

REGIONAL PATTERNS OF TRANSITION AT ÇADIR HÖYÜK IN THE BYZANTINE PERIOD

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ABSTRACT

Byzantine archaeological sites tend to be seen as representative of the empire as a whole, with little concern given to regional context. Within the imperial narrative that shapes Byzantine history, sites—whether urban or rural—are often used to explain and illustrate imperial trends. However, when we remove that overarching narrative, the sites in Anatolia provide the potential to view them as singular examples of local and regional identity. In this article, we have separated out four types of data: fortifications, coins, faunal material, and archaeobotanical evidence to illustrate how a close examination of the data provides new ways of understanding regional identity. In doing so, we posit that the Byzantine empire needs to be seen as a collection of local identities working alongside one another, but always expressing individual needs and resources.

KEYWORDS: Byzantine, fortifications, coinage, faunal analysis, archaeobotanical analysis, medieval archaeology

The question of transition and endurance in the Late Roman and Byzantine periods in Anatolia has been addressed most recently through the relatively new environmental focus in Byzantine studies (Haldon et al. 2014; Roberts et al. 2018; Cassis et al. 2018). Central to these new discussions is Formal Resilience Theory, which holds that societies cycle through an adaptive series of interlocking patterns of growth, decline, regrouping, and resurgence (Cassis and Lauricella, forthcoming; Haldon and Rosen 2018; Holling and Gunderson 2002). At times these changes are tied to purely environmental shifts, but they are more commonly connected to processes involving interplay between humans and their environment. However, just as environment varies across space and time, so does the social context in which the responses to climatic and historical events are formulated. One cannot speak of Byzantium as a whole. Rather, understanding must begin at the nexus of regional identities, individual sites, and the different time scales of the adaptive cycle. The Byzantine empire can be seen as a system of connected narratives representing individualized transition and endurance, with each regional and local narrative bearing its own significance (Mímisson and Magnússon 2014).

Regional approaches are particularly important for central Anatolia, which has traditionally been understood primarily as a conduit for military campaigns and aristocratic families (Vryonis 1971). The major writers of the Middle Byzantine period—Michael Psellus, Anna

Komnene, and John Skylitzes, for example—record the movements of troops and the insurrections that arose in Anatolia, but provide little insight into the daily life of the populations. Yet these populations were integral to the continued endurance of Byzantine communities in the region, and held identities both connected to and separate from the wider Byzantine empire. Çadır Höyük (Fig. 1), one of the only excavated Byzantine sites on the Anatolian plateau, provides a case study for considering regional identity. This study synthesizes some of the most recent data from excavation, including numismatic, faunal, and archaeobotanical data, to characterize the local enduring character of Çadır Höyük through multiple

transitional periods. While preliminary, this work will hopefully serve as a baseline for future investigations of regional variation and continuity, both spatially and temporally. We hope it will also raise further questions in the wider field of Byzantine studies.

Historical Background

A detailed historical introduction to Çadır Höyük is available elsewhere (Cassis 2017: 368–74, Cassis 2009: 1–24), but a short summary of the Late Roman and Byzantine periods is necessary here. The Byzantine site consists



FIG. 1
Aerial view of Byzantine remains on the mound summit. The drone is positioned on the northwest side of the mound, looking southeast.
(Courtesy of the Çadır Höyük Excavation.)

of a housing complex on the North Terrace (Figs. 2–4), utilized between the Late Roman period (fifth–sixth century CE) and the Byzantine abandonment of the site (eleventh century CE), and a fortification on the mound itself which seems to have been built first in the Late Roman and then rebuilt in the Byzantine period. Following the final abandonment of the site, an unknown population—Turkic, Greek, or mixed—returned and left an ephemeral presence on both the terrace and the mound.

Although at present we have no clear picture of the site in the Roman period, by the Late Roman period the structure on the North Terrace seems to have functioned as a modest villa or farm, with some elements of elite culture, including a well-constructed house and imported pottery (Fig. 5). The presence of Late Roman communities is known at this site, and in the surrounding area, including at Uşaklı Höyük, Kerkenes Dağı, and Alişar Höyük (Mazzoni and Pecchioli Daddi 2015: 179–80, 186–88; Summers 2001: 51–55; von der Osten 1937: 126–47).

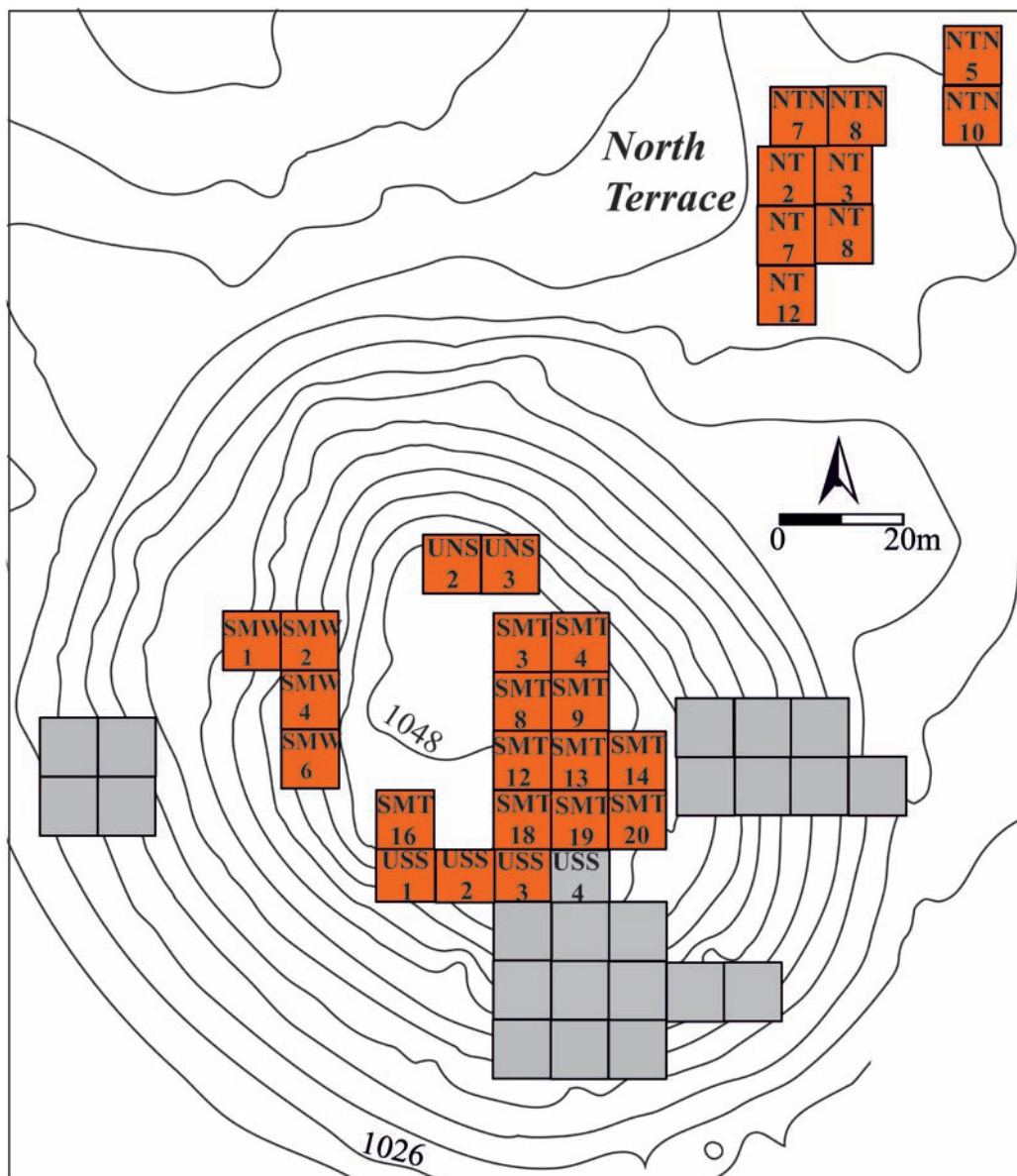


FIG. 2
Topographic plan of
Byzantine-period
trenches (orange)
excavated at Çadır
Höyük. (Courtesy
of the Çadır Höyük
Excavation.)



FIG. 3

Aerial view of the North Terrace with excavations in center (photo taken while drone was “above” the mound summit, demonstrating view from the Byzantine occupation on the summit). (Courtesy of the Çadır Höyük Excavation.)

While we know little of the specifics of this population, the villa or farmstead on the North Terrace probably reflects general characteristics of Late Roman communities (Ellis 2004). Roman identity in this period can be identified by material culture that transcends regional boundaries—imported fine ware and design elements such as plastered walls and floors which have parallels in other Late Roman houses throughout the Roman world (Steadman et al. 2015: 108–12, 2017: 231–44). A small, well-built plastered room on the southern side of the Çadır mound, which contained a collection of Middle Byzantine agricultural tools, religious items (Fig. 6), and even a short sword, has no parallel to our knowledge,

although it recalls a structure excavated at Aşvan Kale in eastern Anatolia (Mitchell 1980), which includes a contemporary small and unique Late Roman temple, possibly dedicated to a local deity. Rural occupation in central Anatolia has largely been understudied, but surveys of the archaeological remains of the region as far back as Ramsay (1890) and Anderson (1897) indicate that these were vibrant, active communities, which incorporated both traditional Roman elements and local identifiers.

During the seventh through ninth centuries, as Byzantium contended with the Arab raids, declining imperial reach, and the shift to a more medieval economy, individual communities were often left to fend for



FIG. 4
 Plan of the North Terrace architecture (NTN 5 and 10 not shown). (Courtesy of the Çadır Höyük Excavation.)



FIG. 5
Example of ARS (African Red Slip) ware, a type of Roman sigillata, excavated in the house/villa on the North Terrace. (Courtesy of the Çadır Höyük Excavation.)

themselves (Decker 2016: 7–42). Some, such as Çadır Höyük, shrank substantially but continued to exist, while others, such as nearby Alişar Höyük and Uşaklı Höyük, seem to have disappeared entirely. The reasons behind these changes are unknown, but may have to do with the populations—local or Roman—that made up different communities. K. Bowes (2010: 17, 85–99), for example, speculates that the population of the Late Roman world was made up of a mix of local and imported elite populations that used architecture and material culture as forms of social competition in this period, while S. Ellis (2004: 38–47) differentiates between vernacular and imperial building traditions in the provinces.

In the late ninth and early tenth centuries, the Byzantine empire regrouped. Themes, or administrative provinces, were reorganized, and local families became significant sources of power, both in their own provincial regions and in relation to Constantinople (Harvey 1990: 35–79). We know from written sources that different families exercised power in different ways; the

Komnenoi family, for example, which ultimately took control of the empire, was based in Paphlagonia. In central Anatolia, it remains unclear how the local families interacted with, and reflected, local and regional identity. Yet it is clear that there was growing power associated with these families in Charsianon, the theme in which the site is located, as witnessed by several references to these families in the *Byzantine History* of John Skylitzes (2010: 183, for example). At Çadır Höyük, this period is identified by substantial renewal, including the refurbished house on the northern terrace and a solid, newly-constructed fortification on the mound, both of which reflect a local reaction to the restructuring of central Anatolia.

Occupation at the Çadır site continued through the tenth and eleventh centuries, although the nature of use in the fortification changed sometime in the early part of the eleventh century when it became a safe haven for the population, demonstrated by hurried reconstructions within the original fortifications. Ultimately it was



FIG. 6
 The unique room on the upper southern slope. Left: photo of room with plastered walls and floor; on the right are some of the artifacts from the room: (a) agricultural equipment; (b) lamp chain; (c) crosses; (d) part of a processional cross made of wood and metal. (Photos courtesy of the Çadır Höyük Excavation.)

not enough to stop the incursion that ended the major Byzantine occupation of the site. In the mid-eleventh century an attack, either from Turkic tribes or, more likely, discontented Norman mercenaries, forced most of the population to flee. The evidence suggests that those who did not leave were killed. This end to the permanent habitation of the site was followed only by seasonal or temporary occupations. Nevertheless, even these, taken in conjunction with the long history of occupation, speak to the enduring viability of the site.

The Byzantine Fortification at Çadır Höyük in its Anatolian Context

Fortifications have long been problematic in Byzantine archaeology, since, despite their ubiquity, they have seldom been excavated. Moreover, in western (and northern) Turkey they are found primarily in urban settings where they have undergone multiple periods of use and rebuilding (Crow 2009: 25–37, 2017: 90–99). Attempts to phase Byzantine walls based on typology and mortar, most notably in the work by Foss and Winfield (1986), have largely failed to address rural fortifications, and there are many examples of defensive walls that simply cannot be dated based on any criteria established to date. Indeed, until the foundations of more fortifications are carefully excavated, we cannot date walls based on stylistic elements alone. At Çadır Höyük, we now have sufficient horizontal exposure to make several hypotheses about the social context of the fortification wall.

The past five field seasons have demonstrated that this feature is over 200 m long and stretches around the perimeter of the entire summit (Fig. 7). All trenches opened on the summit have produced architecture built in association with the fortification. The remains of two gates (Figs. 8 and 9), the foundation of what may have been a tower, at least one guard room, and a drain (Fig. 10) have also been found, suggesting to us that the wall was an enormous and highly organized construction project. Yet this fortification wall is unique when compared to other well-known and published comparanda in Anatolia, as it belongs to a small and rural site, and thus provides a potential key to explaining the role of small

communities in the continuity and defense of this part of Anatolia (Crow 2017).

Small segments of this wall on the northeastern slope were exposed in 2002 (Cassis 2009: 6–7), and a single piece of stone architecture was preserved above the surface up until full-scale excavation began on the summit in 2013. Since then, we have come to understand how the wall was constructed. It is extremely wide; although the width varies, it is approximately 2 m wide in the longest excavated segments. It is built of local, unworked stones of a wide variety of sizes, the majority between 20 cm and 1 m, and is held together with a sandy, light yellow to white mortar, which was laid down in a thick foundation layer, often directly onto bare soil, or over the remnants of collapsed or intentionally knocked-down Late Iron Age architecture (Fig. 11). Below the tower we found evidence for purpose-built mudbrick “boxes” packed with fill used as preparation for the mortar layer (Steadman et al. 2015: 106–7). It is clear in section that the bottom of the foundation rises and falls to account for the presence of earlier architecture, and for the slight downward slant of the mound towards the north.

The mortar foundation is reinforced with wooden deadmen,² visible to us as cylindrical voids with bark and woodgrain impressions on the inside (Fig. 12). The deadmen, essentially sticks and branches, are as small as 4 cm wide, although most are between 10–12 cm (Steadman et al. 2015: 107–8). These deadmen impressions are found nearly everywhere the foundation has been exposed. The spacing is highly variable, and dense clusters of wider deadmen are found below, for example, the possible tower investigated in 2013 (see Fig. 12:2). This building technique is a dynamic response to the changing contours of the previous architectural phases; more deadmen are used to bolster sections spanning areas without substantial Iron Age architecture below, and no deadmen are used in a short segment in Trench SMT 3 spanning a fragment of Late Iron stone paving. As far as we know, this kind of use of wooden deadmen in fortifications is unique in Byzantine defensive architecture (Fig. 13). Shaped wooden beams used as a reinforcing technique, called cribwork or cribbing, are commonplace, but in these cases are a structural element used throughout the body of the wall (Foss and Winfield 1986: 28–29).



FIG. 7
Aerial photo of mound summit. Red arrows indicate the Middle Byzantine defensive wall thus far excavated (as of 2018), encircling the summit. (Courtesy of the Çadır Höyük Excavation.)

We interpret this building technique, the lack of a building trench or other standardized preparation, as well as the opportunistic and varying use of standing architecture, as evidence of a construction project that was locally organized and executed. The materials are obviously local, and it is possible that the largest stones are repurposed from a massive second-millennium BCE wall located downslope. The building technique draws on local knowledge of materials and the contours of the mound. The presence of a gate on the south slope, giving access to an open paved area, as well as the well-constructed drain built into the wall on the west slope, indicate that the entire structure was planned as a coherent unit.

Fragments of armor and projectile points do attest to the presence of soldiers (Fig. 14), at least in the period immediately preceding the destruction phase, and it seems likely that the initial construction was built with a military purpose. If the construction of the wall was ordered by an authority outside of the region, it nevertheless was built with local labor, and to suit local needs.

As noted above, a system of fortifications attributed to the Byzantine “Dark Ages” (seventh–eighth centuries CE) is frequently described in Anatolia (Foss and Winfield 1986: 131–42), although this is based on very little stratigraphical evidence. However, our fortification wall appears to be later, and was built with strategic



FIG. 8
Aerial photo of Trench USS 1, which shows a Roman gate (1) left in place when the later Middle Byzantine wall (2) and associated inner architecture (3) were built. (Courtesy of the Çadır Höyük Excavation.)

forethought and care. For example, some very small body sherds of glazed wares suggest some construction or use in the late tenth century. Excavation of a pit over which a piece of interior architecture was bonded with the wall produced a coin of Michael IV, which provides a *terminus post quem* date for the first half of the eleventh century (Steadman et al. 2017: 239). One of the most significant finds from the summit in recent years is a seal of Petros Chrysoberges (Fig. 15), which also dates to the middle eleventh century and names the theme of Charsianon (Steadman et al. 2017: 241), although this, like the previously excavated seal of Samuel Alusianos (Fig. 16), speaks to the occupation of the site as opposed to its construction (Cassis 2009: 5). What this construction suggests is a locally conceived project to protect local communities, probably with a locally based thematic military unit.

Parallels are not easily forthcoming, even in the immediate region. Other prominent tells nearby lack a significant medieval occupation at the top. Uşaklı Höyük, between modern Sorgun and Yozgat, seems to lack significant Byzantine levels (Mazzoni and Pecchioli Daddi 2015: 179–80), and while Alişar Höyük has remains dated to the Roman, Byzantine, Seljuk, and Ottoman periods, there is no significant Middle Byzantine fortification (von der Osten 1937: 126–47). The nearest parallel is the fortification on the Kale at nearby Kerkenes Dağı. There, a 2 m wide circuit wall made of unworked stone bound with white mortar encloses space on top of a natural prominence. Summers proposes a seventh-century CE date for the wall's construction, with occupation lasting until the eleventh century (Summers 2001: 51–53). However, this fortification is notably built at a



FIG. 9
Middle Byzantine gate (located at the intersection of Trenches SMT 19 and USS 4). (Courtesy of the Çadır Höyük Excavation.)

natural high point, rather than on a settlement mound, and its well-planned construction makes a panicked Dark Age construction unlikely (Cassis and Steadman 2014: 148). Rather, it seems very likely that this occupation was later, and may have paralleled ours. Indeed, medieval fortifications on mounded sites are attested farther afield at Zeytinli Bahçe (Alvaro, Balossi, and Vroom 2004) and Taşkun Kale (McNicol 1983), but these are later and built with mudbrick rather than stone. The closest parallel in terms of occupation levels, adaptation, and endurance is at Aşvan Kale (Mitchell 1980), although this is not a fortification in the same sense as Çadır Höyük. Nevertheless, it bears some striking similarities in room organization (Mitchell 1980: 49–52).

The transition to smaller fortified settlements on tells or at natural highpoints has been documented for the Middle Islamic/Byzantine periods in the *thughūr* or frontier zone between Byzantium and Muslim territory

(Eger 2015: 264–76), and almost certainly has a parallel in Anatolia that has not been fully explored. Although Çadır Höyük is located outside the *thughūr*, it sat in a liminal zone that, at times, was invaded by Arab raiders from the south, and eventually Turkic groups from the East. Thus, the initial impetus for fortifying the mound may have come from the local need to protect agricultural communities. There must have been a military purpose to this site, rather than a domestic one, because to date, we have found no evidence for a cistern. Multiple sources of water are located a few minutes from the mound, but with no clear method of storage on the summit, it would be difficult to hide there for long. As Turkic invasions increased in the mid-eleventh century, the site became increasingly used for refuge. The animal pen discovered in 2002 supports the idea of the mound being a place built for temporary refuge (Cassis 2009: 3–8), although, again, it could not have withstood a long siege.



FIG. 10

Drain built into Middle Byzantine defensive wall. Top: view through drain (looking west); bottom: outside of wall where water would exit; note plastered channel. (Photos courtesy of the Çadır Höyük Excavation.)



FIG. 11

Photo of the Middle Byzantine defensive wall resting on remnants of Late Iron architecture (Trench SMT 4).

(Courtesy of the Çadır Höyük Excavation.)

The fortification suggests that central Anatolia remained significant to both imperial and local authorities. The importance of food production and defense are only two reasons why the region would need to be carefully maintained. The lack of parallels for this fortification indicates that there was no set plan in central Anatolia, but rather that the individual areas functioned semi-autonomously within localized contexts. The lack of uniformity speaks to the importance of considering regionality. We may yet find a pattern from an imperial or thematic perspective, but until then we need to consider each site on its own merits, and consider the independent control of these areas.

Coinage at Çadır Höyük

As with the fortifications at the site, the numismatic evidence at Çadır Höyük testifies to a unique local

economic history in the Middle Byzantine period. Throughout Anatolia generally, Roman and Late Roman coinage gave way to a dearth of metal currency between the late seventh and early ninth centuries, a result of both the rural economy and the collapse of infrastructure in the capital (Morrisson 2017; Grierson 1999: 6). In the Middle Byzantine period coin usage again becomes more common throughout the region. Yet, within this broader pattern, Çadır Höyük exhibits a unique numismatic assemblage, suggesting a specific local economy. Given the rural nature of the site, discoveries of coins have been a relatively rare occurrence, although the terrace produced several examples of Late Roman coinage (Table 1). While coinage begins to occur with more frequency at other sites, such as Euchaita (Haldon, Elton, and Newhard 2018: 269–73), between the seventh and the eleventh centuries, we have no coins from Çadır Höyük, even though the stratigraphy indicates that the



FIG. 12
Examples of Middle Byzantine defensive wall construction using deadmen when needed: (1) Trench SMT 15, note only one or two deadmen used above Late Iron Age architecture mudbrick wall on right; (2) Trench SMT 4, note “box” used to support wall, outlines of which are visible above the number in lower right corner; (3) close-up of hole showing grain pattern of deadmen lying beneath defensive wall. (Photos courtesy of the Çadır Höyük Excavation.)



FIG. 13

Artist's reconstruction of locals constructing the Middle Byzantine wall using their innate knowledge of the mound and available resources. (Drawing by L. D. Hackley; courtesy of the Çadır Höyük Excavation.)

occupation of the site is unbroken. Then, in the destruction period on the mound summit, numerous examples of eleventh-century coinage appear, suggesting a very particular use of the site. To date, forty-eight coins have been recovered from Çadır Höyük, including ten from the lower terrace and thirty-eight within the fortified walls on top of the mound. Thirty-six coins can be identified, and thirty have an eleventh-century date. All eleventh-century coins, with the exception of two, were recovered from areas inside the fortification walls.

Although the fortification seems to date to the beginning of the Byzantine revival, there is no corresponding immediate increase in coinage. Rather, the spike in eleventh-century coins coincides with the *end* of the

empire's period of economic growth. It is no coincidence that the fortification of Çadır Höyük parallels the economic recovery and expansion of the empire, as the costs associated with such construction were no doubt substantial for a small settlement—and yet the lack of coinage confirms that this was indeed a locally organized project. The sudden appearance of eleventh-century coinage (for a site this size), then, can be posited as connected to a change at the settlement, or a specific set of events. The presence of these coins suggests the sudden appearance of a military presence, since these soldiers would have been paid in real money. Indeed, the coinage represents a shift in the site's functionality, and may be seen as a reaction to increased threats, primarily



FIG. 14

Examples of some of the military gear discovered in the Byzantine trenches on the mound summit: (a) helmet from Trench SMW 1; (b) remnants of chain mail from Trench USS 2; (c) spear point from Trench USS 2. (Photos courtesy of the Çadır Höyük Excavation.)

from the east. This may reflect thematic interests, or we may eventually be able to posit that Çadır served as a *dromos* (military public-post) in the early eleventh century (Haldon 1999: 234–52; Dunn 1993), a pattern known from the Balkans, an area that can also be considered a liminal zone (Stephenson 2000, 2008).

As stated above, all but two of the eleventh-century coins were recovered within the fortified summit (Fig. 17). Although scattered over the mound, most of these coins were found in the same occupation level, and some were associated with military artifacts (see Fig. 14). This is the same stratigraphic context that produced the two sealings, one of Samuel Alousianos and one of Peter Chrysoberges (see Figs. 15–16), both known

imperial figures who can be traced through the historical and sigillographic evidence. As well, this destruction level produced human remains and a large-scale deposition of animal bones found in an abandoned stable (Cassis 2009).

The absolute absence of coinage just prior to the mid-eleventh century implies that coinage was not typically used at Çadır at this time. The relative explosion of eleventh-century coins on the site leads us to believe that a community of soldiers, who would have been paid in coinage, arrived in the mid- to later decades of the century. The numismatic evidence, therefore, suggests that Çadır Höyük perhaps became a newly-designated *dromos* (either thematically or officially), in the Middle

TABLE 1 LIST OF COINS EXCAVATED AT ÇADIR HÖYÜK

FCN	Year Found	Trench	Location	FCN	Year Found	Trench	Location
4110	2001	940.970.	F1	8009	2006	930.980.	L3
5638	2002	800.900.	L1	8820	2008	920.970.	Surface
5641	2002	800.900.	L1	9023	2008	930.980.	Surface
5642	2002	800.900.	L1	10612	2012	USS4	USS 4
5645	2002	800.900.	L1	10247	2012	NTN 7	L 15
5646	2002	800.900.	L1	13954	2014	NTN8	L1
5759	2003	800.890.	Surface	15219	2014	NTN8	L13
5790	2004	800.900.	Cleaning	14505	2014	NTN7	SF
6079	2004	810.900.	L4	15197	2015	NTN8	L20
6157	2004	810.900.	L3	14645	2015	NTN8	L20
6163	2004	800.900.	L1	17827	2016	SMT 3	L26
6163	2004	800.900.	L1	19188	2016	USS 2	L19
6163	2004	800.900.	L1	19559	2016	SMW1	L4
6163	2004	800.900.	L1	19829	2016	SMW2	L6
6167	2004	800.900.	F2	19846	2016	SMW2	L4
6176	2004	800.890.	E Balk Removal	21044	2017	SMW2	F9
6176	2004	800.900.	E Balk Removal	21355	2017	SMW2	F9
6186	2004	800.890.	L11	21363	2017	SMW2	F9
6186	2004	800.890.	L11	21705	2017	SMT13	L2
6186	2004	800.890.	L11	21955	2017	USS1	L22
6186	2004	800.890.	L11	22107	2018	SMW1	L13
6305	2004	800.890.	L5	22118	2018	SMW1	L16
6404	2004	800.890.	F2	22371	2018	SMW6	SMW6
7095	2005	790.890.	Surface Find	23229	2018	SMW2	SMW2
Constantine X				Romanus IV			
Anonymous Follis - Class B				Anonymous Follis - Class D			
Anonymous Follis - Class C				Justin II and Sophia			
Constantius II				Danishmendid Coin			
Justinian I				Unidentified/Poor Condition			



FIG. 15
Obverse and reverse of seal of Petros Chrysoberges (eleventh century)
from Trench USS 1. (Photos courtesy of the Çadır Höyük Excavation.)

Byzantine period. The need to supply soldiers to a fortified military encampment speaks to the increased threat to the area in the eleventh century; the coinage data, combined with other material culture, has offered important insights on local responses to regional events.

Faunal Remains at Çadır Höyük

The faunal evidence has revealed two insights for us: first, there is considerable change over the occupational phases, and second, the site represents a unique faunal assemblage in Byzantine studies, particularly for central Anatolia. This illustrates the need to consider regions as

separate entities with discrete agricultural and herding practices, ones which reflect local communities, needs, and environments.

Faunal analysis at Çadır Höyük has recorded more than 6,000 specimens from the Late Roman and Byzantine periods (Table 2). Although research on Byzantine-period agricultural economies, including detailed faunal reports, has become more common recently (Frémondeau et al. 2017; Kroll 2012; Tepper et al. 2018), this work has focused on settlements in the Levantine region and southwest Turkey, leaving the organization of rural economies in the first millennium CE on the expansive Anatolian plateau poorly documented. Here we describe two features of this unique faunal assemblage, focusing on evidence for animal use on the Late Roman/Early Byzantine North Terrace and also a unique late Byzantine deposit from the summit of the Çadır mound.

The North Terrace represents the earliest phases of the Late Roman/Byzantine presence at Çadır Höyük, revealing evidence of some wealth contained within the large domestic and storage structure that was the Roman-style villa mentioned earlier. The faunal remains from the North Terrace trenches are dominated by domestic livestock, including sheep, goat, cattle, and pigs, with domestic fowl, horse, donkey, dog, camel, and cat represented in small numbers. Wild taxa are relatively rare, representing approximately ten percent of the identified remains and include deer, hare, and a range of commensal species including small mustelids, fox, as well as hedgehog and a variety of rodents. Taxonomic abundance data from the North Terrace trenches demonstrate that the animal economy of this rural settlement was mixed. Sheep and goats are the most abundant taxonomic group (39%, based on livestock specimens identified to genus), with sheep outnumbering goats at a ratio of 7:5, suggesting that wool was likely an important commodity at the settlement. Cattle (22%) and pig (21%) are represented in roughly equal numbers while horse and donkey (3%) and domestic fowl (3%) are present in smaller numbers (see Table 2). Although cattle represent approximately one fifth of the number of identified livestock specimens, bovines make up 67% of the assemblage based on bone weight, which combined with their role in agricultural labor indicates that cattle were the most important livestock animal at late Roman/Byzantine Çadır.



FIG. 16
Obverse and reverse of seal of Samuel Alusianos (eleventh century) from Trench USS 19. (Photos courtesy of the Çadır Höyük Excavation.)

Moreover, although the cattle remains are thought primarily to represent native southwest Asian taurine cattle (*Bos taurus*), it is also likely that this cattle population included admixture with zebu cattle (*Bos indicus*) of South Asian origin (Arbuckle 2009; MacHugh et al. 1997).

This North Terrace assemblage with robust numbers of sheep, goat, cattle, and pigs differs considerably from Byzantine faunal assemblages described from the southern Levant where sheep and goats are dominant and pigs poorly represented, and from Byzantine southwestern Turkey where cattle dominate (Perry-Gal, Bar-Oz, and Erlich 2015; Vionis et al. 2010). These data from Çadır therefore seem to define a distinctive rural central Anatolian animal economy designed both for local self-sufficiency as well as production for larger commodity markets. It is likely that pigs, goats, and fowl

were raised primarily for local consumption, whereas sheep were managed for wool as well as meat destined for non-local markets. Cattle played a central role in agricultural production and were employed in plowing fields, hauling harvests, and threshing grain which was also likely destined for regional centers. In addition, the presence of camel as well as introgression with zebu cattle emphasizes that far from being an isolated outpost, the first millennium CE settlement at Çadır was connected into regional trade networks linking the central Anatolian plateau to a much wider world.

In contrast to the North Terrace, which represents the production and consumption of animals in an earlier phase of occupation at the settlement, the Middle Byzantine faunal assemblage from the summit contexts of the mound tells a different story. Investigation of the



FIG. 17
Obverse and reverse of eleventh-century Anonymous Follis – Class D, excavated in Trench SMW 6 on the mound summit. (Photos courtesy of the Çadır Höyük Excavation.)

earlier part of the Middle Byzantine period from the western side of the mound is in progress, but preliminary data from Trenches SMW 1 and SMW 2 demonstrate that the composition of faunal material differs from that of the later periods (discussed below). Sheep/goat and cattle each make up roughly one-third of the assemblage (about 33% respectively, based on livestock specimens identified to genus), while pigs are represented in a more modest way (12%). Pig consumption during the Middle Byzantine period appears to remain consistent, while the greater number of caprines in the earlier part of the Middle Byzantine may represent a herding scheme not present near the tumultuous end of this period.

A distinctive assemblage, derived from five trenches but primarily SMT 14 and 15, represents a discrete in situ deposit reflecting the catastrophic kill-off of a large

number of animals and seems to be associated with the violent end of the Byzantine settlement in the eleventh century CE (Cassis 2009; Steadman et al. 2017). This assemblage is dominated by the remains of cattle (57%, based on livestock specimens identified to genus), most of which exhibit low levels of fragmentation and many of which are articulated or partially articulated (Steadman et al. 2017: table 5) (Table 3). In the summit trenches sheep/goat and pig are represented in modest numbers (26% and 11%), with equids (0.9%) and fowl (1.6%) also present in low frequencies. The nature of these remains suggests that a number of animals were enclosed within a stable or barn structure on the mound summit and died in a single event (Fig. 18). These remains therefore provide a rare window into a “living herd” rather than the remains of animals culled for slaughter.

This destruction deposit has not been completely excavated, and MNI (Minimum Numbers of Individuals) was calculated based on the most abundant element. Based on left femora, the remains of 24 cattle were identified. Epiphyseal fusion and biometrics were examined in order to estimate the age and sex composition of this herd. Based on the state of epiphyseal fusion of the long bones, at least one individual was less than one year old as indicated by unfused distal humeri and acetabulum (Silver 1963). Fifteen out of thirty-two distal radius specimens exhibit epiphyseal fusion, indicating that about half of the herd was older than three years (see Table 3). Four out of 20 proximal humeri were fused, indicating that only one fifth of the animals were older than four years.

Although cranial remains have not yet been recovered for all individuals, two mandibles contain deciduous fourth premolars, one in early wear, the other in heavy wear, indicating animals less than two years of age; moreover, six out of twelve recovered mandibles contain third molars that are either erupting or in early stages of wear. The third mandibular molar erupts in cattle between 2–3 years of age (Silver 1963). Together, the long-bone fusion and tooth-eruption data suggest that the cattle herd found in the summit deposits included a small number of calves. The majority of the animals were young adults aged 1–2 years and prime aged animals (2–3 years), with a few older adult individuals; extremely aged individuals are absent.

TABLE 2 TOTAL NUMBER OF IDENTIFIED SPECIES

Byzantine Fauna			
Taxa	North Terrace	Summit	Total NISP
Very small mammal	12	3	15
Small mammal	49	7	56
Medium mammal	624	161	785
Large mammal	382	317	699
Medium artiodactyl	39	38	77
Large artiodactyl	17	79	96
Ovis/Capra	557	496	1053
Ovis sp.	71	97	168
Capra sp.	52	60	112
Capra aegagrus	0	1	1
Medium bovid/cervid	14	3	17
Bos taurus	392	1431	1823
Bos indicus?	1	0	1
Medium cervid	1	3	4
Large cervid	1	0	1
Cervus elaphus	0	1	1
Sus scrofa	365	283	648
Camelus	6	0	6
Medium equid	13	1	14
Large equid	3	6	9
Equus asinus	1	0	1
Equus sp.	28	14	42
Small carnivore	0	2	2
Felis	6	1	7
Small mustelid	2	1	3
Mustela putorius	11	0	11
Small canid	0	2	2

(Continued)

TABLE 2 TOTAL NUMBER OF IDENTIFIED SPECIES (CONTINUED)

Byzantine Fauna			
Taxa	North Terrace	Summit	Total NISP
<i>Medium canid</i>	67	7	74
<i>Vulpes sp.</i>	88	8	96
Erinaceid	2	1	3
Rodentia	7	13	20
<i>Rattus</i>	1	0	1
<i>Sciurus</i>	3	3	6
<i>Spalax</i>	1	0	1
<i>Lagomorpha</i>	0	1	1
<i>Lepus</i>	19	18	37
Reptile	1	0	1
Tortoise	1	13	14
Fish	4	5	9
Bird	48	67	115
Grand Total	2889	3142	6014

In addition, biometrics were examined in an attempt to estimate the sex composition of the cattle herd. Log Size Index (LSI) values for scapula, first phalanx, and distal metacarpal are presented in Table 4. The LSI standard animal ("o" on the x-axis) represents a Pinzgau cow, a primitive German breed. The measurements show a roughly bimodal distribution with measurements below o on the LSI scale representing females and also perhaps a few younger males, while specimens above o on the LSI scale likely represent males. For both scapula and metacarpal breadth measurements nine specimens are smaller than the standard and probably represent females, whereas seven are larger than the standard, representing larger males. These data suggest that the living herd included both males (probably oxen) used for labor as well as cows, used for a combination of labor and perhaps dairy production.

Together, the faunal evidence suggests that the residents of Middle Byzantine Çadır maintained quite a large herd of cattle. The presence of largely prime aged animals as well as a combination of males and females and some calves reflects a dynamic and perhaps wealthy local economy with access to cattle at their productive peak. Although work will continue to define the nature of this unique summit deposit, initial results suggest a surprisingly healthy and robust local animal economy engaged in production for both local needs and external markets.

Overall, the material from the Late Roman and Byzantine periods of Çadır Höyük demonstrates that different animal economies were employed during the different phases of the summit and terrace. The earlier Late Roman occupation on the terrace denotes a more interconnected economy with caprines representing the majority of the livestock, indicating the importance of

TABLE 3 AGE DATA FOR CATTLE FROM TRENCHES SMT 14 AND SMT 15

Fusion Stage	Age of fusion (Silver 1963)	Skeletal Part (# of left-sided elements)	Fused	Unfused	Total
1	7-10 months	Scapula (1)	4 (1L)	0	4
		Pelvis (2)	6 (4L)	3 (1L)	9
2	12-18 months	pr Radius (3)	21 (8L)	0	21
		ds Humerus (4)	2 (1L)	2 (1L)	4
3	18 months	pr Phalanx 1 (5)	89 (24L)	8 (2L)	97
		pr Phalanx 2 (6)	73 (19L)	2	75
4	24-30 months	ds Metacarpus (7)	5	2	7
		ds Metatarsal (8)	3 (2L)	1 (1L)	4
5	27-36 months	Calcaneus (9)	3	0	3
6	36-42 months	ds Tibia (10)	0	0	0
		ds Radius (11)	15 (10L)	17 (9L)	32
7	42-48 months	pr Femur (12)	8 (5L)	0	8
		ds Femur (13)	6 (2L)	0	6
		pr Humerus (14)	4 (1L)	16 (6L)	20
		pr Tibia (15)	4 (3L)	0	4

Abbreviations: pr = proximal end; ds = distal end; L = Left-sided element.

TABLE 4 LSI FOR CATTLE FROM TRENCHES SMT 14 AND SMT 15.

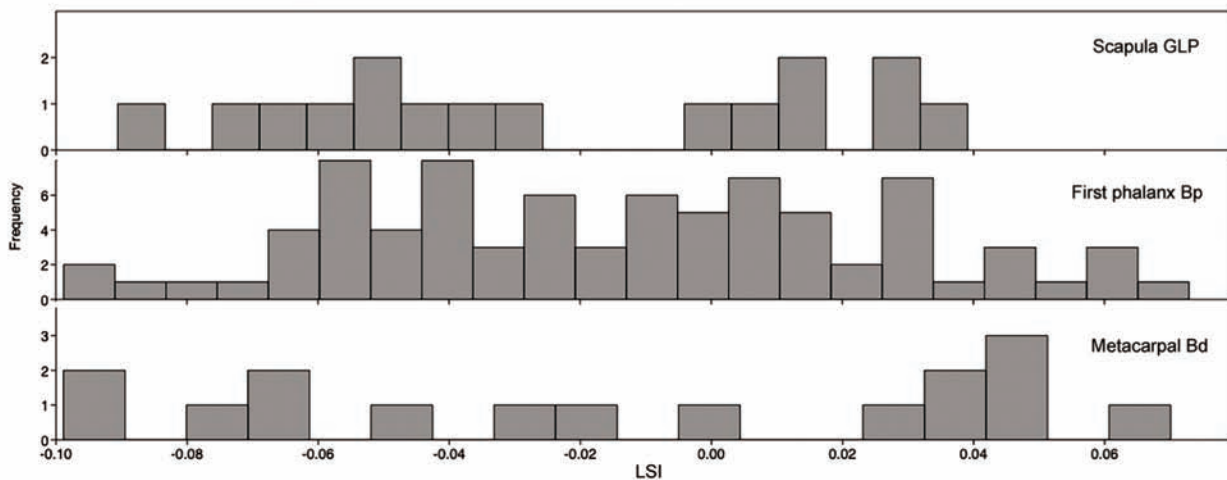




FIG. 18

Artist's reconstruction of the stable on the mound summit in which (possibly) fleeing Byzantine residents left animals in the hopes they could soon return. (Drawing by M. J. Hughes; courtesy of the Çadır Höyük Excavation.)

wool and dairy from the sheep and goat herds for both local use and trade. In contrast, the later phases of the summit appear to have depended more on cattle production. The presence of the unique death assemblage shows how important cows were for traction and dairy during Çadır Höyük's Middle Byzantine period, which provides evidence for the types of economies on the Anatolian plateau in this period.

Plant Use at Çadır Höyük

Overarching questions about Byzantine plant use—including connected industries such as cooking and

animal feed—must be considered within the context of regional variation. In fact, a better examination of paleobotanical material will shed light on regional variation in not just plant growth and use, but cooking and ceramics. The archaeobotanical research program is focused on highlighting how changes in plant use also helped drive cultural shifts at Çadır Höyük throughout the entire sequence. Plant use encompasses a wide variety of behaviors, including agricultural practices, foddering or pasturing, and fuel use. Many of these behaviors are often performed at a household level but can be controlled by a larger centralized or state level power. In the case of Çadır, this can lead to questions about whether this is



FIG. 19
Artist's reconstruction of Byzantine North Terrace houses and agricultural fields.
(Drawing by M. J. Hughes; courtesy of the Çadır Höyük Excavation.)

imperial or thematically based. Therefore, changes in plant use affect both household- and site-level organization and contribute to the resilience, or demise, of a population at a site.

The analysis of Byzantine plant use trends at Çadır is ongoing, but a preliminary study of 12 samples, 11 samples from a pilot analysis of the assemblage in 2018 (Steadman et al. 2019) and one sample published in Smith (2007), highlights broad trends in the assemblage. Ten of these samples were from trenches on the mound, and two samples, including the sample published in Smith (2007), were from the terrace. All the samples were collected as part of a site-wide intensive sampling strategy that prioritizes retrieving 20 L of sediment from all

secure contexts: hearths, pits, and surfaces. The samples were then floated using a modified Siraf-style machine (Nesbitt and Samuel 1989).

The samples indicate that cereal cultivation was the primary cultivation practice during the entire Byzantine period at Çadır (Fig. 19). Indeterminate cereal remains were present in every sample, while free threshing wheat (*Triticum aestivum/durum*), barley (*Hordeum vulgare* L.), and rye (*Secale* sp.) were a large proportion of the entire crop assemblage. This focus on cereal cultivation is supported by the large amounts of chaff recovered from the samples as well. Bread wheat (*Triticum aestivum* L.) and barley rachises were recovered from all the samples except one from the terrace, and culm fragments were abundant

throughout the assemblage. In addition to cereal, the Byzantine population at Çadır was growing grapes (*Vitis* sp. L.), chickpeas (*Cicer arietinum* L.), lentils (*Lens culinaris* Medik.) and flax (*Linum usitatissimum* L.), although importantly grapes, chickpeas, and flax were only identified on the summit in these samples.

The Byzantine archaeobotanical assemblage at Çadır also offers insight into fuel use and possible animal-management strategies. Broadly, all of the analyzed samples came from mixed depositional contexts, with the exception of the sample analyzed in Smith (2007) that was from a barn on the terrace. Overall, the plant remains indicate penning of animals on the terrace, potentially related to household-level rearing practices, and suggest the widespread use of dung fuel. Plant remains from burned dung fuel can shed insight on whether animals were foddered or fed through grazing, seasonality patterns in animal management, and the diversity of ecological niches that were exploited (Charles 1998; Miller 2013). While the plant remains are strongly indicative of dung fuel, future spherulite analysis following the methodology in Smith et al. (2018) will be performed in order to confirm these assumptions. The most abundant and ubiquitous weeds in the assemblage include crop weeds *Bromus* sp., *Asperula* sp./*Galium* sp., and small *Lolium* sp., and the wetland weed *Bolboschoenus glaucus*. This suggests that the animals were being foddered or left to graze harvested agricultural fields, a practice that ties plant cultivation and animal management closely together.

Conclusions

The historiography of the Byzantine world has traditionally emphasized the view from imperial centers. This has produced gaps in the scholarship, particularly in relation to the rural and peripheral landscapes of the Late Roman and Byzantine worlds where there has been little archaeological exploration. However, the material culture of these regional sites is exceptionally rich, and reveals that each area has its own local and regional significance that can provide better insight into the complicated picture of the Byzantine world. Rather than looking at sites in these

areas to emphasize or explain the imperial evolution of the Byzantine world, they must be studied individually in order to understand the local and regional significance of each one. We argue that studying sites in their local and regional context helps to clarify just how diverse the Byzantine world was. This follows a trend in medieval European archaeology that argues for the singularity of sites—that is, for understanding each one primarily within its own terms (Mímisson and Magnússon 2014). Rather than focusing on the connection of each site to Constantinople, the transition and endurance of these sites speaks to local reaction to wider environmental and social changes—and this, in essence, helps to illustrate the Byzantine world in a much more nuanced way.

Notes

1. Research into Byzantine Çadır Höyük is supported by the Social Sciences and Humanities Research Council of Canada (Insight Grant 435-2014-0944).
2. A “deadman” is a horizontal member of a wall, either a retaining wall or a foundation, that is installed at right angles to the line of the wall, tied at its end into the wall, but extending back into the dirt behind the wall or foundation. Its purpose is to stretch back into and be held by the dirt, to keep the foundation from shifting or a retaining wall from falling over.

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