly above well-defined architectural remains belonging to an earlier phase, characterised by well-preserved mudbrick walls forming several rooms. The limited thickness of the intervening deposits and the reuse of architectural elements suggest that the interval between these occupations was relatively short. In its earliest construction phase, the base of the combustion installation appears to have deliberately reused the upper surfaces of two mudbrick walls (2019/24 and 2019/28), elevating the structure above the surrounding ground level. This elevated position was further accentuated during the construction of the later combustion feature, when three large stones were intentionally placed along the western edge, while a segment of the earlier mudbrick wall (2019/28) served as a boundary on the opposite side (Molist et al., 2021). Together, these elements both elevated and partially delimited the combustion area. The continuity of spatial use and the limited stratigraphic separation between phases underscore the dynamic and adaptive character of the site's occupations.

3.4. Phase IV

Phase IV is subdivided into two sub-phases: Phase IVa, the later, and Phase IVb, the earlier. This subdivision is based on stratigraphic relationships indicating continuity in the general organisation and layout of architectural features, combined with the reuse of several walls between successive occupations. By this stage, the excavated area had expanded considerably as a result of the gentler slope of the mound, allowing for a broader exposure of architectural remains.

Phase IVa is characterised by a substantial increase in architectural investment and spatial formalisation after Phases I–III. The remains correspond to a small but well-defined architectural complex (Complex A) (Fig. 5), where a system of load-bearing and partition walls divides the area into at least three clearly recognised rooms (L.100/109, L.101 and L.105), with the potential presence of two additional rooms (L.103 and L.104). This complex is linked to a structured exterior space (L.84 and L.108).

L.100/109 consists of a quadrangular room containing two superimposed circular hearths (2019/38 and 2019/50), located near the centre of the space, which were identified within this room. The material assemblage recovered from this space suggests that it was used for activities related to food consumption and possibly for small-scale social gatherings. A charred grain recovered from fire-installation 2019/50 yielded a radiocarbon date of 2900–2679 cal BCE (Beta analytic-532,372, 4210 ± 30 BP).

L.101 is a rectangular room where an oval to sub-circular

combustion installation (2018/41), slightly raised above the floor surface, was documented against one of the walls. The recovery of grinding stones and fragments of large ceramic containers, interpreted as storage vessels, indicates that this room was likely devoted to domestic food storage and processing. Beneath the floor, a small pit (2019/52) was identified, containing a clay figurine representing an equid that differs notably from that identified in Phase III. In close proximity, an oval pit cut below the floor contained a single inhumation (2021/10) accompanied by a ceramic vessel, personal adornments, and a cylinder seal, indicating the integration of mortuary practices within the domestic sphere.

L.105 is located in the north-western corner of the excavated sector and is only partially exposed. No diagnostic features or significant material remains have been identified, precluding a functional interpretation. Similarly, loci 103 and 104 are defined by rectilinear walls forming room-like spaces, but the absence of preserved floor surfaces and the predominance of fill deposits limit interpretation. Within this area, a circular cut filled with pebbles and containing charred plant remains was identified. Radiocarbon dating of a charred grain from the fill places this feature between 2885 and 2666 cal BCE (Beta analytic-532,369, 4180 ± 30 BP). L.104, however, contained an inhumation, indicating post-occupational reorganisation of the space for mortuary purposes.

A fire-pit or heating pit (2018/43) was found in exterior space L.84, located in the south-eastern half of the sector. Its fill consisted of sediment showing strong evidence of thermal alteration and included ceramic fragments that had been overfired, displaying a greenish, porous and low-density fabric. Associated with this installation was a group of clay seal impressions. Heating pits are conical features, approximately 15–30 cm deep, sunk into the floor and lined with earthen material, with their interiors coated by carefully arranged pottery sherds and small pebbles. Comparable installations have been reported in Ninevite 5 contexts at Tell al-Raqa'i, Tell Arbid in northeastern Syria, and Kani Shae in the Zagros piedmont (Smogorzewska, 2012; Schwartz, 2015; Renette et al., 2024).

L.108 is an exterior area in the south-western quadrant of the sector, where a series of negative features were identified and interpreted as post-holes based on their dimensions and morphology. Rather than functioning as roof supports, these posts likely served as a boundary or screen, delimiting or structuring the open space.

Phase IVb corresponds to an earlier subdivision of Phase IV and is characterised by the poor preservation of the architectural features, yet it nonetheless reveals clear continuity in spatial organisation (Fig. 6). Three mudbrick walls belonging to Phase IVb, which coincide with the load-bearing walls documented in the overlying Phase IVa, follow the same orientation, alignment and construction pattern. Their persistence indicates that these walls remained in use during Phase IVa, reflecting structural stability and architectural continuity across successive occupation phases. In addition, a third mudbrick feature with a semicircular layout was documented, delimiting a small triangular space (L.117).

These architectural elements define several spatial units (L.117, L.119, L.120 and L.121), although their precise functions are often difficult to determine due to uneven preservation, particularly in the southern part of the excavated area. L.121 appears to have functioned as an exterior space, with the presence of a large, semi-excavated storage jar set into the ground. The recovery of a cylinder seal from fill deposits in this locus is noteworthy. In contrast, L.119 may represent an interior space, given the presence of a plastered floor surface (2021/22). However, the absence of clearly preserved walls delimiting this locus to the south prevents a definitive interpretation, as this area of the sector consistently exhibits poorer conservation. L.120 constitutes another spatial unit, but its small size and location in the upper western corner of the excavated area hinders functional interpretation. L.117 refers to a small triangular space formed at the junction of two walls and delimited by a single course of mudbricks. By analogy with similar features interpreted as storage installations, such as the triangular bin documented in House 1 Area D at Tell Arbid (Smogorzewska, 2020), this

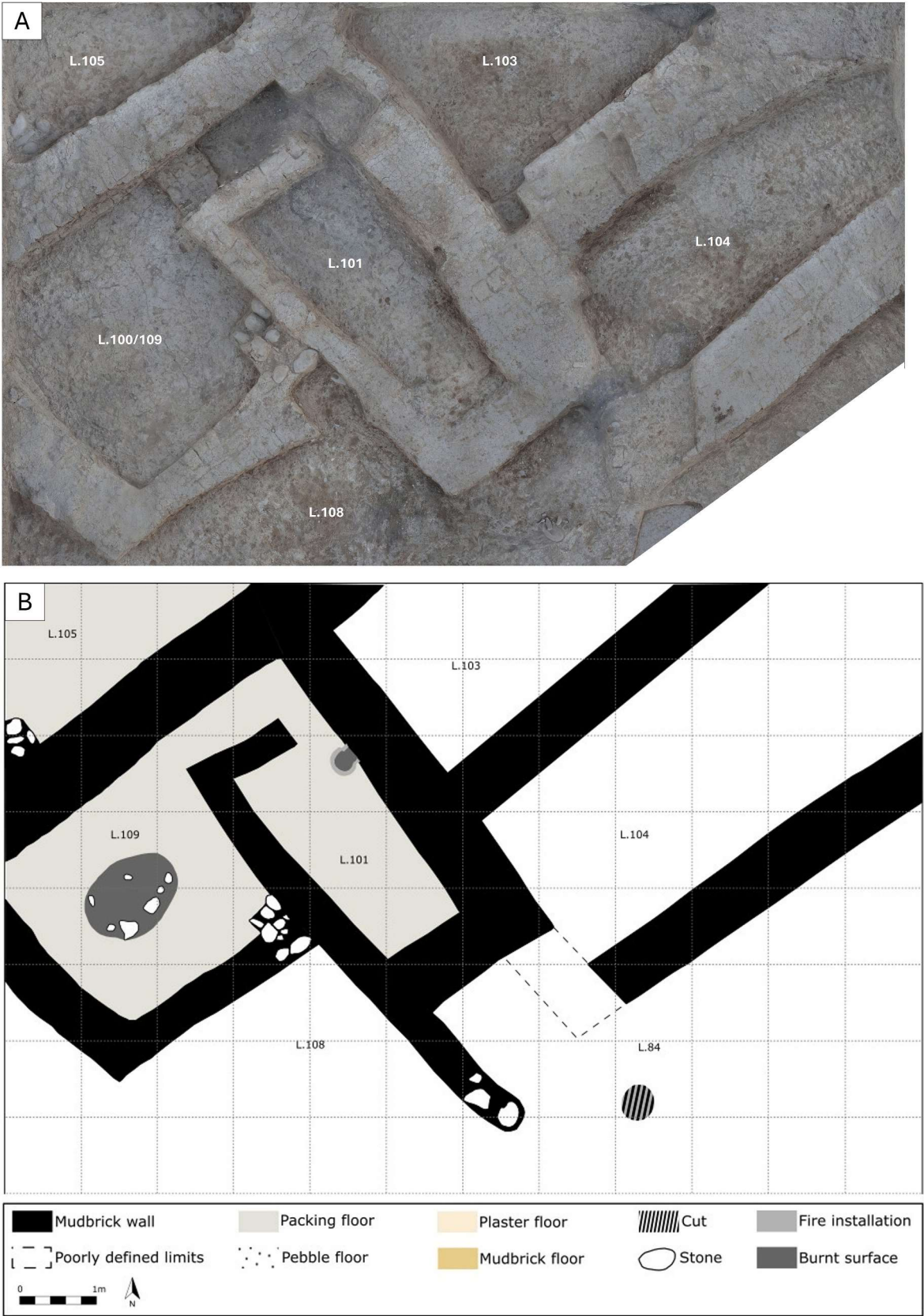


Fig. 5. Phase IVa. A) Aerial view of Complex A; B) Plan of the architectural layout.

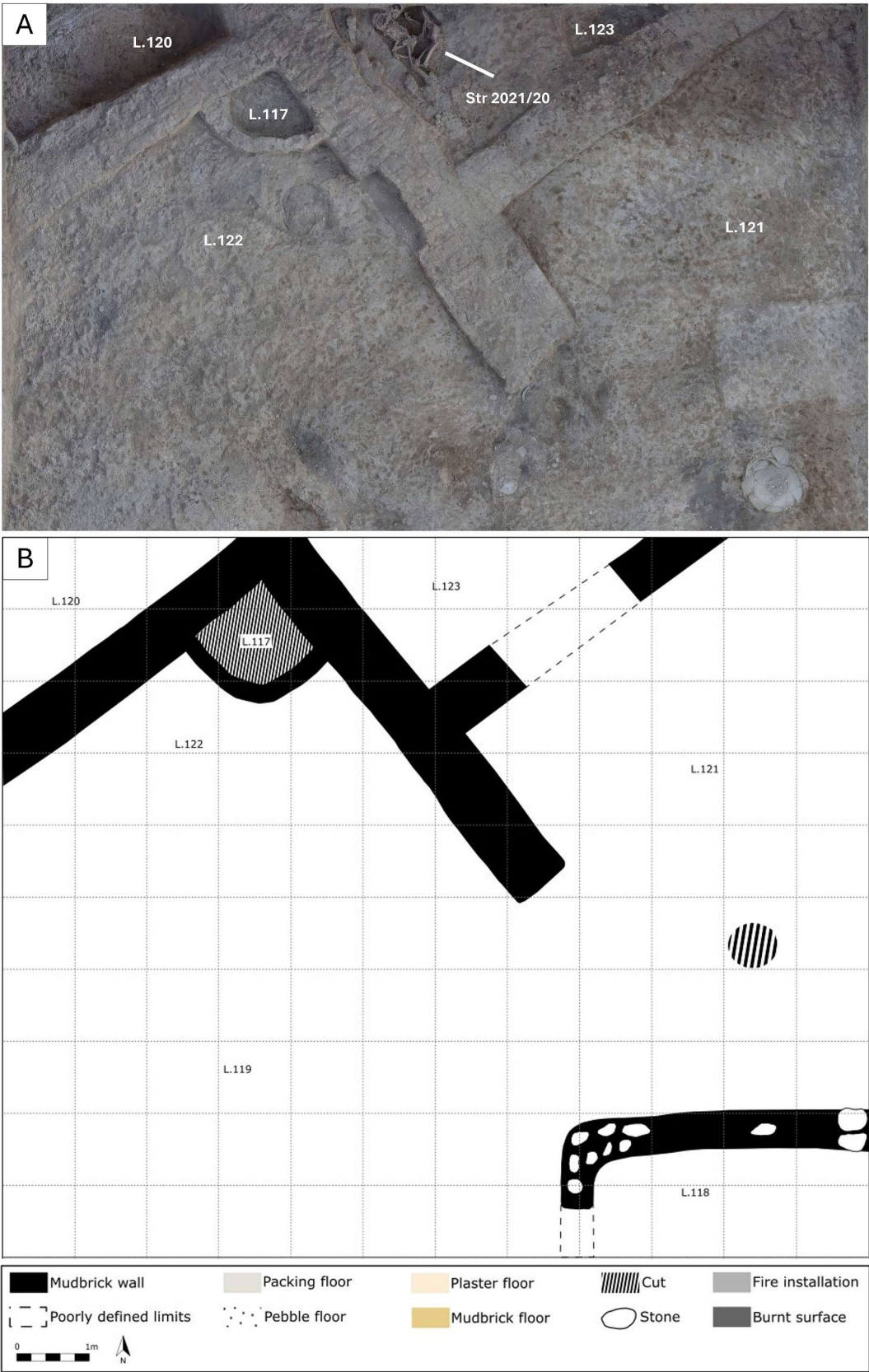


Fig. 6. Phase IVb. A) Aerial view including structure 2021/20; B) Plan of the phase.

space may have served a similar purpose. On the southern edge of the sector, L.118 is only poorly preserved and is defined by the remains of a quadrangular structure, of which only the stone foundation (2021/21) has survived. The fragmentary nature of this feature precludes detailed interpretation.

A further locus, L.123, was identified as an open area containing a shallow pit structure (2021/20) where two burials were excavated. In addition to this feature, three further mortuary deposits were documented and attributed to Phase IVb (Section 2.4). One of these graves (2022/1) is particularly noteworthy due to the presence of several personal adornments, including a cylinder seal. These funerary contexts constitute the most significant evidence associated with this phase and suggest a shift in the use of certain areas of the settlement towards funerary practices.

3.5. Phase V

As in Phase IV, Phase V has been subdivided into two sub-phases (Va and Vb). The identification of Phase Va demonstrates that the lower, and therefore earlier, levels of the sequence already display a high degree of architectural complexity and investment. This phase is defined by a well-organised architectural plan with multiple rooms (Fig. 7a). Most of these are concentrated in the central and eastern portions of the excavated sector, with an additional room in the western half. These two groups are separated by a large open area.

The cluster of rooms occupying the central and eastern part of the sector has been designated Complex B. One of the most notable aspects of this complex is the marked variability in floor construction techniques, which likely reflects differences in use. For the first time, a mudbrick floor (2022/36) was documented in L.140. In contrast, the floors of loci 136, 145, and 148 are plastered, whereas the other rooms (L.139, L.141, L.154, and L.155) lack formal surface treatment and instead display earth packing floors. Several rooms preserve in situ features that provide insights into their possible functions. A particularly distinctive combustion installation (2023/4) was uncovered in L.145.

This structure is rectangular in plan and internally subdivided into compartments, with an external opening that likely served as a fuel inlet, suggesting a specialised fire-related installation. Charred grains recovered from the compartments allow dating of this installation between 2864 and 2500 cal BCE (Beta analytic-684,943, 4100 ± 30 BP). In L.148, a boat-shaped grinding stone was found in situ in a corner of the room, resting on a small earthen platform, pointing to food-processing activities. Of particular interest is the presence of a burial beneath the floor of L.139 (2023/20), located in the exact position as the Phase IVb burial 2022/1 and containing a cylinder seal exhibiting the same geometric design (Section 4), suggesting continuity in mortuary practice and the reuse of domestic spaces for burial purposes across occupational phases.

Although the remaining rooms lack fixed installations, functional differentiation is also suggested by the nature of the associated deposits. For instance, large quantities of ash and carbonised material were recorded in L.154, together with grinding tools recovered from the fill layers, indicating repeated activities involving fire and food processing or preparation. The recovery of charred grains in the fill layer L.154.2 above the last preserved floor in this locus has allowed dating to between 2868 and 2577 cal BCE (Beta analytic-684,945, 4120 ± 30 BP).

Regarding exterior areas, L.161 represents the large open space separating the built units. Within this area, two constructed surfaces (2023/5 and 2023/11) were identified, indicating that this central space received formal treatment distinct from other exterior areas. This suggests that L.161 played an active role in the organisation of the complex, possibly functioning as a shared working area, circulation space or multifunctional courtyard.

Phase Vb documents an earlier configuration of the architectural layout, later observed in Phase Va. The evidence indicates that several walls of Complex B were already in place during this phase, although internal subdivisions were fewer, resulting in larger interior spaces, most notably L.170 (Fig. 7b). Additional walls defining smaller rooms (L.165 and L.164) appear to have been introduced subsequently, indicating that the architectural arrangement identified in Phase Va represents a later reconfiguration of an already established built complex.



Fig. 7. Phase V. A) Plan of Phase Va; B) Plan of Phase Vb.

This earlier configuration also affects the organisation of exterior areas. The central open space that was later formalised as a structured courtyard in Phase Va appears in Phase Vb as a corridor-like area characterised by the accumulation of discarded deposits, with no evidence for prepared or maintained surfaces. This suggests a different role for open spaces during this earlier stage of occupation.

Differences between Phase Vb and the overlying Phase Va are further evident in the distribution of domestic installations and the treatment of floors. The distinctive rectangular combustion structure documented in L.145 during Phase Va was not present in Phase Vb. Instead, a large circular fire-installation (2023/26) was identified in L.170, associated with thick ash lenses, abundant charred material and fragments of storage jars. Interpreted as a domed oven, this feature differs significantly from combustion structures previously documented. Within the same space and directly associated with structure 2023/26, a heating pit (2024/34) was also identified.

Other rooms display functional and depositional patterns consistent with those observed in later phases, particularly L.154, which already contained substantial accumulations of ash and artefactual material. A charred grain found in the fill layer overlaying the first preserved floor in this room has been dated between 2876 and 2626 cal BCE (Beta analytic-684,946, 4150 ± 30 BP). One of the newly delimited spaces in this phase, L.164, is distinguished by an extensive ash-rich deposit directly overlying a plastered floor, containing several clay seal impressions. This assemblage suggests intensive use of the space or a possible end-of-life event, such as a feast, preceding the spatial reorganisation characteristic of Phase 5a.

3.6. Phase VI

Phase VI represents a marked shift in the organisation and use of space, recalling in several respects the open and loosely structured occupation patterns documented in Phase III. The archaeological evidence from this phase indicates the predominance of a large open area with no permanent architectural divisions (Fig. 8).

The most prominent element of Phase VI is a substantial circular fire-

installation (2024/38), interpreted as a domed oven delimited with mudbricks. This structure is morphologically comparable to the one documented in Phase Vb (2023/26), and stratigraphically lies beneath it, although slightly displaced to the north. The close similarity in form and construction suggests continuity in pyrotechnological practices across these phases, despite broader changes in spatial organisation. Immediately to the west of the fire-installation 2024/38, four heating pits were identified, roughly aligned along a north-south axis. Their spatial association with the oven, as in Phase Vb, suggests the performance of complementary fire-related activities. Comparable features have been reported at other sites, where such pits typically occur adjacent to hearths and have been interpreted as cooking stoves (Smogorzewska, 2012).

In addition to these features, two large cut features were identified, one in the south-western part of the sector and the other in its northern area. Both cuts are located in close proximity to combustion installations and are filled with dark, ash-rich sediments containing abundant charred material. One of these features (2024/20) yielded particularly rich assemblages, including numerous ceramic fragments, faunal remains, charred seeds and fragments of clay seal impressions. The composition of these fills, especially the high concentration of ash and plant remains, suggests that they may represent secondary deposits derived from the cleaning or maintenance of nearby firing installations.

3.7. Phase VII

Phase VII is the earliest EBA occupation currently documented at Gird Lashkir. As in other overlying phases, this phase has been subdivided into two sub-phases (VIIa and VIIb), reflecting internal architectural modifications within a broadly stable spatial framework.

Phase VIIa is characterised by a well-defined architectural complex (Complex C) organised around a central open space interpreted as a courtyard (Fig. 9a, 10). Multiple rooms are arranged around this central area, with access provided directly from the courtyard (L.184, L.186). Several rooms preserve features that provide insight into their possible functions. A slightly elevated circular combustion installation (2025/1),



Fig. 8. Phase VI under excavation. View from the east showing fire installation 2024/38, associated heating pits and cuts, and architectural remains of Phase VII beginning to emerge.

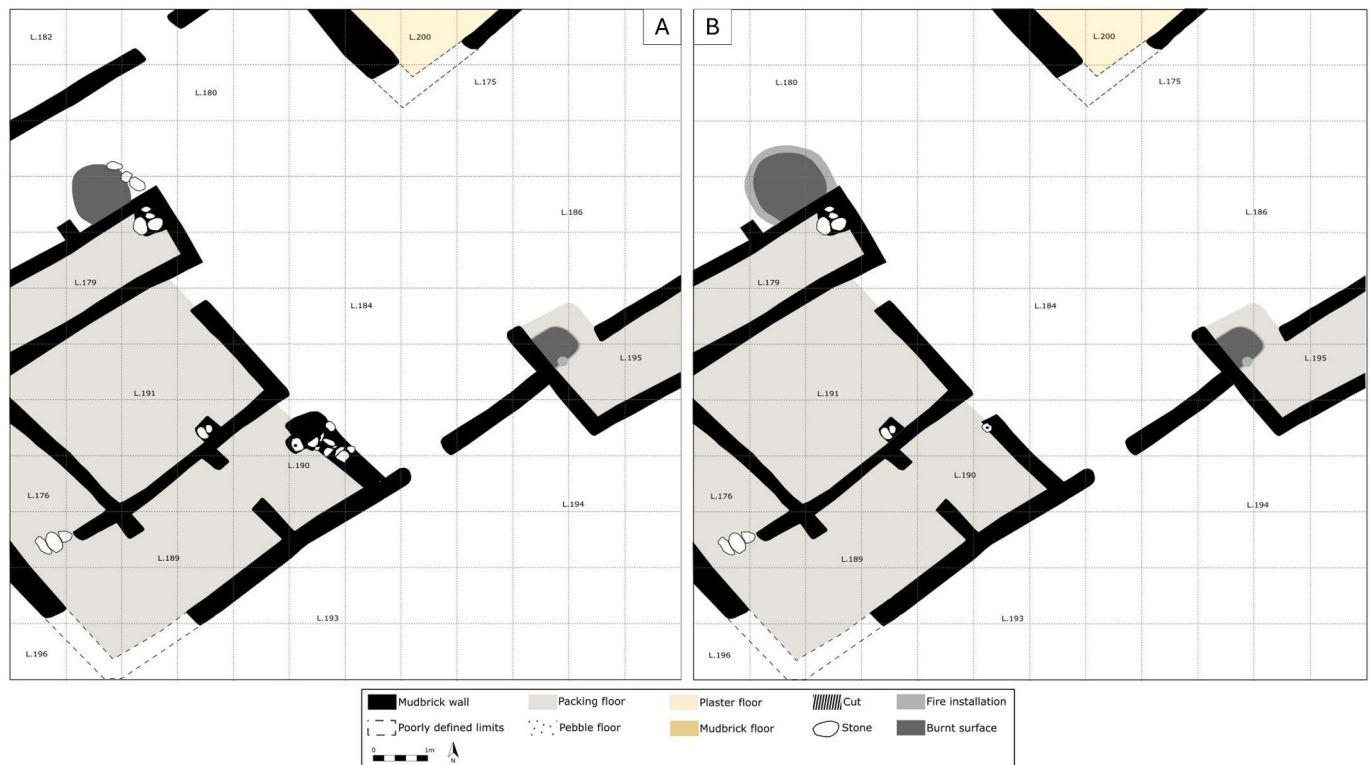


Fig. 9. Phase VII. A) Plan of Phase VIIa; B) Plan of Phase VIIb.

approximately 1.30 m in diameter and built against a wall, was documented in L.180. Its morphology closely resembles the combustion structures identified in Phase III. The association of this installation with fragments of large storage vessels suggests that the space may have been used for food-processing activities. A second combustion feature, rectangular in plan (2025/10), was identified in L.195, where it was associated with substantial accumulations of ash, carbonised material and ceramic fragments, some of which appeared overheated, possibly indicating the presence of a kiln. The remaining rooms in Complex C lack fixed installations or clearly diagnostic features. In most cases, floors appear clean and consist of earth packings, with the notable exception of L.200, where a plastered floor was documented.

Two access points to the central courtyard have been identified: one in the north-west and another in the south-east. This open space does not show evidence of prepared surfaces or specific installations. Areas outside the architectural complex include exterior spaces containing inhumations and large accumulations of material, indicating activities distinct from those carried out within the complex's built core.

Phase VIIb represents an earlier configuration of Complex C and broadly follows the same spatial organisation observed in Phase VIIa, albeit with some differences (Fig. 9b, 10). In this sub-phase, the walls delimiting the northern access to the central courtyard are absent, suggesting that the enclosure and formal definition of this space were introduced at a later stage. As a result, the central open area appears to have been more permeable, effectively increasing the usable surface of adjacent rooms, particularly L.180.

Additional evidence for an earlier architectural arrangement is provided by the identification of an earlier access to L.190, indicating at least two successive phases of use within Complex C. Furthermore, an earlier phase of the combustion structure 2025/1 was documented in Phase VIIb. Unlike its later counterpart, this earlier installation shares morphological characteristics with the domed ovens identified in Phase Vb (2023/26) and Phase VI (2024/38), suggesting continuity in combustion technology since these early occupational levels.

4. Architecture

Architecture throughout the sequence is dominated by mudbrick, with stone playing a secondary role. Stone is most consistently attested in later phases (Phases II and IVb), where it is employed as foundations or basal courses beneath mudbrick superstructures. In Phase II, for example, a mudbrick wall was documented resting on a double row of medium to large limestone blocks (20–50 cm). While earth constitutes the dominant building material during this chronological horizon, the combined use of stone foundations and mudbrick superstructures is well attested at other Ninevite 5 sites and falls within the range of architectural practices documented for the period (Roaf, 2003). In contrast, in the earlier phases, stone foundations are largely absent. Stone elements occur only sporadically, reinforcing corners or structurally vulnerable points rather than forming continuous foundations.

Mudbrick dimensions vary significantly throughout the sequence. In Phase I, bricks are relatively large and poorly standardised (c. $45 \times 25 \times 8$ cm), while during Phase II, brick production became more regularised, averaging c. $40 \times 20 \times 8$ cm. A further change is observed in Phase IV, coinciding with the appearance of architectural complexes. In this phase, load-bearing walls (90–100 cm thick) were constructed with mudbricks measuring about $40\text{--}45 \times 20 \times 5\text{--}8$ cm, comparable to those used in Phase II, whereas partition walls (40–50 cm thick) were made using smaller mudbricks measuring $22\text{--}25 \times 13\text{--}15 \times 5\text{--}8$ cm. From Phase V onwards, wall thicknesses tend to be more standardised, with mudbricks commonly measuring between $22\text{--}25 \times 13\text{--}15 \times 5\text{--}8$ cm. Overall, these dimensions broadly correspond to those documented at contemporary Ninevite 5 sites, such as Tell Mohammed Diyab and Tell Leilan (Roaf, 2003; Weiss, 2003), and closely match measurements reported for sites in the Tigris region, including those from Terrace 2 at Bash Tapa (Nicolle et al., 2024). In these earlier phases, walls often define small rooms arranged around central open spaces or courtyards, underscoring the continuity of certain spatial concepts throughout the sequence.

A recurrent architectural feature at Gird Lashkir is the intentional



Fig. 10. Aerial view of Phase VII under excavation showing identified loci and mortuary deposits 2025/7 and 2025/16. Scale bar = 1 m.

vertical differentiation between interior and exterior spaces. In several phases (notably Phases IVa and VII), clear evidence indicates that interior floors lie at c. 25–35 cm below the adjacent exterior surfaces, as indicated by the presence of stairways. Access to these semi-excavated rooms was provided through thresholds, stairways and, in some cases, by door sockets preserved in situ. These stairways typically consist of short flights of steps constructed with earthen cores and finished with limestone blocks and ceramic sherds laid flat on the surface. The repetition of this solution across different phases suggests a stable architectural tradition, possibly reflecting local building practices or adaptations to context-specific conditions.

Floor construction exhibits considerable variability, both diachronically and within individual phases, reflecting differences in function, use and possibly use frequency. Three main floor types have been identified: compacted earthen packings, plastered surfaces, and

mudbrick pavements.

Compacted earthen floors are the most widespread and occur throughout the sequence. Plastered floors, where preservation allows their identification, were identified more frequently in the earlier phases, often in interior spaces. A mudbrick floor is first documented in Phase Va (L.140), constructed from bricks measuring c. 30–25 × 14–13 × 8 cm, closely matching the dimensions of the wall bricks. Exterior surface treatments are more sporadic. A deliberately constructed pebble pavement (2017/24) was documented in Phase II, likely intended to improve drainage in an open or semi-covered space. A similar feature has been identified at the EBA site of Kani Shae (Renette et al., 2024), suggesting that this solution may reflect a broader regional practice. The frequent identification of reed matting impressions in mortuary contexts further suggests that perishable floor coverings were more widespread than is currently apparent in excavated domestic areas. Ongoing

micromorphological analyses may help clarify the extent of this practice and identify thin or poorly preserved plastered surfaces that have gone undetected during excavation, potentially reshaping current interpretations of constructed floor technologies at the site.

Rebuilding and architectural reuse are frequent throughout the sequence. In many cases, new construction phases reuse earlier walls without systematic levelling, resulting in complex stratigraphic relationships. From a broader perspective, spatial organisation shows marked fluctuations rather than a linear evolution, yet a tendency is observed in the earlier phases. The earliest phases (Phases V and VII) are characterised by relatively dense, small-scale architecture organised around central open spaces, except for Phase VI, which shifts towards largely open, activity-focused areas dominated by combustion features. Later phases (Phases IV) again display increased architectural density and formal planning, before subsequent phases show a renewed emphasis on open exterior spaces.

In sum, the architectural evidence from Gird Lashkir highlights a dynamic and intense building tradition in which construction techniques and spatial organisation were continually adjusted in response to changing functional, social and economic needs.

5. Mortuary evidence

The funerary assemblage documented at Gird Lashkir is relatively substantial. To date, a total of 18 mortuary deposits attributed to the ETG 2–4 period have been identified in Trench 3. This corpus provides an important basis for reconstructing mortuary practices within the community of Gird Lashkir, particularly in a region where such evidence remains comparatively limited. Despite the marked stratigraphic complexity of the EBA sequence, characterised by the rapid superimposition of architectural phases within a limited vertical thickness, it has been possible to assign each burial deposit to its corresponding occupational phase. As summarised in Table 1, funerary contexts are attested from Phases III to VII, with the exception of Phase VI, although the highest concentration occurs between Phases IVb and Va. Contextual evidence further indicates that burials were excavated both in abandoned or uninhabited areas and within inhabited domestic spaces, a pattern well documented at other Ninevite 5 sites (e.g., Szelag, 2012; Valentini, 2019).

The majority of deposits consist of single primary inhumations, with the exception of one grave containing a double burial. All age groups are represented in the assemblage, including three newborns, three children, one young adult, and eleven adults. The biological profile currently suggests a predominance of females (six individuals), whereas only two males have been identified to date; however, several individuals remain unsexed, and ongoing genetic analyses may refine this distribution. A comprehensive multiproxy study integrating archaeo-anatomological, anthropological, palaeopathological, and

enthesopathological approaches is currently being undertaken to further characterise the biological profiles of the interred individuals.

Three principal typologies of grave construction have been documented, broadly consistent with those described for the Ninevite 5 period (e.g., Bolt and Green, 2003; Valentini, 2019), albeit with local variability. Notably, certain age categories appear to correlate with specific burial types.

The first group comprises burial vessels (pot burials), which are consistently associated with open areas within the domestic sphere. In one instance, the location of the burial was marked by a large stone block (Fig. 11a). This funerary form is exclusively associated with newborn individuals and finds numerous parallels at contemporaneous sites such as Tell Leilan, Tell Kután, Tell Mohammed Arab, and Tell Knedij (Bolt and Green, 2003; Martin, 2005).

The second category consists of simple pit graves, typically shallow and oval in plan. These are most frequently located in exterior areas, although examples are also documented beneath the floors of interior rooms (Fig. 11b). This tomb type accommodated children, subadults, and adults alike and is widely attested in Ninevite 5 funerary contexts at sites including Tell Knedij, Tell Arbid, and Tell Chazna (Lebeau, 1993; Bolt and Green, 2003; Szelag, 2012).

The third typology corresponds to mudbrick-lined tombs. These graves were excavated as shallow pits placed in contact with one or more mudbrick walls belonging to earlier, likely disused, architectural structures (Fig. 11c). In many cases, bricks appear to have been deliberately reused to line the grave, sometimes forming complete linings of two or three courses, and in other cases only partially. This pattern suggests that standing walls may have been intentionally incorporated as structural frames for the burial installation. Tombs were sealed either with mudbricks or with a disaggregated earthen fill similar in composition to the bricks themselves. Comparable practices where pre-existing walls were reused to create chamber-like funerary spaces have been documented at sites such as Tell Arbid and Tell Knedij (Martin, 2005; Szelag, 2012). The typological framework proposed by Bolt and Green (2003) likewise noted the use of mudbricks in grave construction, including wall reuse and the placement of bricks above bodies, while emphasising the morphological variability of such installations.

Variation in both the quantity and typology of elements in the funerary assemblage suggests social differentiation within the buried population. Ceramic vessels are the most common funerary offerings, occurring in variable numbers, whereas lithic tools are less frequent. Additional items include beads manufactured from limestone and allochthonous materials such as carnelian and lapis lazuli, pendants made of amygdaloidal basalt, personal ornaments such as bone and bronze pins, bronze earrings, and cowrie shells. In addition, four cylinder seals have been recovered from four separate burials. Notably, pot burials associated with newborns lack accompanying grave goods.

The procurement of imported raw materials and objects represented within this ornamental assemblage implies the existence of complex socio-economic networks in which exchange systems played a key role in the acquisition of prestige items. Particularly noteworthy is burial 2023/21, comprising an adolescent female accompanied by two ceramic sets comprising a total of six medium-sized and thirteen small plain, incised, and painted vessels, as well as a flint tool, a bone pin, three bronze pins, and a necklace composed of limestone and lapis lazuli beads.

6. Discussion

The results from Gird Lashkir contribute significantly to ongoing debates concerning the character and development of EBA societies in northern Mesopotamia and, more specifically, in Iraqi Kurdistan. This period remains marked by substantial chronological and interpretative challenges, particularly regarding the transition from the Late Chalcolithic (LC5) to the EBA. As recently emphasised (e.g. Renette et al., 2023; Couturaud, 2024), the scarcity of radiocarbon dates and the absence of

Table 1
Relation of mortuary deposits and occupation phase at Gird Lashkir.

Mortuary deposit	Locus	Gird Lashkir Phase
2018/50	80	III
2019/53	104	IVA
2021/10	101	IVA
2021/20	123	IVB
2022/1	124	IVB
2022/4	127	IVB
2022/13	150	IVB
2022/15	143	VA
2022/31	157	VA
2023/19	161	VA
2023/20	139	VA
2023/21	168	VB
2024/1	154	VB
2025/7	192	VII
2025/16	194	VII



Fig. 11. Photographs of different mortuary deposits identified at Gird Lashkir. A) Pot burial 2022/13, marked by a stone block indicating the burial location; B) Pit grave 2021/10 beneath the floor of L.101 in Complex A; C) Mudbrick-lined burial 2023/20, reusing walls from a building complex of an earlier phase that was out of use.

long, continuous stratified sequences at single sites constitute major obstacles to refining regional chronologies.

In this respect, the new radiocarbon dates obtained from securely stratified architectural and depositional contexts at Gird Lashkir provide an important chronological anchor for the Tigridian region. The Bayesian model shows a high degree of internal agreement ($A_{model} = 113.6$; $A_{overall} = 105.6$) and places the occupation sequence between 2990 and 2622 BCE (95.4% probability) (see Fig. 4). The modelled boundaries for phases IVa, Va, and Vb overlap substantially, indicating that the three stratigraphic phases represent short, successive episodes within a continuous occupation sequence. Therefore, the sequence documented in Trench 3 spans multiple occupational phases, with clear stratigraphic relationships between architecture, installations, and dated samples. Such internally coherent sequences remain rare in the immediate surroundings of Erbil, where many sites lack continuous stratigraphy or absolute dates. By providing well-dated contexts embedded within a stratified architectural sequence, Gird Lashkir contributes to bridging a significant gap in the regional chronological record.

Beyond chronology, the site offers insight into the nature of societies during this formative period, which remains insufficiently understood. The architectural sequence reveals investment in spatial organisation, particularly from Phase IV onwards, with increasingly articulated room layouts, differentiated floor treatments, and specialised installations. These developments reflect not merely functional diversification but also a structured approach to domestic and possibly supra-household

organisation. The construction techniques observed are so far consistent with broader patterns documented across the Trans-Tigridian EBA cultural sphere, apart from specific cases, such as fire installation 2023/4.

Administrative practices documented at the site further reinforce this interpretation. Excavations have yielded evidence for sealing activities in the form of cylinder seals and clay seal impressions, indicating the integration of control mechanisms within daily economic life. To date, 50 seal impressions have been recorded from Phases II to VI, predominantly preserved on clay sealings and displaying exclusively geometric motifs, although a detailed study of the assemblage is ongoing. Most examples derive from ashy deposits, including refuse layers and fills associated with combustion structures. Although the fragmentary nature of the assemblage precludes the secure reconstruction of their precise functional contexts, the presence of rope and textile impressions suggests their use in securing portable containers, most likely linked to the storage and circulation of goods. Sealings are particularly abundant in Phases V and VI, coinciding with phases of increased architectural articulation and evidence of fire-installations linked to food processing activities.

In addition, four cylinder seals from funerary contexts and two from fill deposits have been stratigraphically attributed to Phases IVa-Vb. Four display geometric patterns, most likely representing local variants attributable to Pittman's (2019) Type 5, three of which share the same motif across phases IVb, Va and Vb and were recovered from

funerary deposits (Fig. 12). Another example recovered from a funerary context displays a file cut style (Pittman Type 7), possibly depicting a stylised horned quadruped, although preservation remains poor due to prolonged use. Notably, none of the motifs observed on the cylinder seals has thus far been identified among the clay seal impressions at the site. The presence of cylinder seals and numerous seal impressions demonstrates that small settlements such as Gird Lashkir participated in broader administrative and exchange practices, thereby reinforcing patterns of supra-local interaction already identified at the site through bitumen analyses and metal artefacts (Breu et al., 2022; Sisa-López de Pablo et al., 2024). Small settlements exhibiting sealing practices are well attested in northern Mesopotamia during the EBA (e.g., Renette, 2024) and are often interpreted as nodes within expanding exchange networks rather than autonomous urban centres. The evidence from Gird Lashkir suggests participation in such networks. The coexistence of geometric and figurative glyptic styles further situates the site within the broader EBA administrative and symbolic repertoire of northern Mesopotamia.

Mortuary practices provide additional evidence for emerging social differentiation and structured community organisation. The coexistence of simple pit graves, mudbrick-lined tombs and pot burials corresponds closely to typologies documented at other Ninevite 5 sites (Bolt and Green, 2003; Szelag, 2012; Valentini, 2019). Variation in grave goods, including cylinder seals and imported materials such as lapis lazuli, suggests differential access to prestige objects and possibly status distinctions within the community. Particularly significant is the repeated use of the same spatial location for burials 2022/1 and 2023/20 in successive phases, including the deposition of a cylinder seal bearing the same geometric motif. This deliberate spatial recurrence suggests the importance of social memory and continuity within the domestic sphere. The reuse of architectural spaces for burial, often following phases of abandonment or reorganisation, underscores the fluid relationship between domestic and mortuary spheres during the EBA period in northern Mesopotamia.

From a broader settlement perspective, Gird Lashkir fits within the

pattern of small agricultural communities that proliferated across northern Mesopotamia during the EBA (Wilkinson and Tucker, 1995; Ristvet, 2005; Badra, 2015; Ur et al., 2021). These sites have been interpreted not as urban centres but as logistical nodes embedded within expanding regional networks, potentially facilitating exchange along major communication routes. In this framework, Gird Lashkir may represent one such node: a small-scale settlement whose architectural organisation, administrative practices, and participation in long-distance exchange reflect integration within a broader socio-economic landscape.

By combining architectural, mortuary and administrative evidence within a securely dated stratigraphic framework, Gird Lashkir contributes substantially to clarifying the character of EBA societies in the Upper Tigris region. In doing so, it helps to move the discussion beyond typological definitions of the Ninevite 5 horizon towards a more nuanced understanding of social organisation, economic connectivity, and spatial practice during this pivotal period in northern Mesopotamian history.

7. Conclusions

The stratified and radiocarbon-anchored sequence documented at Gird Lashkir demonstrates that small settlements were active agents in shaping the social, economic and architectural trajectories of the EBA.

The earliest occupation identified to date at the site in Trench 7 suggests continuity rather than an abrupt rupture following the contraction of Uruk-period interaction networks. This continuity points to processes of adaptation and reconfiguration rather than collapse, reinforcing the view that the transition into the EBA in northern Mesopotamia involved locally negotiated transformations. Socio-economic complexity, as documented at Gird Lashkir, was neither sudden nor confined to emerging urban centres. Instead, it developed incrementally within small settlements through the reorganisation of domestic space, the incorporation of administrative practices into everyday economic life, and the embedding of funerary traditions within inhabited spaces.



Fig. 12. Geometric cylinder seal from Gird Lashkir (Phase IVb) and reconstructed impression showing the repeated geometric motif shared by three examples recovered from funerary contexts.

More broadly, the data presented here demonstrate that complexity during the EBA in northern Mesopotamia was not exclusively urban in scale or character. Small settlements such as Gird Lashkir participated in supra-local networks while maintaining distinct local trajectories, challenging linear and southern-centred models of state formation. In doing so, the site contributes to repositioning the Upper Tigris as an active and structurally significant region in the transformations linking the post-Uruk world to the emergence of early territorial polities and expanding exchange systems across northern Mesopotamia.

CRedit authorship contribution statement

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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