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RURAL FARMERS, CLIMATE CHANGE, AND CONTINUED ARCHAEOLOGICAL WORK AT ÇADIR HÖYÜK (2023–2024)

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Abstract

The Çadır Höyük mound is located in Yozgat Province, south of the city of Sorgun. Excavations have spanned 30 years as of 2024, and have documented nearly constant occupation lasting six millennia, beginning in at least 5200 BCE until final abandonment in the thirteenth or fourteenth centuries CE. During these millennia there have been at least six major climate events, with a seventh occurring now, in the twenty-first century. Much of the work at Çadır Höyük focuses on how residents managed their economies and settlements during these past climate changes. Here we report on our 2023–2024 excavations and ethnographic work, presenting results of work on Late Chalcolithic, second millennium BCE, and Byzantine excavation areas. This report also includes discussion of the recent ethnographic work which focuses on documenting past and present farming traditions and techniques and the challenges local farmers face in today's changing climate.

Keywords

Chalcolithic, Hittite, Byzantine, Rural Farmers, Climate Change

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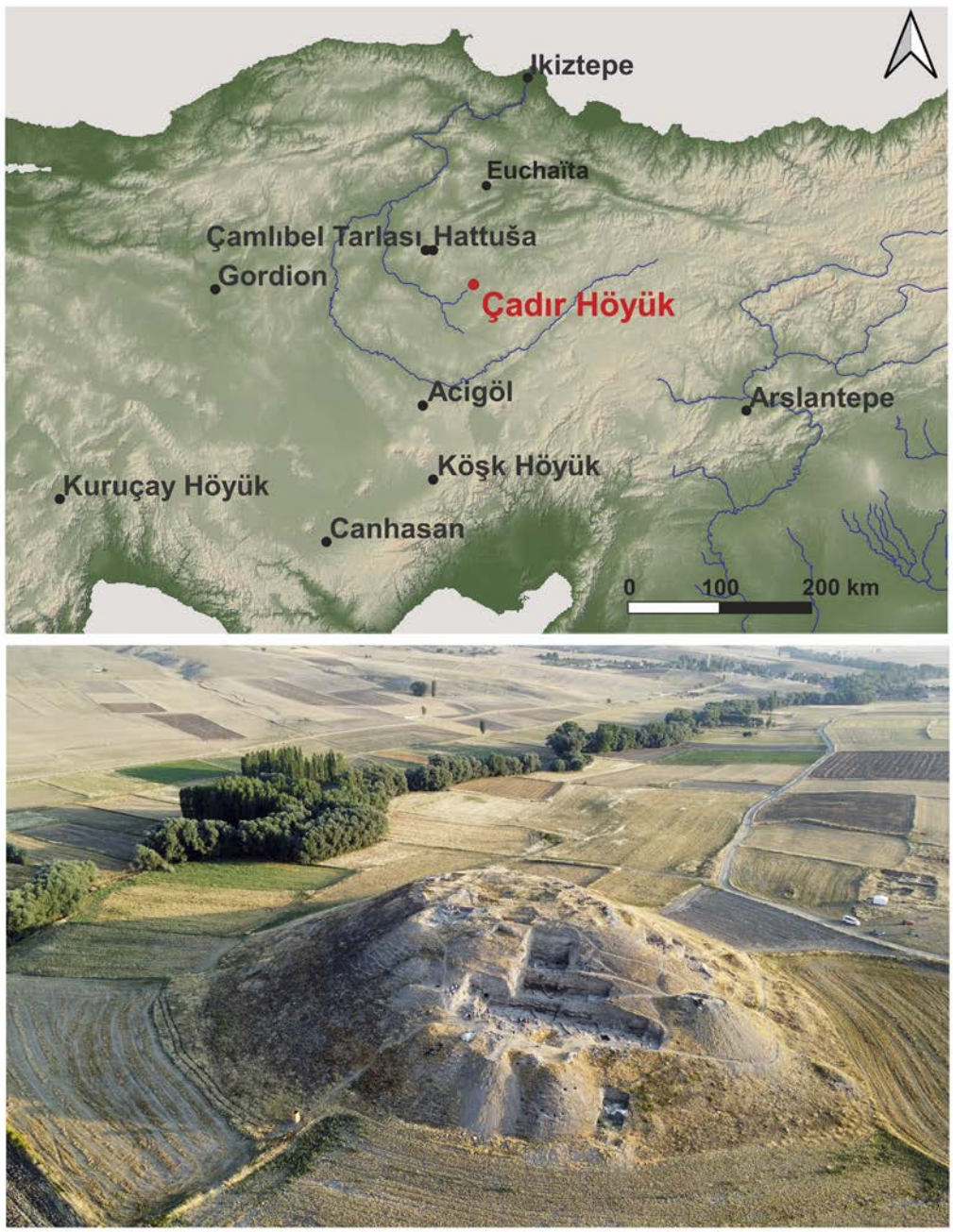

Fig. 1.

The year 2024 marked 30 years of excavation at this mounded site, located in Yozgat Province, approximately 16 kilometers south of the city of Sorgun (Fig. 1). One of the most remarkable aspects of Çadır Höyük is its largely uninterrupted occupation from the earliest documented occupation (ca. 5200 BCE) to final abandonment, most likely in the thirteenth century CE; at present, only the periods between the second and first centuries BCE remain elusive. This long occupational sequence offers an invaluable opportunity to track Çadır residents' life experiences through periods of significant change, including the collapse of empires, the arrival of new peoples, and environmental alteration. Results from archaeological work in the 2023–2024 seasons and recent ethnographic work are presented here. The 2023–2024 seasons followed a study season in 2019, with minimal work during the Covid-19 pandemic, and the transition of project directors in 2022.

Over the last decade, in addition to acquiring overall data on all periods at the site, the Çadır team has conducted research focusing on intense climate change events, spanning the fourth millennium BCE to the Medieval Warm Period (tenth–thirteenth centuries CE; Table 1). The following discussion offers insights into strategies ancient rural Çadır farmers pursued in order to grapple with intense climate variability over five millennia.[1]

Table 1

Climate Event	Calendar Date	Archaeological Period at Çadır Höyük
5.9 ka	3900 BCE	Late Chalcolithic
5.2 ka	3200 BCE	Late Chalcolithic
4.8 ka	2800 BCE	Early Bronze 1
4.2 ka	2200 BCE	Early Bronze 3
3.2 ka	1200 BCE	Late Bronze Age
Medieval Warm Period	900-1200 CE	Middle Byzantine

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Table 2

Phase	Subphase	C14 Data LT: Lower Town; UT: Upper Town
Phase V ca. 5200–4000 (?) BCE	DS 5–2	(Beta #146707): Cal BC 5220–4940 LT (Beta #146710): Cal BC4520–4480 LT
	DS 1	N/A
Phase IV ca. 4000 (?)–3600/3500 BCE	Agglutinated 3	(Beta #134069): Cal BC 3705–3620 LT (TÜB. #3637): Cal BC 3715–3638 LT
	Agglutinated 2	(Beta #391301): Cal BC 3625–3590 LT
	Agglutinated 1	N/A
Phase III 3600/3500–3100 BCE	Burnt House 3–1	(Beta #363869): Cal BC 3500–3450 LT (Beta #668170): Cal BC 3512–3427 LT (TÜB. #3613): Cal BC 3376–3327 LT (TÜB. #3631): Cal BC 3366–3307 UT (TÜB. #3620): Cal BC 3338–3209 UT
Phase II 3100–3000 BCE	Transitional 3–1	(Beta #363831): Cal BC 3100–2920 LT (TÜB. #2440): Cal BC 3191–3010 UT
Phase I 3000–2800 BCE	Early Bronze 3–1	(Beta #391305): Cal BC 3140–3020 UT (Beta #363833): Cal BC 3030–2910 UT

The Lower Town Late Chalcolithic Occupation (Southern Slope)

A nuanced stratigraphic phasing of the Late Chalcolithic and Early Bronze Age occupation of this area has been built; the major phases and subphases are summarized in Table 2. The Lower Town occupation (Fig. 2a–b) consists of a Western Compound (primarily trenches LSS 3–4) and an Eastern Compound (primarily trenches LSS 5, and SES 1–2), divided by an open/public space, identified as a "street" in Phase III (Steadman et al. 2019a; 2025). By the close of the 2024 season, both compounds were, in some areas, revealing the next phase/subphase beneath the current earliest exposed level.

Newly Opened or Reopened Trenches (Phase I and Iron Age)

In 2024 LSS 2 was opened to a 4 × 6 meters extent west of the major southern slope exposure in order to investigate whether the Chalcolithic occupation extends further west. While this goal will not be realized for several seasons, the 2024 excavations did offer the expected Iron Age pits encountered in earlier seasons in neighboring LSS 3 (Steadman et al. 2013; 2015; Steadman and McMahon 2015). At the end of the season, some mudbrick walls (presumably Early Bronze or Late Chalcolithic in date) began to appear, perhaps suggesting that this area was indeed in use in the fourth or early third millennium BCE. Further investigation in this trench will be necessary as the seasons progress. Trenches LSS 8–9, just south of the Western Compound, were also reopened in 2024. These trenches revealed Phase I Early Bronze Age occupation in the 2001 excavations. The goal in reopening these trenches is to recovery of any vestiges of Early Bronze Age occupation, and

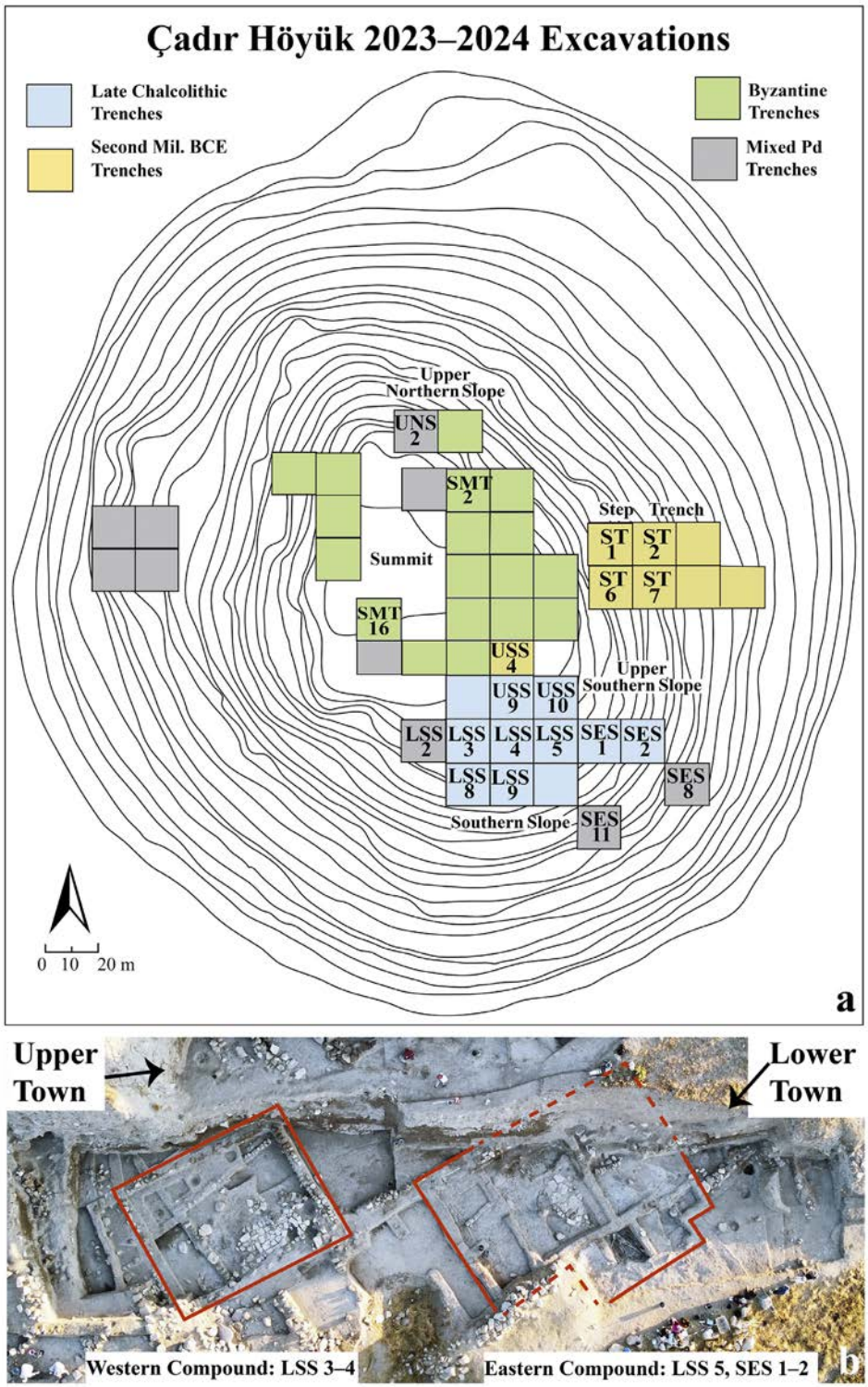

Fig. 2.

to better understand the entry area to the Western Compound. Work will continue here in the coming season.

The Western Compound (Phase III-IV)

The Western Compound has long been home to the Phase III "Omphalos Building." The 2022 season was dedicated to removing much of this phase in order to reveal the underlying Phase IV occupation. In many cases, foundation deposits, including a finely shaped stone bowl, an amulet, and animal burials, were found within or under the walls (Steadman et al. forthcoming). By the end of the 2022 season, the tops of architecture signaling an earlier phase, almost certainly the Phase IV Agglutinated, appeared. The 2022 excavations to the east of the compound, in the northern area of the central street, tackled the Phase III "ascension system" that allowed residents (and visitors) to gain access to the Upper Town. A number of foundation deposits under these walls, in the form of infant and child burials, were also discovered (Steadman et al. forthcoming a).

In 2023–2024, work continued removing the Phase III southerly stone walls associated with the Enclosure Wall system that rested atop the southern boundary of the compound. Figure 3a shows the Phase IV, subphase 1, architecture minus these extensive stone walls visible in all previous publications of the Western Compound. While the upper walls and rough floor plan of the Phase IV interior of the Western Compound has been revealed, the floors have not yet been reached. Thus, it is too early to describe interior space usage; this will have to wait for later excavations.

However, two very interesting discoveries were made during the 2024 season. One was the confirmation of a Phase IV Northern Compound. In trench LSS 3, walls identified as F120–121 and F123–124 on Figure 3a, extending into the northern baulk do not appear to be part of the Western Compound and are instead likely to be the boundary walls of yet another residential compound to the north. The probable existence of either a Northern Compound, or a northern extension of the Western one, confirms long-held speculation that the Upper Town (see below) was established in the Phase III period, and that the Agglutinated Phase IV occupation in the Lower Town was larger. The 2024 excavations confirmed that the ascension system, described in previous publications (Steadman, McMahon, and Ross 2019), was built at some point in the Phase III occupation. Removing this system revealed the area identified as L222 on Figure 3a, which appears to be a large open public courtyard, available to both the Western and Eastern Compounds, and very likely to a Northern Compound population as well. The importance of this discovery has potential ramifications for understanding the impact of the 5.2 kya climate event (see Table 1). An abandonment of a Northern Compound and possible transition to the Upper Town, may correlate with a complete reorganization of community structure and socio-economic strategies during and after this climate event. Further excavations in the Upper Town will be critical for expanding an understanding of the timing and nature of a possibly drastic decision to "cover" an entire compound in favor of a terraced occupation.

A second discovery concerns two Phase IV mudbrick circular features revealed in the courtyard area to the east of the compound (identified as F200 and F228 on Figs. 3a–b). The more southerly circle, F200, was incorporated into the building of later Phase III

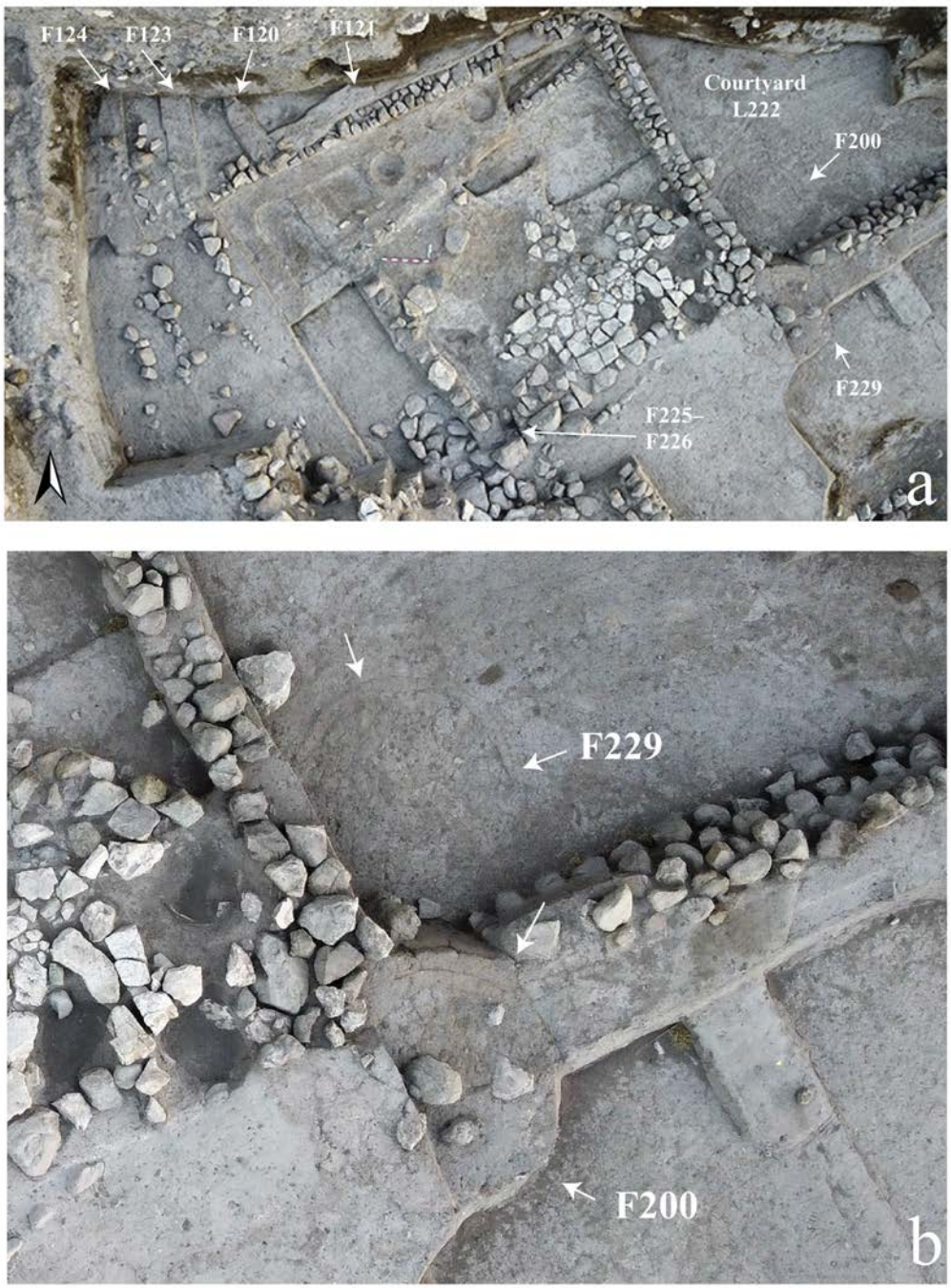

Fig. 3.

walls; F228 seems to have been cut by the building of F229, or possibly the construction activities of these later walls. Only the very tops of these features have appeared (see below for similar features in the Eastern Compound). By this later Phase IV subphase, these features were no longer in use and were filled in. Until they are completely exposed, we may only speculate on their purpose. It is quite possible that they functioned as food storage bins or silos in publicly accessible locations. This interpretation is discussed in greater detail below.

A third notable discovery comes from the 2024 excavations in trench LSS 4 and concerns a foundation deposit in a wall. Foundation deposits are a common occurrence in the Late Chalcolithic and Bronze Age architectural structures at Çadır Höyük (e.g., Hackley et al. 2021; Steadman and McMahon 2017; Yıldırım et al. 2018). During the removal of a substantial wall on the southern border of the Phase III occupation, this remarkable foundation deposit was meticulously excavated. Unfortunately, due to the position of the sun, and the complex intersection of several walls (perhaps the reason for this unusual foundation deposit), a clear photograph was not feasible. The location of this deposit is labeled F225–226 on Figure 3a.

Fig. 4.

The first hint of this deposit emerged in the form of a pit cut (F225) in the foundation of the stone wall. The contents of the pit (F226/L230) were topped by a large flat stone (F226, not labeled on Fig. 3a) anchored in the southwestern corner by a yellowish-green clay deposit. Underneath this flat stone was an exceptionally fine sandy deposit, containing some animal bones. The pit contents (F226) were lined on the south, east, and west sides

by three additional stones, creating a "stone box." Below the sandy layer were two more flat stones within the "box," accompanied by a black burnished jar. This level was topped by a thick (15 centimeter) deposit of the yellowish-green clay that sealed the next pit layer. Below the clay layer was a nearly complete goat skull (Fig. 4) resting on a solid surface of orange packed mud, which also lined the eastern and southern stones of the "box." Encased within this packed mud layer was an unusual highly red-slipped and burnished handled vessel. At the very base of the pit, under the packed mud, was a burnishing stone (Fig. 4). The nature of this foundation deposit clearly suggests that residents identified this wall as extremely important, which is not surprising given that it created the southern boundary to the entire Phase III occupation and was the wall that "faced" those arriving to the settlement during the later fourth millennium BCE.

The Eastern Compound (Phase IV)

The Eastern Compound (trenches LSS 5 and SES 1–2) is a walled domestic area sitting east of the open area (known as the "street" in Phase III) (Fig. 5) that divides it from the Western Compound.

Fig. 5.

This open area or street seems to be a public passage through the settlement, providing access to all Phase IV compounds. Prior to the 2024 excavations, the Eastern Compound rested comfortably in Agglutinated Phase IV subphases 3–2. The compound was fronted by a partially paved exterior courtyard. The complex consisted of rooms surrounding interior courtyards; rooms were semi-subterranean, with floors lying up to 50 centimeters below courtyard levels. This Phase IV subphase 3 construction style presents several significant stratigraphic challenges: the rooms were initially dug into earlier (possibly pre-Phase IV) layers; the surfaces of associated courtyards experienced gradual buildup due to continuous use; at some point in subphase 3 or 2, a deep layer of caustic ash was

deliberately deposited into Room 2 (see Fig. 5). The purpose of the ash remains uncertain. Over the millennia, the fine ash leaked through and across floors and walls and seeped into animal burrows; the "Room 2" ash is now present in varying depths in almost every space in the compound. The caustic nature of the ash damaged associated floors and wall bases, causing features to "melt" into one another, further complicating the stratigraphy. In 2022, a rather unusual child burial was recovered from Room 2, discovered within the ash deposit (Steadman et al. 2025). We have tentatively placed this burial in the Agglutinated IV, subphase 3 level; a recent C14 date (TÜB-#3637: 3715–3638 calBC) supports this assignment.

At the end of the Phase IV Agglutinated period (subphase 1), or possibly during the very early stages of Phase III, the floor levels in the interior rooms were raised with mudbrick packing. This indicates a change in the space's use from storage in the earlier phases to domestic work in the later ones and also had the effect of sealing the earlier deposits, including the ash (Steadman et al. 2019a).

The 2024 excavations proceeded across the three trenches (LSS 5 and SES 1–2) to completely expose the earliest levels of the Agglutinated Phase IV, subphase 3 occupation, again in search of the floor levels within the rooms which continued to evade meticulous efforts. Other work that took place included the removal of subphase 2 and later walls, in order to completely reveal the subphase 3 level. The result of this work is seen in Figure 5, which shows the most accurate representation of the Agglutinated IV, subphase 3 occupation.

While the main objective in 2024 was the cleaning and removal of walls in the Eastern Compound, two discoveries require further description. The first is the glimpse of the underlying occupational (pre-subphase 3) layer. This includes the emergence of the tops of mudbrick walls that run through subphase 3 rooms, suggesting that the underlying occupational footprint is somewhat, or significantly, different than what is currently exposed (these walls are not visible in Fig. 5). The second is the appearance of a mudbrick circle.

Two of these mudbrick circular features are now evident in the Eastern Compound (F137 and F163), nearly identical in area to those found in the Western compound described above. The feature on the left in Figure 5 came to light in the 2024 excavations and seems to clearly belong to the underlying, as yet largely unexposed, occupation. The feature on the right (F137) has been extant in trench SES 1 for a number of seasons, apparently carefully preserved for at least five centuries, though in its truncated form. Throughout the seasons we were aware that F137 dated to an earlier occupational (sub)phase, but were uncertain to which it might belong. It now appears that it dates to the same earlier level as the other three so far identified. F137, discussed in a number of previous publications (e.g., Steadman and McMahon 2015; 2017; Steadman et al. 2019b; Hackley et al. 2021), is situated in the "Non-Domestic" building/area, serving as a focal point for ritual functions in the current and later occupational levels.

As noted above, the function of these circular features is as yet unclear given that with one exception, only the tops have been exposed. However, their placement in publicly accessible courtyards leads to speculation that they may have served as grain silos or storage systems that made provisions available to the community. Notably, in later Late Chalcolithic levels (Phases IV–II), no examples of publicly available storage areas have been

detected; instead, bins and storage areas were located only within enclosed courtyards or buildings. If these features did serve some sort of communal function, it might suggest that the later fifth and earlier fourth millennium BCE Late Chalcolithic occupation at Çadır Höyük practiced a more communally based socio-economy than we see later in the millennium.

The importance of a potential socio-economic change at this juncture in the Late Chalcolithic occupation is striking. The earliest Agglutinated Phase IV (subphase 3) occupation occurred just after the 5.9 kya climate event (see Table 1). These publicly accessible bins/silos seem to have been in place during, and also prior to, this climate event. However, at the end of/after the 5.9 event, public storage of any resource comes to an end. If this is indeed the case (which only further excavation can confirm), then the rural farming families in this settlement appear to have discontinued a partial/full community-based subsistence provision strategy in the early fourth millennium in favor of more private storage and provision from that point forward. This possible major change in the socio-economic system at Çadır Höyük would then be partially, or perhaps wholly, attributable to the 5.9 kya climate change event on the plateau.

Fig. 6.

A last note regarding the easternmost exposure involves trench SES 2 (Fig. 6). It was decided to open this trench to its full 10 × 10 meters extent from the previous 5 meters width. The expected extensive slope wash was surprisingly absent; instead, excavations revealed architecture quite quickly. A substantial stone pavement (F20) corners with a stone wall (F21) at a slightly lower level, giving the impression of a stepped path up the slope of the mound. A quick field review of the pottery suggests that this architecture is Hittite in date; the stonework is also consistent with Hittite construction styles elsewhere on the mound. Further to the east were additional stone walls that seem to create small rooms (F23–27), also possibly Hittite in date. Excavation will continue in this area in the coming season.

The Southern Slope SES 8 Soundings and Trench SES 11 (Phasing Undetermined)

In 2012, trench SES 11 (see Fig. 2a for location on mound) was opened in order to investigate whether the Chalcolithic occupation extended to this lower area of the mound. After removing nearly 2 meters of overburden, which contained a wide mix of pottery from all periods, a Byzantine era stone retaining wall was revealed. Excavations were closed in 2012, but renewed optimism encouraged another go at it in 2023 (in the last 10 days of the season). A second stone wall, at an oblique angle (and therefore likely from a different period) came to light, but the ceramic assemblage recovered from excavations was still extensively mixed. In addition to the 2023 reopening of the larger trench, a 1 × 1 meters sounding in the southwest corner of the trench was excavated to a depth of ca. 1.5 meters. The sounding confirmed that occupation continues, but the overburden is so heavy that further exploration at this time is not productive.

Late in the 2024 season, two 2 × 2 meters soundings were opened within trench SES 8 (see Fig. 2a for location), which is located higher up on the slope than is SES 11. Once again the hope was to identify the extent of the Late Chalcolithic and possibly the Middle Chalcolithic occupation at the site. Though the slope wash was again substantial, more productive results were attained in these soundings. Various features such as a mudbrick wall, plastered surfaces, and a plastered pit were uncovered. These are reminiscent of Late Chalcolithic architecture observed in an LSS 5 sounding excavated decades earlier (1999–2001); discoveries in the LSS 5 sounding led to the broad horizontal exposure present today. These findings are encouraging, suggesting that there may be fourth millennium or earlier occupation on the lower slopes of the mound.

The Upper Town Late Chalcolithic Occupation

It has been some years since a report on the Upper Southern Slope trenches has been published (Fig. 7); the recent work in this area will be described here in some detail. Work in previous Upper Town trenches USS 9–10 exposed an Early Bronze I significant perimeter wall with work areas located just outside of this wall (Steadman et al. 2013; 2015). By the 2018 season, it appeared that excavations had begun to reveal the later Phase III Late Chalcolithic occupation; this has now been confirmed by radiocarbon data (TÜB #3631: 3242–3102 calBC; TÜB #3640: 3348–3098 calBC which correspond to the BH 1 and BH 2 subphases). The 2023–2024 seasons were dedicated to proceeding in careful stratigraphic excavations to determine when this upper terrace occupation was established. For this reason, it was necessary to bring the USS 10 eastern 5 × 5 meters area (known as USS 10e) into phase with the previously opened western half of the trench.

2023 Excavations in USS 9 (Phase III)

In 2023, some fine-tuning work took place in the USS 9 trench. The structures in this area are situated to either side of an open courtyard, or more likely a "street" or pathway

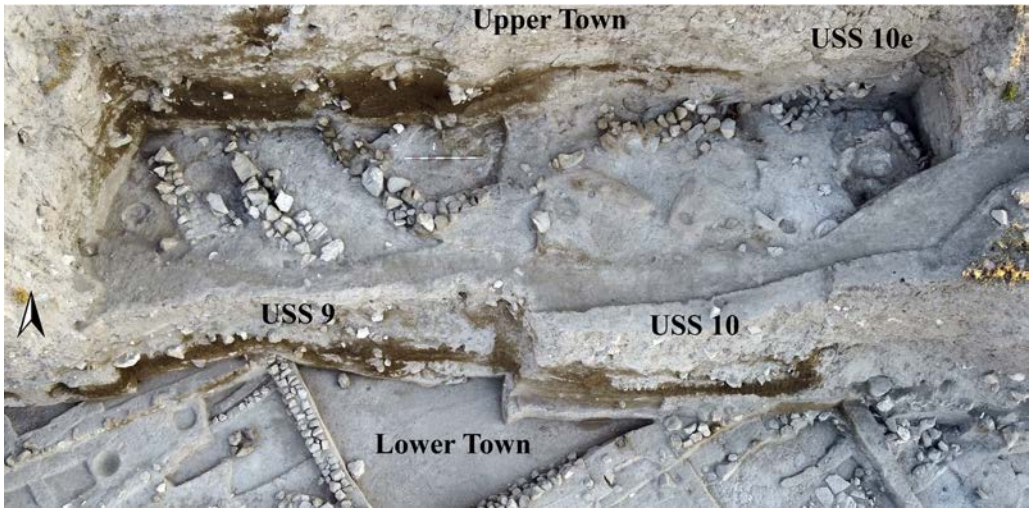

Fig. 7.

(F142) through the settlement (Fig. 8). West of the street was a small area that likely functioned as an open-air workshop; signs of burning (ash and charcoal) were seen in the fill above all surfaces here. The two major walls bounding these spaces (F92 and F129) were built with stone foundations set into mudbrick. Wall F92 had something of a long life, standing into later periods, continuing to border the street. In its earliest phase, now visible, it has a clear southern boundary, but in later phases it extended further southward but was narrower in width.

The room (F138) between the two western walls was entered through a doorway (F137). The F138 room may have been an indoor space; the burnt gray surface was poorly preserved. The area south of the F137 doorway was a hard compacted burnt plaster surface that was likely an outdoor space. In a later phase this area contained a stone-lined bin filled with ash and charcoal, including chunks of wood (possibly from a wooden post). In the phase shown in the drawing, the F137 doorway was narrowed by placing stones within it, possibly allowing the people of this phase to control access to the area carefully. The surfaces here may have once been covered by wood or mats that burned, leaving behind the ashy residue.

East of wall F129 was a very clearly defined but messy mudbrick packed room/area (F140). The individual mudbricks were easily visible, but jumbled, like they had been thrown into the space. It is quite possible that this area was used to shore up a pot that must have been located in the F136 pot emplacement. F136 was built of orange and gray mudbricks, the interior faced with brown and green clay; the large vessel that once rested here may have been used for water storage or for another function requiring insulation. Those entering the Upper Town from the west, via an open outdoor surface (preserved as F139) had access to this vessel as they passed by. F139 (largely missing due to mound erosion) led to the large courtyard/street (F142) to the east. The final matrix in this most western area of USS 9 is an orange gravel area (F141) that appears to "flow" next to several

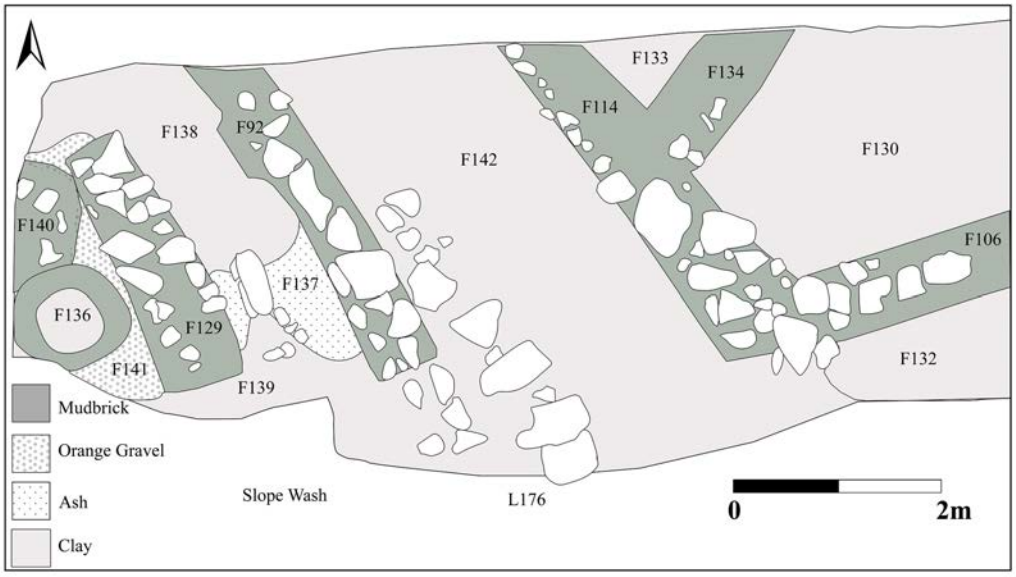

Fig. 8.

of the features here. A similar context was discovered in the Lower Town and was interpreted as having been deposited by a flood event. It is also possible that this gravel was a "packing" area around the pot emplacement, though it looks more naturally than intentionally laid.

The previously mentioned street/courtyard (F142) is on the same orientation as the street separating the Phase III East and West Compounds in the Lower Town. The ascension system from Lower Town to Upper Town allowed residents to move freely between these two areas during the long Burnt House Phase III period. The F142 surface represents one of the earliest levels of this Upper Town street/courtyard and is built of dark brown clay rather than the layer after layer of white plaster utilized in the later surfaces. A drainage canal, excavated in 2018 (Steadman et al. 2019a), ran along the southern extent of the Upper Town, connecting to a canal through the street area, and eventually leading to the west. In 2023, the earliest remnants of this drainage system were excavated, which included burnt clay and other organic material, embedded with well-preserved twigs (possibly fragments of roofing material) in largely fossilized form. The canal was also filled with sherds and animal bones; it is possible that the "flood event" in F141 may represent a malfunction of this drainage canal due to the clogging caused by these types of deposits.

East of the F142 street are three substantial walls (F106, F114, and F134), all built with Çadır's standard style of stone seated in a mudbrick foundation. The most northerly partially exposed room has a floor (F133) of compacted brown clay, heavily burned (and quite ashy). The floor sloped from the northwest to the southeast. The larger room to the east had a floor (F130) that sloped in precisely the opposite direction, from south to north. It was built of well-defined white and black clay, which lapped up onto the sides of the surrounding walls. These rooms were devoid of artifacts; they may have served as open

courtyards to an adjoining domestic area that possibly existed to the north (and therefore under the baulk). The courtyard to the south of this complex (F132) was built of dark brown clay, with remnants of the drain still visible along its edge. Quite a bit of broken pottery was found in the F132 context, suggesting that it might have functioned as a dumping area, or that pots once rested here to provide supplies to passersby.

2024 Excavations in USS 10 (Phase III–II)

As noted earlier, the goal for USS 10e (which references the more recently opened western half of USS 10) in the 2023-2024 season was to bring this eastern half of the trench into phase with its western sibling. This goal was achieved in 2024 after the careful excavation of two later, exceedingly complicated, subphases (Fig. 9). These 10e subphases featured major and minor stone and mudbrick walls which were built, then reoriented and rebuilt, to enclose rooms with clay and white plaster floors; the latter laid numerous times. One feature in these later subphases is worth more detailed description. This was a very large oven in the most easterly extent of trench USS 10e (Fig. 10a). This oven (F189) was directly under a slightly later oven excavated in 2018; F189 had two building phases. It sat on a mudbrick platform which turned out to be the cap of a large midden (F213) shown in Figure 10b. This oven, which may have been a kiln, seems to have been rested at the edge of the Upper Town occupation, and possibly rested in a publicly accessible area.

By the end of the 2024 excavations, the entire USS 10 trench had been unified into a single phase. It currently rests at a slightly later subphase than the adjacent USS 9 trench,

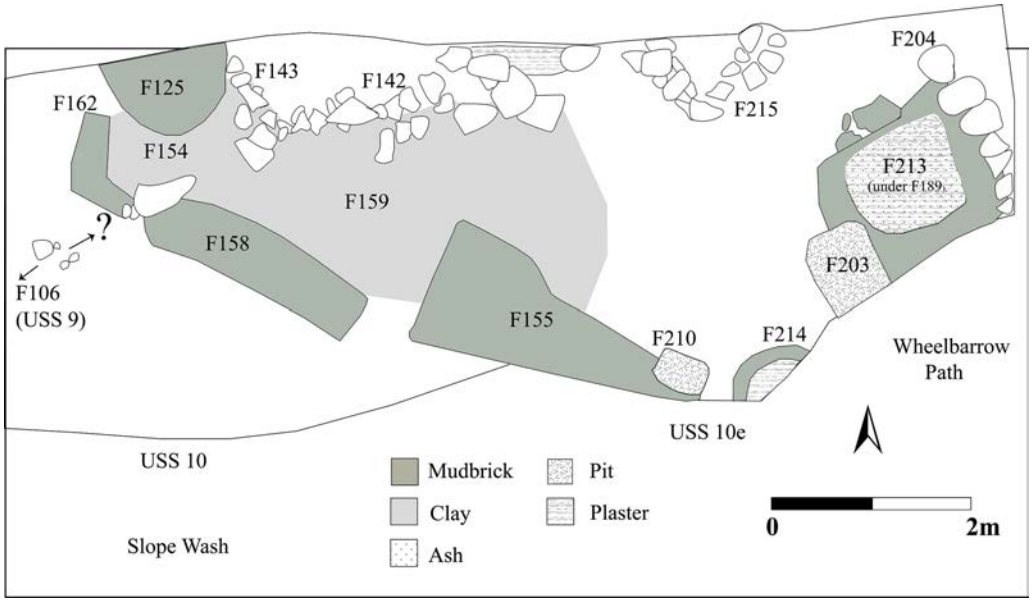

Fig. 9.

however, hints of how this entire expanse may be spatially connected have emerged. The southern courtyard (south of F158) in USS 10 is likely a later subphase continuation of the F132 courtyard in USS 9 (Figs. 8–9), forming a public space at the southern edge of the Upper Town. In the northwest quadrant of USS 10, a mudbrick platform (F125) likely allowed access to the F154 space in USS 10. The F154 clay floored space is bounded by the F162 mudbrick wall; The F106 wall (from USS 9) may possibly continue here, forming a southern boundary to F154. This floor may serve as a sort of "anteroom" into the much larger F159 area, or perhaps it was a storage area for the F159 activities. The F159 floor consists of extremely hard-packed brown clay sloping from north to south and is bounded on the south by mudbrick walls F155 and F158, which offer a doorway leading from the southern courtyard. The large F159 area is bounded to the north by F142. The stone walls (F215) and features along the northern baulk of USS 10 likely represent rooms and spaces within a Northern Compound, though whether it is domestic or more industrial is impossible to determine with so little available to us.

Finally, two features (F210, F214) at the southeastern edge of USS 10 and a complex of features in the southeastern corner are quite interesting. F210 held an infant jar burial built into the F155 mudbrick wall. This is a very common occurrence at Çadır Höyük when new and somewhat major architectural changes are initiated (Hackley et al. 2021; Steadman and McMahon 2017; Yıldırım et al. 2018). The partially exposed F214 is a nicely built plastered bin with a mudbrick border. It may be a large pot emplacement similar to the one at the western end of the Upper Town (USS 9, F136, Fig. 8a), possibly serving the same purpose (water provision or a similar function) for those passing by.

To the east is F213, bounded by thick mudbrick and a stone wall (F204); the mudbrick was partially cut by a slightly later pit (F203). F213 is a midden (Fig. 10b), over 30 centimeters in depth, full of broken pottery, burnt animal bones, fragments of burnt and unburnt mudbrick, fire-cracked rock, stone, chunks of plaster, and balls or fragments of brown clay, all mixed in with charcoal and ash. At the base of F213 is a white plastered surface, burnt, with large pieces of pottery lining it or stacked upon it; below this was a very thick white surface, likely burnt plaster or possibly crushed stone, which laps up to and sometimes nearly covers the surrounding mudbrick. This feature seems to have functioned as a dumping area for all the Upper Town activities, including construction and possibly ceramic production.

Excavations in the USS 9–10 trenches offer the opportunity to clarify *when* this terraced area of the community was built, which is a critical component for understanding how Çadır residents managed town planning, economic resources, and sociopolitical structures in the periods associated with the 5.2 kya climate event. At present, it appears that the Upper Town was built at some point during, or just at the end of, this fourth millennium climate event. During the Phase II occupation, there was an apparent retraction of the Lower Town community to the upper terrace (Steadman et al. 2019b). USS 9–10 excavations are close to identifying the timing of this major change in the settlement layout when a new terraced Upper Town was built upon at least one northern compound in the Lower Town. Placing this new point of reference within the context of a growing compendium of data will help detail how this rural farming community grappled with the late fourth millennium climate episode, the second potentially devastating environmental event in the millennium.

Fig. 10.

The Second Millennium BCE Occupation

After several seasons of focus elsewhere, the exploration of Çadır's second millennium occupation began again. Five trenches with occupation dating to this millennium were excavated in the 2023–2024 seasons: four in the eastern slope Step Trench, and one on the upper southern slope (Fig. 11).

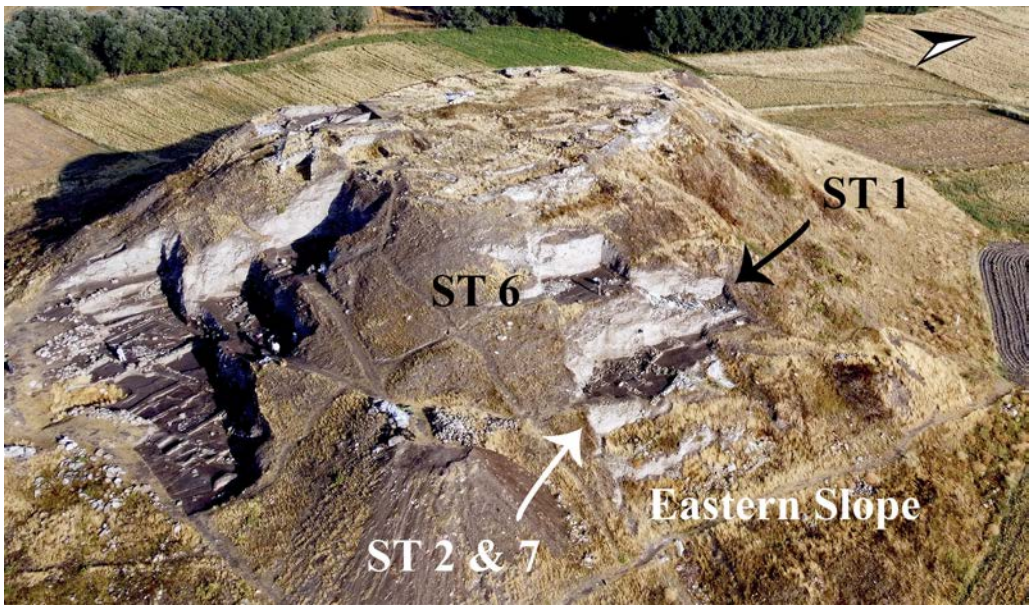

Fig. 11.

The Eastern Slope Step Trenches

Trenches ST 1–2 and ST 6–7 were reopened between 2022 and 2024. At the time of their closing in previous seasons, we speculated that the architecture evident in trenches ST 1 and ST 6 dated to the Iron Age. This was due, primarily, to their stratigraphically higher position on the mound and to the skilled stonework evident in the architectural remains.

Trenches ST 6 and ST 1

In 2023 and 2024, excavations in ST 6 aimed at further exposing a stone pavement (Fig. 12), identifying any additional architecture associated with it, and confirming the likely Iron Age date for this pavement. The pavement now appears to be fully exposed, though there is a possibility that it slopes downward toward the east. The area to the north of the pavement consists of mixed packed mud and mudbrick slurry; this may the upper layers of related architecture disturbed by a later gravel pit (F14/L31, visible in the northern section), or simply the foundation laid to support the gravel pit (which likely served

construction purposes for projects on the eastern slope of the mound). The biggest surprise was the realization that the pavement and associated features more likely date to the second millennium rather than the Iron Age. This discovery is based on the ceramic analyses (see below) acquired from these contexts. Excavations in the coming seasons may help to ascertain more secure data on these features.

Fig. 12.

Ceramics recovered in the most recent excavation seasons from ST 6 vary in age but belong mainly to the Hittite Empire period (Fig. 13a-f). Several loci present a mix of Iron Age and Bronze Age materials, including both Middle to Late Iron bowls and closed forms with dark paint on a buff slip, and Hittite plain brown ware, red- and orange-slipped vessels, and gold glimmer ware. Some material is more solidly Late Bronze Age in date (Hittite Empire). These contexts have predominantly grit-tempered plain brown and plain orange ware sherds, together with white, red, brown, and orange slips, and occasional gold glimmer decoration. Notable forms include stepped-rim platters with rope impressions, "splash-rim" bowls, and string-cut bases. A small amount of earlier ceramic material also comes from these loci, indicated by deeper red to purple slips; more handmade vessels, including Cappadocia Ware, and chaff-tempered sherds appear.

Trench ST 1 lies to the northeast of ST 6. In 2017, a beautifully built stairway was excavated (Steadman, McMahon, and Ross 2019: 43, Fig 4-9), which was dated to the Iron Age based on its stratigraphic position and style of construction. In 2023, this feature was partially deconstructed in order to more securely date it and to expose what was believed to be the underlying Hittite levels. The hope was to discover that the "Iron Age"

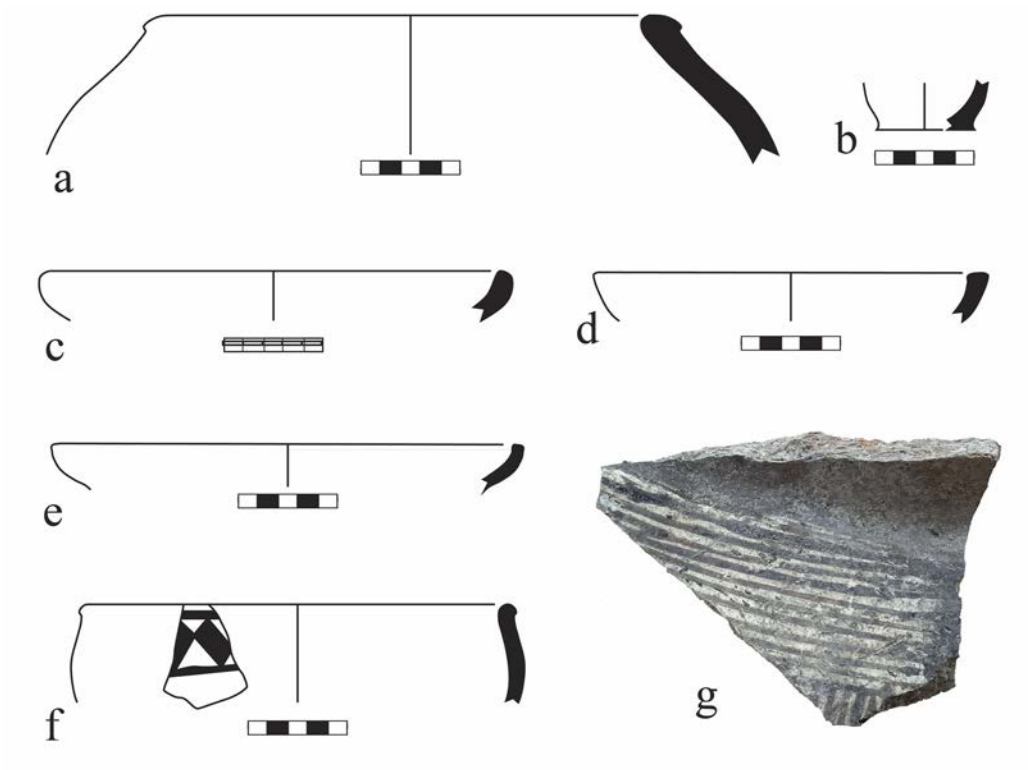

Fig. 13.

staircase led to the "Iron Age" pavement in ST 6. However, this did not come to be. It now seems relatively clear, based on ceramic analysis (see below) and C14 data (TÜB #3642 1632–1510 calBC), that the staircase also dates to the second millennium.

In the ST 1 2023 and 2024 excavations, nearly all the ceramics recovered belonged to the Hittite Empire period and earlier. Ceramic examples from this trench featured plain brown/drab (and less often, plain orange) grit-tempered jars and bowls. Surface treatment included orange, white, red, and brown burnished slips; some jars had a wide, messily painted band on the body, executed in a dark red to brown paint. Grit-tempered cooking pots with folded rims also appear in these contexts, together with occasional eggshell-thin wheelmade bowls. Even in these Late Bronze Age layers, where the majority of the pottery was apparently mass-produced, some handmade and chaff-tempered vessels appear, suggesting the co-existence of a domestic or localized production tradition. One of the lowest levels in the trench evinces an earlier repertoire, including more handmade vessels, and bowls with red and deep red/plum slip, running onto the interior rim; these seem to date to the Hittite Old Kingdom period. Some earlier vessels, including jars with ridged shoulders, had appeared in loci among the later Hittite Empire ceramics, but were likely part of the fill dirt. This earliest level does not have evidence of Empire Period pottery. Many loci also included (usually monochrome) painted Cappadocia ware (Fig. 13g), in both open-and-closed forms.

The upshot from the redating of features in ST 1 and ST 6 is that the Hittite era footprint at Çadır Höyük on the eastern slope is becoming far more prominent than previously believed. This intensifies the need to further understand the more robust nature of the Hittite presence at Çadır. As a consequence, the more substantial late second millennium occupation has implications for a possibly greater impact on residents when the 3.2 kya climate event began, coincident with the collapse of the empire.

Trenches 2 and 7

These two trenches were reopened in 2024 after an eight-year hiatus. In 2016, excavations exposed the eastern end of what appeared to be a massive second millennium structure (Steadman et al. 2017). However, exposing the rest of the structure is quite unrealistic given the 3.5 meters of overburden above it. The 2024 excavations aimed at further understanding what was visible of the structure, perhaps gaining hints at its function. These excavations, instead, created further uncertainty; in 2024, additional stone architecture in ST 7 (Fig. 14) suggests that a heavy upper layer once rested there. The 2016 excavations revealed the remains of a wooden lattice construction, stabilized by mud-plaster resting within and atop the stones (Steadman et al. 2017); this was interpreted as a strong foundation, built to support a heavy building on a rather steep slope. It now appears that the lattice construction itself rested upon an underlying stone foundation. However, the

Fig. 14.

pattern of this lower level of stonework offers hints of individual cells or small rooms at the eastern end of a major Hittite-era structure. A new potential explanation for this structure is that it may be a small section of an inner casemate wall. Unfortunately, the purpose of this significant architecture may remain in flux, as the overburden above it is too significant to remove.

A return to work in the ST 2–7 trenches also provides the best prospects for gathering additional data on the second millennium socio-economic pattern at Çadır Höyük, particularly regarding agro-pastoral activities (though see below on an emerging opportunity in trench USS 4). This will aid the long-term research goal of creating a diachronic picture of how this rural farming community navigated the periodic climate events during the long occupation of the site.

The Upper Southern Slope: USS 4

The 2023 and 2024 field seasons in USS 4 reflect a rather complex picture. At present, the extant excavations rest on a level representing "change," namely the nexus between the end of the Hittite Empire and the beginning of the Early Iron Age occupation at Çadır.

USS 4 (Fig. 15) features a substantial mudbrick fortification wall dating to the Late Bronze Age Hittite Empire era (F254). It extends for 7 meters across the trench and is 1 meter thick; it is likely the back portion of a large casemate wall. Part of F254 was heavily burned, possibly due to post-empire activities on top of and next to the wall. As is

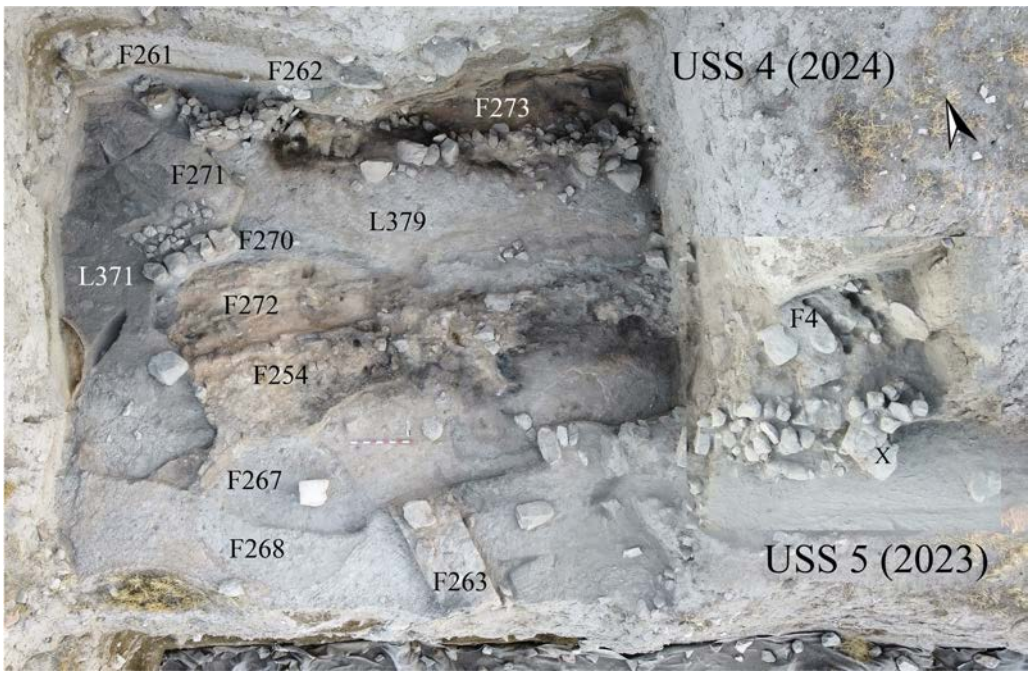

Fig. 15.

visible in Figure 14, its western extent ends abruptly, which is likely due to later pitting in this area; the western section shows a substantial mudbrick construction that largely matches the dimensions of F254, suggesting this wall continued further westward. Extending southward from F254 are mudbrick walls F263, F267, and F268 (the latter not clearly visible in Fig. 14). These are smaller walls, extensively damaged by mound erosion and later usage. These walls appear to form a small, apparently rectangular, "room," which may represent a casemate portion joined to F254. Mudbrick slurry in this area, damaged by a later pit, perhaps represented the fill in the casemate. The exceedingly "chewed up" nature of the Hittite era USS 4 wall resulted from heavy reuse of the space by the Early Iron Age residents. Other pits to the east (now excavated, some with remnants visible in Fig. 14) were also placed in what may have been casemate rooms of this Hittite wall.

Inside (north of) the wall, F272 also dates to the Hittite era; it is also heavily burned and apparently truncated by later pitting. This feature may simply be a collapse from the F254 superstructure or perhaps some sort of associated roofing material, though some elements of it appear to be nicely laid reddish bricks. It may have served as some sort of pathway running along the inside of the Hittite wall.

The southernmost east–west outer wall to this potential casemate structure was, unfortunately, resting on the trench line between USS 4 and USS 9, which lies below USS 4 and to the south. Though there has been extensive mound erosion over the millennia, a significant portion of this Hittite-era wall was captured in USS 9 in the 2001 excavations. Here, the Hittite Empire era wall (documented by both ceramics and C14 dates [Beta #159385: 1360-1360 calBC]) rested on top of a large Early Bronze Age wall (Beta #146705: 2880-2450 BC); these two walls were separated by a white plaster layer. The expectation is that in future seasons, a similar stratigraphic sequence will be discovered in USS 4: the Late Bronze layers resting on Early Bronze occupation. This would allow a small but perhaps comprehensive look at the interior of the Early Bronze Upper Town occupation.

In 2023, the southwestern quadrant of trench USS 5 was opened immediately east of USS 4 in order to investigate an extremely large stone sticking out of the mound slope. As shown in Figure 14 (marked by an "X"), this stone was associated with a collection of stones (F4), mudbrick, and plaster that rests roughly 1.5 meter higher than the Hittite architecture in USS 4; excavations have not yet reached the foundations of the USS 5 architecture. The complicated stratigraphy observed in the eastern section of USS 4 offers the distinct possibility that the USS 5 architecture is associated with the Hittite Empire casemate wall in USS 4. The steep slope of the mound here may have required a "step up" in the building of the wall, a construction pattern observed elsewhere on the mound. Further excavation may clarify this possibility.

Toward the north in the USS 4 trench, the situation becomes even more complex. An intensely ashy deposit (L371) runs across nearly the entire western strip of the trench. This deposit seems to be intentional, the by-product of post-Hittite activity in areas atop and north of the Hittite wall. F270 and F271 appear to be containment walls to hold this deposit; F270 is sturdily built and may have functioned as a platform from which (hot) ash could be dumped into this area. Interestingly, both of these features were actually built atop a thinner ashy lens (L364–365, not shown in Fig. 14), which originally covered much

of the northern half of the trench; this ash may have been deposited from a burning, possibly accidental, of the Hittite Empire wall. Underlying this ashy deposit is the mostly ash-free area identified as L379, which may be a small courtyard or open work area. The ceramics from these more northern contexts, described below, are suggestive of the Early Iron Age population that continued to reside at Çadır Höyük after the collapse of the empire.

The architecture and features at the far north boundary of USS 4, mostly obscured by the northern baulk, appear to belong to the post-Hittite residents of the mound, though they may have been reusing Hittite era materials (see below). The area in the northeastern corner (F273) is heavily burned; this apparent room held a fire installation of some sort, possibly a hearth. It appears this feature caught on fire (whether intentionally or accidentally is unknown), possibly causing the burning incident that impacted the Hittite wall to the south. Discovered within a very small area encompassed by walls F261–262 was a beautifully made metal ring topped by two loops (Fig. 16, left). This object has tentatively been dated to the Hittite Empire era, based on similar items excavated at Alişar, where they are described as bracelets, some of which look like a "snake swallowing its tail" (von der Osten 1937, 264, 269, fig. 295, d2571, d2190, e1169).

Excavations in 2023 and 2024 in USS 4 offered large amounts of pottery associated with burnt Hittite Empire structural remains in contexts described above. The ceramic

Fig. 16.

remains from USS 4 are entirely unlike those found in the Step Trench contexts belonging to the Hittite Empire (Fig 16, right). Specifically, this remarkable assemblage was consistently made with large amounts of chaff temper, and is nearly all handmade. The majority is low-fired, with brown, gray, and black fabrics dominant. Some of the items produced did reach fully oxidized levels and achieved an orange color. At the same time, Hittite vessel forms appear to have remained the norm, suggesting that the residents of this transitional-period level inherited the typical favored forms of the Empire, but recreated them using a new formula for their fabrics, and using less standard (typically wheelmade) techniques.

The principal loci containing these post-Hittite empire ceramics are L357–358, 365–366, and 368–369 (see above for locations of some of these loci). Forms include simple bowls, jars (some coil-made), flaring-rimmed jars and jugs, and closed (hole-mouth) jars. There were also fragments of the handmade trays that have been published elsewhere (Ross et al. 2019, fig. 8, J–M). Vessels were smoothed and often slipped and burnished; slip colors include brown, reddish-orange, and white. Other loci (L361–363) contained vessels made with either chaff temper or entirely grit-tempered, the latter more typical of Hittite Empire products. Hittite plain brown/drab ware, sometimes with red slip and burnish, was used for bowl and bottle forms in these contexts.

USS 4 is one of the most important trenches at Çadır due to its potential for offering a complete sequence from Late Bronze to Early Iron occupation. These investigations can shed light not only on what happened at a rural farming site when the imperial structure around it collapsed, but also clues as to how the population managed to adjust to an intense period of climate variability. Data retrieved thus far suggest that Early Iron Age inhabitants turned to small-scale industries, such as textile production, to replace resources that may once have been provided by the Hittite Empire (Ross et al. 2019). Further work in trench USS 4 may yield further insights into the activities at the site that had perhaps been conducted under the auspices of the empire in the Late Bronze Age.

The First Millennium BCE Occupation: Mound Summit

In past seasons, excavations of the Iron Age occupation have been conducted mainly on the mound slopes, primarily in USS 4 and in the Step Trench. In 2024, a different strategy was undertaken: excavation attempted to reach the Iron Age levels on the mound summit *inside* the Iron Age settlement. The summit trenches have always yielded Late Antique and Byzantine occupation remains (Cassis 2009; 2017; Cassis et al. 2019; Steadman, Ross, and Cassis 2023). In 2024, a new trench, SMT 2, was opened in an area that had no visible Byzantine architecture; trench UNS 2, closed in 2018, was also reopened. Exploration in these two trenches took place near the end of the season.

In 2018, UNS 2 primarily featured the major Byzantine fortification wall running through the center of the trench. However, on either side of the wall, hints of pre-Byzantine levels (primarily Iron Age) had appeared. In the southern portion of UNS 2, inside the Byzantine stone wall (and thus inside the settlement), was a mudbrick wall set at an oblique angle to the Byzantine defensive wall. In other areas of the summit, a substantial

fill, several meters in depth, had been laid down prior to building the Byzantine defensive structure; however, the UNS 2 section may have been built directly on top of collapsed or destroyed Iron Age occupation. In 2024, additional mudbrick architecture predating the Byzantine fortification wall was discovered, along with a small section of stone paving similar to others elsewhere on the mound that date to unambiguous Late Iron Age contexts. A stone doorpost was also recovered, but the presence of a Late Iron doorway is not yet visible.

The new SMT 2 trench was opened to a 5 × 5 meters extent. The upper matrix contained an expected mix of Byzantine era ceramic and metal detritus accompanied by a significant number of animal bones, perhaps deposited in a pit. Similar to discoveries elsewhere on the summit, a partial human skull was also found in the collection of bones. In the last stages of occupation at Çadır, residents appear to have moved up onto the

Fig. 17.

summit, perhaps for purposes of protection; the dead were deposited in shallow pits scattered across the northern portion of the summit (Steadman et al. 2019a). Below this clearly Byzantine-period level, stone architecture soon became visible (Fig. 17). In 2025, we will conduct ceramic analysis of the assemblage retrieved from these features to determine if they belong to pre-Byzantine (Iron Age) periods; at present the plan is continued exploration of SMT 2 and expansion to its 10 × 10 meters extent. The 2024 excavations in both UNS 2 and SMT 2 offer the hope that discovery long-sought interior contexts of the Iron Age settlement is at hand. While it will take several seasons of exploration, one critical aspect of access to the interior of the Iron Age settlement will be the ability to collect zooarchaeological and archaeobotanical samples from first millennium contexts, adding to the still developing database on socio-economic agro-pastoral management strategies following the 3.2 climate event.

The Byzantine Occupation: Mound Summit

Past seasons have enabled extensive exposure of the Byzantine occupation on the summit (Fig. 18), which have also yielded evidence of post-Byzantine, possibly Selçuk presence (Steadman et al. 2017). In 2023–2024, work concentrated on the southwestern corner of the mound (Fig. 19). This is an extremely important area as it has several stories to tell about the first millennium CE activities at Çadır, related in a brief summary here. The 2017–2018 excavations revealed what turned out to be a Late Antique gateway (seventh–eighth centuries CE) into the summit area; also discovered was a labor-intensive intentional blockage of this gate (in trench SMT 16), accomplished by placing a tumble of torso-sized rocks, to which was added an extensive deposit of burned mudbricks behind (north) of the stones (Steadman et al. 2019a; Steadman, McMahon, and Ross 2019). Recent C14 dates (TÜB #3633 calBC 990–1040 CE; TÜB #2432 calBC 1040–1181 CE; a coin found in the rubble is a Michael IV Anonymous Follis Class C, 1034–1041 CE [Marica Cassis, personal communication with the authors, Nov. 2022]), demonstrate that the intentional blockage likely took place in the eleventh (possibly very early twelfth) century CE, three or four centuries after the construction of the Late Antique gate. This blockage took place at the mid point of the Medieval Warm Period on the plateau.

In 2022, excavations were reopened in SMT 16, as previous work had hinted at a structure standing next to the blockage. This was indeed the case; two rooms stood north of the Late Antique gate, with the South Room ("Room 1" in Fig. 18) situated next to the blockage (Steadman et al. 2025). The purpose of this blockage may simply have been to put the gate out of use at the time of the SMT 16 building construction. Possibly the mudbrick superstructure of Room 1 was later pushed down and burned to help create a more extensive blockage due to a perceived acute threat.

In 2023 and 2024, excavations continued in trench SMT 16, revealing the structure actually had two-rooms built next to the Late Antique gateway. The 2024 excavations attempted to determine whether these rooms were built all at once or were constructed at different times; the latter seemed possible based on differing construction techniques. Room 1 (Fig. 18) is well-constructed, with a solid stone foundation topped by a mudbrick

superstructure; it is built adjacent to the tenth–eleventh century Byzantine defensive wall, precisely like many of the other rooms built against this wall (Steadman et al. 2017). Notably, both east–west walls (F70 and F2) appear to stop short of the defensive wall. It is unclear if these were cut by later inhabitants or were intentionally built this way to enable passage along the interior of the defensive structure. It is also possible that this

Fig. 18.

channel (F64) served as a drainage system allowing water to flow into the, by then, unused Late Antique gate area. Like the other structures built against the interiors of the fortification wall, Room 1's purpose was likely not for habitation, but rather for other activities associated with storage and defense, as no domestic material goods were discovered here. A doorway, situated at the northeastern corner of Room 1, in wall F44, was later blocked with mudbrick (F54). This blockage seems to correspond with a rebuilding of wall F44, placing a narrower wall atop it (F4). These may be concurrent with the knocking down of this wall to create the gate blockage described above, followed by the reuse of this structure.

The 2024 excavations have not confidently determined whether Room 2 was built later than Room 1. When the northeastern-most wall was built, builders topped wall F70 with mudbrick, which sandwiches a center consisting of small stones. This construction style appears elsewhere on the mound: later builders added this "sandwich" style to more substantial earlier underlying superstructures of solid mudbrick. Room 2 has walls that presumably corner outside of the SMT 16 trench, connecting with the return wall F34 which extends toward the defensive wall. Room 2 was built directly on a clay/mudbrick exterior

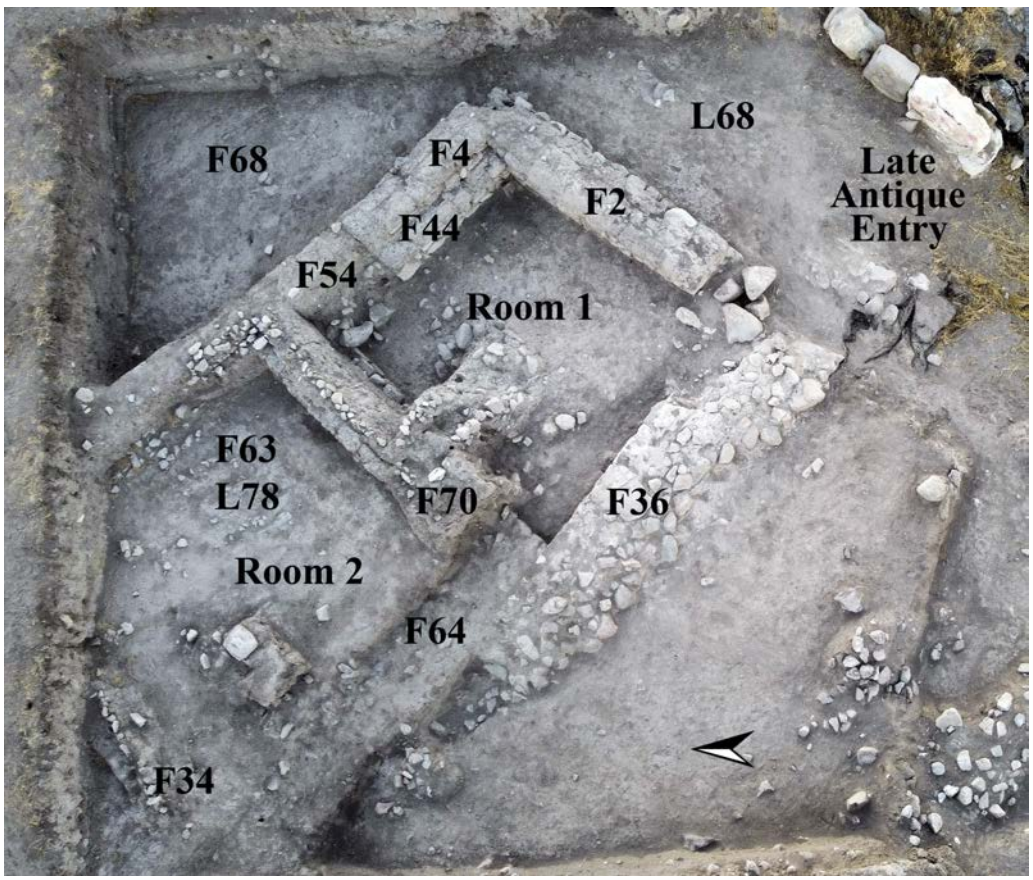

Fig. 19.

surface typical of the tenth–eleventh century courtyard surfaces observed in many of the Byzantine occupation areas at Çadır. The "floor" in Room 2 (F63/L78) was simply an extension of the northeastern courtyard clay/mudbrick surface (F68) revealed in 2022 and 2023. The northeastern courtyard (F68), which centuries before had likely been a continuation of the Late Antique pathway onto the summit, functioned as a "trash dump" area in the tenth–eleventh centuries. Animal bone, ash, bits of metal, broken ceramics, and other detritus were recovered from this area. The former courtyard area within Room 2 (F63) was relatively "trash free," likely due to clean-up efforts by those who used the Room 2 interior. Found at the western edge of Room 2, in the channel next to the F35 Byzantine defensive wall, were a partial horseshoe and a finely formed metal item, possibly a sickle (Figs. 20a–b). A second fine metal item was discovered in the northwestern courtyard (Fig. 20c), atop the midden, and therefore possibly left by the later inhabitants of the summit.

A tentative general phasing for this complicated southwestern corner of the mound begins with the Late Antique gateway leading into the mound summit occupation sometime in the seventh–eighth centuries CE. When the large tenth–eleventh century defensive wall was built, it incorporated the earlier gateway. This is consistent with other segments

Fig. 20.

of the wall in which earlier architecture is incorporated where expedient. This was followed by the construction of the two-roomed building. Either contemporary with, or at some time after, the building construction, the stone blockage was laid. Concurrent with, or after, the stone blockage, the burned mudbrick was placed on top in the early eleventh century CE, blocking the gateway completely. The latest phase of activity in this small area features the rebuilding of walls F44 and F70. The next steps in this area will be to expose the Late Antique entryway and associated architecture.

The changing footprint of this small corner of the summit corresponds with two significant long-term events. One is the arrival of Turkic peoples onto the plateau, and the other is the Medieval Warm Period which had been in effect for roughly at least a century by the latter stages of this building sequence. Whether either of these motivated the blockage of the gateway or building of the small rooms inside the defensive wall is at present not known but perhaps quite likely. As noted above, at some point near the end of the Byzantine occupation (ca. eleventh–twelfth century CE), residents abandoned their homes on the lower terraces to take refuge inside the defensive walls, very likely to escape the arrival of a perceived or real threat (Cassis et al. 2018; Steadman et al. 2019a). That the Medieval Warm Period had an impact on many elements in the socioeconomy of this rural Byzantine farming settlement is well-documented (Steadman et al. 2023; Steadman et al. forthcoming b; Tardio et al. 2024). Evidence appears to be growing that the last centuries of occupation at Çadır Höyük were peppered by stressors both human- and nature-made.

Ethnographic Work

In 2022, work began on a research project, supported by the Templeton Foundation, in the villages surrounding the Çadır Höyük, and in the nearby larger town of Sorgun. The goals of this research are two-fold. The first is to document the traditional Turkish farming practices and equipment, which are quickly disappearing in the age of tractors, combines, and mechanical threshers. The second research goal concerns the present generation of farmers and the challenges they face in navigating the impacts presented by today's unpredictable climate.

As of the 2024 season, we have conducted interviews with over 100 participants, all of whom were engaged in, or retired from, farming individually owned fields in the Yozgat province. In some cases, we talked with families, in others with single individuals. In two cases, we chatted with groups of 10–20 people at presentations we have conducted to share some of our archaeological results with the community. In these latter cases, we offered a discussion period in which attendees could comment on their own memories of the past and experiences with farming in the last 20 years. Many reported the same types of (usually very fond) memories of childhood, and as well as the concerns encapsulated in the generalized comments below.

Progress toward the first goal, documenting traditional farming practices, has been excellent. We have talked with the older generation of local farmers, most of whom are retired from this hard work. All these individuals were eager to tell us of their childhood experiences and farming life during the times of their parents and grandparents. In many

cases, they pull out tools that belonged to previous generations, carefully preserved but gathering dust in a corner of the household or stored in the roof rafters. They are regularly kind enough to demonstrate the operation of these beautifully made tools, well-worn by decades of use by the hands of the past (Fig. 21).

The following offers some of the memories of their childhood lives in small and rural farming village participants shared with us (based on conversations in 2023–2024):

> *I#2-3, age 65, male: "In the past, plows were made of wood. Blacksmiths used to make wrought iron parts at the end of the plow. Later, we started using plows that had iron wheels. We used to attach these tools to the donkey or the ox."*
> *I#2-2, age 72, female: "My father used to take us to the field in a horse carriage. We would make bundles, then load them on the carriage, tie them with ropes, and come and get them. We used to tie them with ropes and take them to the village. We used to scatter crops [using] horses. The wooden threshing sledge, which has stone teeth, was attached to the horse, we used to plow the field with it. In threshing time, we used to separate the grain from the chaff. In the past, agriculture was not made for commerce, each family farmed to meet their own needs."*

Fig. 21.

I#3-2, age 60+, male: It [wheat] was cut with the power of the shoulder with a scythe. We used to use a threshing sled. I could never ride the threshing sled, my father got very angry with me [laughing].
I#4-3, age 61, male: "I remember the time of my grandparents. They plowed the fields with oxen and plows. The seeds were sown by hand and harvested with a sickle. We used to take the product to the threshing floor with ox carts and spread it out. We used to separate the stalk of the product from the grain by attaching a tool called "düven" to the oxen. We used to sift the stalks from the grain with the wind. We saved some of it for seed and sold the rest. There was no fertilizer in those days."

Without exception, older participants spoke of past farming practices fondly, often with amusement or outright laughter. As mentioned above, pulling out old hand tools, or taking us into the yard to view parts of old plows or other larger equipment, was a regular occurrence. By the time these older participants were entering adulthood, mechanized equipment was becoming the norm. As conversations turned to farming today, most people indicated that the work in the field was "easier" due to tractors, combines, and other "new" farming methods, and that in most years the yield was greater than in the time of their parents. However, nearly all participants described the difficulty of managing fuel costs; they noted that today's necessary expenditures for fertilizer and pesticides were also of growing concern (Steadman et al. 2023). An underlying sentiment was that the hard work of the past—the use of hand tools and animal labor—was costly in the form of human effort and animal provisions, but that these have been replaced by far greater costs required to "feed" the machines used today.

Participants were also very forthcoming with invaluable information regarding the second goal of gathering data on present-day farming strategies. We have gained tremendous knowledge about the sometimes considerable obstacles farmers face in today's erratic climate. What used to be a predictable cycle of precipitation, including moderate to significant snowfalls in the winter and rainfall in the spring, as well as steady summer temperatures, seems to be an era long past. Today, drought-like conditions, with each passing year reported as the "hottest on record," is what rural farming families face in the twenty-first century. The following offers an account of these challenges in our participant's own words:

I#8-2, age 70, male: "In my childhood, I couldn't get home from here [agricultural field] because of the rain. My friend's late father had a room across the street, he'd take me on his back to my home… It snowed a lot back then. My late father went up on the roof and shoveled the snow."
I#2-2, age 65, male: "At that time [his childhood] it rained in less than a week. We would go out into the snow, you know. And our feet were frozen. We didn't even have winter shoes back then. We, as a child, used to walk in the snow, then we would come home; my mom used to wrap my feet in cloth and put me on the mattress, in the duvet."
I#12-3, age 56, female: "It has changed. In our grandparents' time, until a few years ago, it rained and snowed more. Until May, we could not go to our fields because of the mud caused by the snow… There are a lot of changes compared to the past. It is drier now. There used to be a lot of snow and rain. Especially the snowfall has decreased a lot. Snow is more important than rain for agriculture and groundwater. The soil absorbs more snow water and becomes more fertile. Now the soil is dry even in winter."

I#30-3, age 40+, female: "Water no longer flows from our fountains. Rain and snowfall have decreased a lot. It used to snow a lot, but now it doesn't even snow enough to play snowball."
I#14-2, age 33, male: "In late March/early April, I fertilize after the snow melts. The snow covers the seeds, and then it melts and germinates the seeds. The climate has changed so that the snow is gone by March. There used to be snow until April. Now, in March, I can sometimes wear a t-shirt."

Nearly all participants expressed concern about today's climate, summarized in the quotes above. So far, only two participants, both in their early 30s, have described the climate as "unchanged." One frequently stated concern was how successful irrigation practices would be given a dwindling water supply. In the 1990s, a major irrigation source was created by the artificial lake next to Çadır, resulting from the Gelingüllü Baraj, built downstream on the Eğri Su, that runs just south of the site; in the last five–eight years, the lake has disappeared, due in part to the irrigation, but mostly from lack of spring runoff and increasingly infrequent rainfall (Steadman et al. 2024). As climate variability affects crop yields, local farmers have ceased fallowing their fields (Steadman et al. 2023), creating the need for annual fertilizer and pesticide treatments as soil health erodes. A significant number of the older—often retired—farmers voiced apprehension about what the future of farming would look like on the plateau.

The Çadır team is incredibly grateful to the farmers and families who assist us in this project to capture past and present farming practices, and to learn about the challenges they face in today's changing climate. Indeed, many of these families also participate in the archaeological work that takes place on the mound every season. We look forward to visiting with them again in the coming year, and we will also be continuing a series of workshops and meetings to share the results of the archaeological work and our consultations with farmers across the region.

Conclusion

The long-term research goal of documenting the Çadır rural farming community's management of multiple significant climate events over the six millennia of occupation has seen many levels of success over the last decade of work. Great strides in understanding the socio-economic adjustments that were necessary, sociopolitical changes initiated, and reorganization of the community's architectural infrastructure have all been made. Nonetheless, there is still much more to learn, as demonstrated by the results of recent excavations presented above. The potentially drastic alteration in community storage systems in the early fourth millennium, how significantly Late Bronze Age/Iron Age residents had to modify their agro-pastoral and industrial activities as the empire collapsed and the climate event commenced, and how the Byzantine occupation continued to respond to a possible dual threat of newly arriving populations and an extremely variable climate, all require further investigation.

Çadır Höyük continues to provide excitement and tedium, mysteries and solutions, but always enjoyment from the work there, even after 30 years. Every year we believe we will reach our goals and answer many of our questions, and every year this is partially true, but new questions arise in the answering of those posed at the commencing of the season. The

greatest challenge we face is to work on a very steep mound. Not only is the stratigraphy sometimes impossibly complicated, but we are also aware that in many cases only the periphery of a culture's settlement will ever be accessible. For this reason, Çadır has become something of a "site with many gates"! Nonetheless, each year, the site draws back a very talented team of archaeologists and specialists, happy to return to the beautiful location, the incredibly lovely village of Peyniryemez, the warmth and friendship of those who live there year-round, and the captivating charm of the mound. We look forward to the coming seasons, armed with a set of goals for each area explored, and aware that the höyük will release what it deems appropriate, and hold secret what it is not yet willing to reveal.

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