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Fortified Communities in the South Caucasus: Insights from Mtsvane Gora and Dmanisis Gora

Nathaniel L. Erb-Satullo ea and Dimitri Jachvlianib

•cranfield University, Bedfordshire, United Kingdom; bGeorgian National Museum, Tbilisi, Georgia

ABSTRACT

Fortresses are defining features of the Late Bronze and Early Iron Age landscape in the South Caucasus, with hundreds of sites recorded in archaeological surveys in Georgia, Armenia and Azerbaijan, and northeastern Turkey. Yet, research on how these communities functioned is dominated by evidence from the small fraction of these sites that have been excavated, and regional variability remains underexplored. This paper discusses excavations at two such fortresses in the Lesser Caucasus borderlands and contextualizes them within global discussions about fortresses and their associated communities. Analysis of architecture, ceramics, and small finds identified evidence for a diverse range of activities within these compounds, including both craft production and ritual activity. While the size and construction of the two fortresses differ, the evidence for significant occupation at both suggests that these fortresses were durable communities, not temporary refugia. Further work is necessary, however, to assess whether these fortresses were highly ordered institutions centralized under elite rule or heterarchical communities joined by common interest.

KEYWORDS

fortress; fortification; hillfort; wall; Late Bronze Age; Early Iron Age; ceramics; metallurgy; craft production; hierarchy

Introduction

The construction of fortresses and fortified communities is a major topic of interest in the archaeology of complex societies. While many fortresses are clearly situated with an eye towards military defense, their role as community- and landscape-structuring institutions has seen increasing research (Arkush 2017; Smith 2015). Research has shown that the role played by fortified communities varies significantly even within regions (Hamilton and Manley 2001). Fortifications offer clear defensive advantages in areas where inter-communal violence is a persistent threat, but the symbolism of walled communities is an important constitutive element in community identity (e.g. integrative facilities in the vein of Adler and Wilshusen 1990) and institutional authority (Cunliffe 2012, 305-306). Globally, research on fortresses often centers on discussions about whether they were permanent settlements, temporary refugia, or seasonally occupied sites (e.g. Jia et al. 2018). The defensive capabilities of some hillforts in the British Isles have been questioned, leading to debates about their intended purposes as defensive structures or as a means for controlling the surrounding landscape (Armit 2007; Bowden and McOmish 1987; Lock 2013). The varied terminologies used to describe well-defended sites-forts, fortresses, fortified settlements-carry different implications about permanency of occupation, institutional dynamics, and degree of specialization in terms of their military function. In general, the term "fortress" implies a more substantial complex than the term "fort," while "fortified settlement" suggests the presence of a significant population that is not involved in directly fulfilling the military needs of the fortifications. Nevertheless, there is no unified terminology applied to these kinds of sites, and their variable character resists the imposition of a single terminology.

Nevertheless, several core debates have animated the study of fortresses and fortified communities worldwide. First are questions about what kinds of societies are capable of constructing monumental defensive fortifications (Jia et al. 2018; Shelach, Raphael, and Jaffe 2011). Was fortress construction an emergent process governed by communal decision-malcing or a top-down process directedby a centralized authority capable of coordinating the necessary labor resources?While there is a tendency to assume that monumental structures such as impressive walled citadels require some kind of centralized coordination of labor, other lines of research have revealed how external threat can produce fortified communities even in societies without ahigh degree of socialinequality (Arkush 2017). In this sense, the study of monumental fortification systems is linked with the larger archaeologicaldiscourse about collective action, labor mobilization, monumentality,andsocial inequality (Carballo, Roscoe, and Feinman 2014; Osborne 2014; Wright 2012).

A second key area of the global discussion around fortresses concerns the social andpolitical organization of communities within and around the fortress. A village with communally-constructed fortifications differs dramatically from a military outpost, a remote temporary refuge in times of danger, or a fortified seat of a local ruler. Do such places also function as economic centers, facilitating exchange or engaging in local production, or places of religious significance? The presence of strong defenses alone does not provide sufficient data to address these questions.

One aspect of variation in fortress communities concerns the extent to which the fortress as an institution structures

CONTACT Nathaniel L. Erb-Satullo S n.erb-satullo@cranfield.ac.uk G) Cranfield Forensic Institute, Cranfield University, College Road, Cranfield, Bedfordshire, United Kingdom MK43 OAL.

the life of the surrounding settlement. In the same way that mineral extraction is the driving force behind mining communities (e.g. Meyer 1998), settlements around fortresses may be highly specialized communities primarily oriented (at least initially) towards provisioning and supporting the fortress itself, as was the case with settlements associated withRoman forts (called *vici,*or *canabae* in the case of settlements near larger legionary bases) (Hanel 2007). On the other hand, even in cases where settlements are ruled by elite residents of fortresses, they may not have direct control over all economic and social activity in the settlement.

This variability is reflected in the discussions, both in the South Caucasus and more broadly, around the relationship between "fortresses" and "settlements" as categories of sites.In a global context, fortresses andsettlements are sometimes distinct types of sites, especially where forts areisolated military outposts or temporary refugia and settlements are not walled. In other cases, the lines blur. Fortresses may attract settlement, and sites of purely military character may gradually transform into larger communities with civilian settlements, as is sometimes the case for Roman fortresses (Hanel 2007, 412). In other cultural contexts, "military" and "civilian" are essentially meaningless distinctions. Existing settlements may invest in fortifications, creating cases where the fortress and the settlement are one and the same. Some settlements exist purely to support thelogistical needs of the fortress, while in other cases, the fortress' primary purpose is to defend the settlement. Of course, this binary framing is reductive, and the relationship between fortress institutions andsettlement residents iscomplex and varied. These variations are not effectively captured by theQustifiable) desire to create a shorthand categorization of sites.

Fortresses are a major feature of the archaeologicallandscape of the South Caucasus from the beginning of the Late Bronze Age (ca. 1500 B.C.), extending wellinto the Iron Age of the 1st millennium B.C. (Earley-Spadoni 2015; Hammer 2014; Narimanishvili 2019). Yet, while these sites figure prominently in social and political narratives (Lindsay and Greene 2013; Smith 2005, 2015), much remains unclear about their interpretation. The size and character of these sites vary considerably with respect to the size of the enclosed area, the construction of the walls, the presence of structures both within and beyond the fortress walls, and the presence of an associated "settlement," however defined. It seems likely that some settlement occurred within and around some fortresses, but additionally some settlements do not appear to have been fortified at all (Sagona 2018, 379). The nature and character of fortresses seems to vary as well-some sites are well defended but enclose very small areas, while other sites consist of extended complexes of fortification walls, buildings, and associated mortuary zones (see catalog in Narimanishvili 2019). There have been some admirable attempts to develop site typologies, informed by exogenous textual accounts of military campaigns (Narimanishvili2019), but many aspects of these categorizations remain unclear. In general terms, some combination of defensible location and/or presence of defensive walls and/or terracing is usually the primary feature of sites termed "fortresses" in the South Caucasus, though there is broad recognition that the term encompasses considerable variability. The presence, size, chronology,[1] and character of residential settlement at such sites is usually not a primary discriminator, in part because these features are often less visible on survey than massive stone walls and terraced defenses.

The current state of research on Late Bronze and Early Iron Age fortresses means that even fundamental questions, such as whether these fortresses were highly ordered institutions or more extended heterogeneous communities, have yet to be fully resolved. In other words, are theseplaces where defense is a fundamental organizing principle that permeates all aspects oflife at these sites or are they fortified communities, where defense is one element of amore varied residential community? To what extent are Late Bronze and Early Iron Age fortresses instruments of a centralized power and authority (either on a purely local scale or a more regional one), in the way that later Urartian fortresses more clearly were?

A full understanding of the character and activities of these sites requires excavation, whichprovidesdeeper insight into the social ordering of these communities, while alsoproducing a refined understanding of their growth and transformation. Specifically, assessments of the organization of fortress communities feed into larger discussions about long-term social change in the Caucasus. One enduring question concerns how such communities emerged from the preceding Middle Bronze Age social order in which settlements are rare, while a high degree of social differentiationis apparent in the mortuary record. Do thetransformations of the mid-2nd millennium B.C. represent the institutionalization, through the built environment of the fortress, of ahierarchical order that emerged in the Middle Bronze Age, as some have implied (Smith 2005, 266; 2015, 157-158, 176-177), or a rejection of that social order, as others have hypothesized (Erb-Satullo 2021)? Given the regional variability in Late Bronze and Early Iron Age communities, there may not be a single answer to this question that applies to the entire region.

Several seasons of fieldwork atMtsvane Gora andDmanisis Gora provide clarity on the chronology and character of occupation at fortified sites in the Lesser Caucasus borderlands. The results not only provide a better understanding of LateBronze andEarlyIronAge societies in the South Caucasus but also provide data for the broader comparative study of fortress communities worldwide.

Background

The centralportion of the South Caucasus (Figure1), including present-day eastern Georgia, Armenia, and western Azerbaijan, formed part of abroadly similar material culture horizon during the Late Bronze and Early Iron Age (LBA-EIA, 1500-800 B.C.). A variety of names, many deriving from local type sites, have been given to this complex by researchers working in different areas, including Lchashen-Metsamor (in Armenia), Lchashen-Tsitelgori, Samtavro, and central Transcaucasian Cultures (in Georgia), and Xocah-G;}d;}!x}y Culture (in Azerbaijan). Earlier research has tended tohighlight local variants in the naming schemes, but this should not obscure the broader similarities of this shared cultural horizon (Sagona 2018, 380-382). Common features in these areas include black or grey ceramics, often burnished, with incised, impressed, or pattern-burnished decoration, as well as a tradition of complex bronzeworking. In contrast to the small number of settlements during the

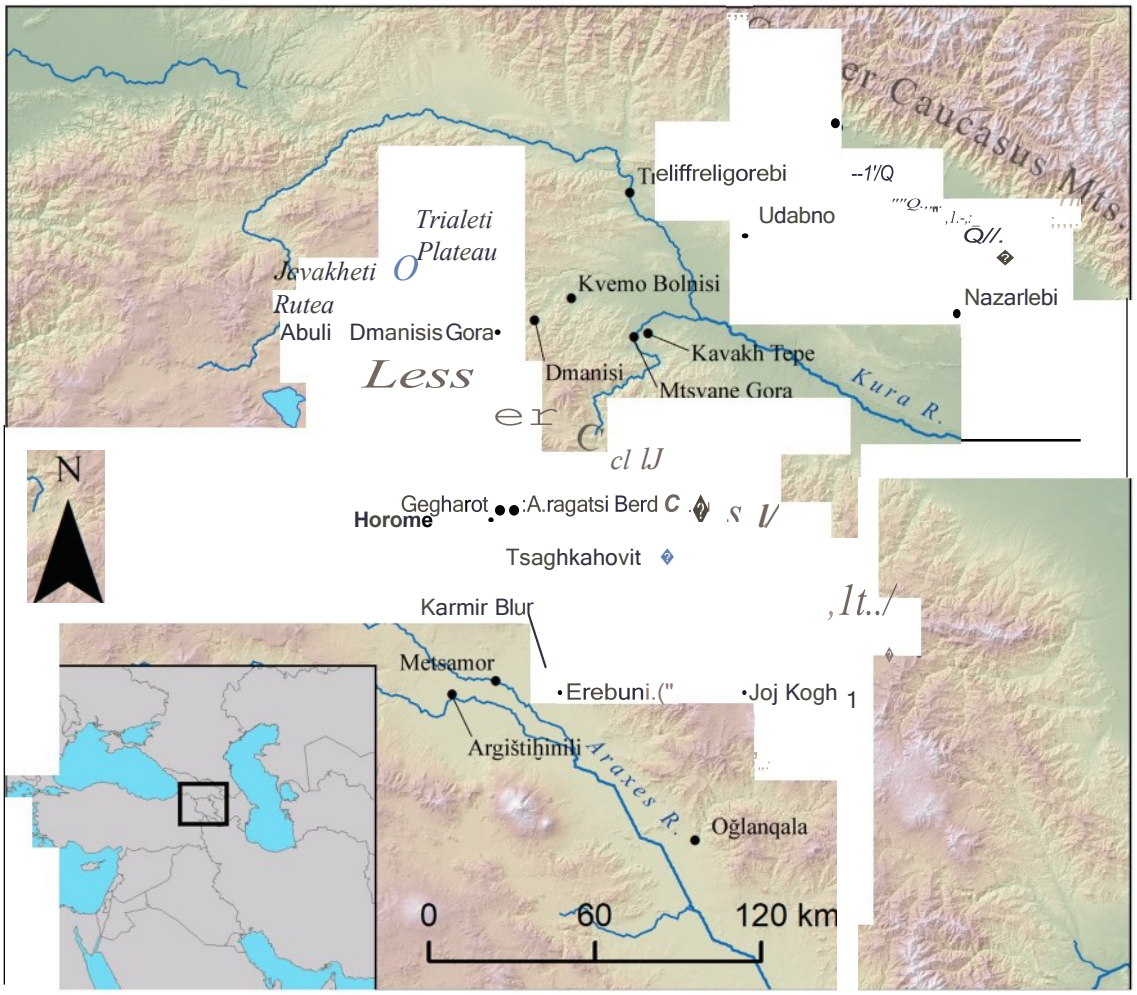


Figure 1. Map of the central South Caucasus, showing sites and locations mentioned in the text.

preceding Middle Bronze Age, habitation sites are found in abundance, often located on well-defended hilltops or promontories.

In the subsequent period, roughly 800-600 B.C., the Kingdom of Urartu, centered around Lake Van, conquered the southern parts of this zone, constructing major fortresses at Argistil}inili,Erebuni,Karmir Blur, and elsewhere. Nevertheless, local material culture remained relatively conservative beyond the walls of U rartian fortresses. Because the presence of Urartian material culture is a major discriminator between Iron I and Iron II assemblages in Armenia (Badalyan, Avetisyan, andSmith 2009), thelack of significant Urartian presence in Georgia means that these two periods are poorly distinguished there, though there are some subtle trends in ceramics and metalworking (Abramishvili 1957; Lordkipanidze 1989, 148-150).

The social and political organization of Late Bronze and Early Iron Age society in the Lchashen-Tsitelgori horizon has been a topic of considerable recent discussion. On one hand, the impressive cyclopean masonry fortresses found in some areas indicate substantial labor management capabilities and perhaps the formalization of sovereignty through the built environment (Smith 2015, 158ff; Smith and Leon 2014). On the otherhand, the evidence for the centralization of regional authority and administrative complexity is relatively weak in comparison with Late Bronze Age societies in Anatolia and Mesopotamia, as well as subsequent Iron Age kingdoms ruling parts of the South Caucasus, like Urartu. While there is evidence that fortresses often drew food and materials from the surrounding landscape, their ability to control the mobile elements of the population may have been tenuous (Lindsay and Greene 2013). Palaces and large dedicated storerooms, features of other more centralized Late Bronze and Iron Age polities in the Near East (e.g. Diffey et al. 2020), have yet to be identified. A large Late Bronze Age building was identified inside the fortress ofTsaghkahovit,butlater Iron Age occupation of the fortress inhibited assessment of its earlier function (Badalyan et al. 2008, 74,76). Where internal structures within fortresses are mapped from surface features, one tends to see agglomerations of smaller rooms and buildings, rather than large ordered structures which might provide clearer evidence of elite residences or administrative buildings (Narimanishvili 2019, 148, 162, 164-165).

First millennium B.C. Urartian texts recording campaigns in theregion mentionkingdoms, royalcities, andkings (Narimanishvili 2019, 98-104). However, Urartian campaign accounts may exaggerate the authority of local "kings" to burnish the reputation of Urartian conquerors, and thepolities mentioned may be more temporary federations rather than centralized kingdoms.

Part of the challenge in resolving these issues is that relatively few fortresses have been excavated, and even fewer have been radiocarbon dated and published in detail. The long-running excavations of the Tsaghkahovit plain fortresses mentioned above are a notable exception, but it remains unclear whether the patterns identified there are representativeof thewholeregion. Indeed, regional variation

is already apparent: cyclopean masonry walls constructed with largeboulders are not found throughout the geographic extent of the Lchashen-Tsitelgori horiwn (Sagona 2018, 379). Detailed investigations of other fortified communities help to clarify the function of these hilltop fortress-settlements and the activities that took place within them, illuminatingpatterns of hierarchy and social differentiation within these societies. The investigation of Late Bronze and Early Iron Age social formulations is especially important because this period sits between the rise in extreme social hierarchy in the Middle Bronze Age and emergence of more clearly delineated kingdoms in the 1st millennium B.C.

The project Archaeological Research in Kvemo Kartli (Project ARKK) was founded to explore the nature of social and technological change during the Late Bronze and Early Iron Age in the borderlands between the Kura (Mtkvari) river lowlands and the Lesser Caucasus highlands (Figure 1). Lowland valleys (200-400 m in elevation) gradually narrow into forested gorges which rise up to open plateau areas ranging from 1200-1400 masl. Mountains rising above these plateaus reach 2500-3000 masl. On both sides of the modem Georgian-Armenian border, the foothills andgorges arerichin ore deposits, including deposits of copper, iron, and gold, with histories of mining and metallurgy stretching back at least to the 4th millennium B.C. (Stollner and Gambashidze 2011) andpossibly as early as the 6th millennium B.C. (Lyonnet et al. 2012, 84).

Theproject is located at the northeastern edge of the distribution of large LBA-EIA cyclopean fortresses, which are common farther south and west, but less so in the Kura and Alazani valleys (Narimanishvili 2019). It is unclear whether this pattern relates to available building materials -the igneous plateaus of southern Georgia and northern Armeniahave abundant volcanic rock outcrops-or is reflective of different modes of social organization. Walled hilltop sites are documented in theKura and Alazani valleys, even if their defenses mostly differ from the cyclopean masonry seen farther south. Indeed, there are many elements of material culture in the Lchashen-Tsitelgori horizon that are shared in both the Kura lowlands and the highlands to the south. These patterns suggest that the Lesser Caucasus foothills are anidealplace to explore interactions that shaped the cultural continuities and boundaries of these borderland areas.

Initial survey work identified many hilltop sites with Late Bronze andEarlyIronAge pottery (Erb-Satullo 2018), reflective of broader evidence for a proliferation of settlement at this time (Lordkipanidze1989, 141; Sagona 2018, 378). Geophysical survey and surface collection on selected sites yielded abundant Late Bronze and Early Iron Age pottery and in some instances revealed the presence of a satellite occupation surrounding the main hills (Erb-Satullo et al. 2019).Excavations of selected sites were undertaken to assess the nature of activities on these sites and chart their evolution over time.

Mtsvane Gora

Site structure and layout

Mtsvane Gora consists of a defensive enclosure (ca. 0.6 ha) on a prominent, isolated hilltop (elevation: ca. 500 masl) in the Debeda valley {Figure 2). Metallurgical slag and large quantities of Late Bronze and Early Iron Age pottery were recovered in systematic survey collection, with little trace of later occupation (Erb-Satullo 2018). A single enclosure wall, most clearly visible in the topography of the northern slope, encircles the entire hilltop. Within the wider settlement landscape, Mtsvane Gora is one of a number of defendedhilltop sites of similar size datingto the LateBronze and Early Iron Age, spaced at relatively consistent intervals along the Debeda Gorge. It is considerably smaller than the nearby site of Kavakh Tepe across the river, which has multiple terraced defenses and a lower settlement (Erb-Satullo et al. 2019).

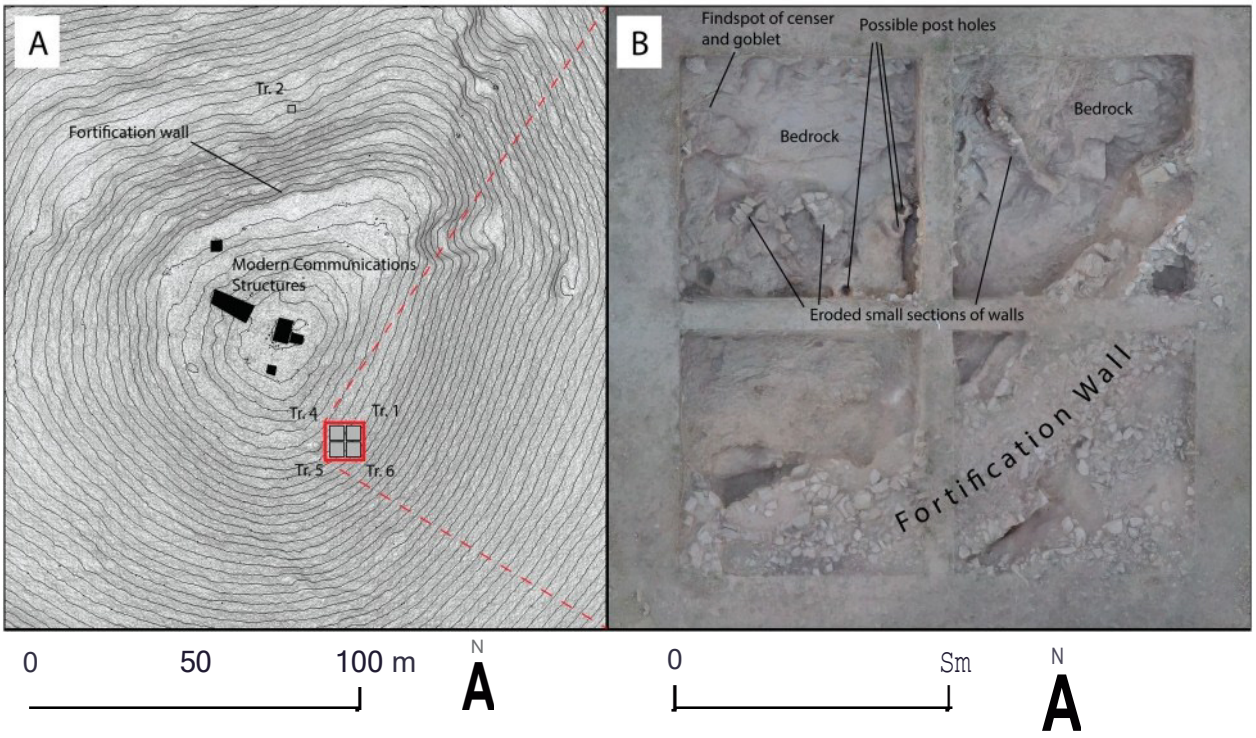


Figure 2. Map of Mtsvane Gora showing excavated areas.

Trenches were opened upslope of the most significant surface concentration of metallurgical slag and just inside the edge of the fortification wall. In addition, a small trench explored one of several shallow depressions visible on the northern slope of the hill, as terrace houses are relatively common in the South Caucasus (Apakidze 1978, 111, 152-153; Kakhiani et al. 2013). Nevertheless, the northern slope test trench yielded no architecture or well-defined habitation surfaces, so the shallow depressions wereprobably the result of much more recent earth-moving activities. While occupation of areas below the main hill has been identified below other fortresses, including just across the valley at Kavakh Tepe {Erb-Satullo et al. 2019; Lindsay and Greene 2013), no such evidence was found at Mtsvane Gora.

Stratigraphy and chronology

Excavations on the southeastern edge of the fortified enclosure encountered substantial quantities of Late Bronze and Iron Age cultural material. Although the use of small stones for construction and the sloping ground meant that preservation of walls was poor, two phases of occupation were identified, one of which had very well-preserved floor surfaces.

The earliest floor surface, corresponding to theinitial construction of the surrounding enclosure wall, was constructed of a packed clay surface overlying a gravelly levelling fill (Figure 3). The fortification wall was roughly 2 m thick and consisted of facing stones and a rubble fill. The size of the stones was variable but much smaller than those typical of cyclopean masonry fortresses to the west and south. The original height of the wall and its effectiveness as a defensive barrier was unclear-it is possible that it may have formed more of a terrace inhibiting movement rather than aninsurmountable obstacle.

A large quantity of flat-lying ceramic sherds was foundon the clay floor, including several complete or nearly complete ceramic vessels, as well as hammerstones made of smooth river cobbles and a cluster of animal bones. Materials on this floor surface were concentrated in Trench 1, but the clay surface extended south and west into Trenches 4, 5, and 6. Charcoal samples collected from two different parts of the floor surface in Trench 1 both yielded radiocarbon dates in the 14th-13th centuries B.C. (Figure4, Table 1).

Hillslope subsidence, visible in tilting stones in the facing of the fortification wallandundulations in the clay floor, may have negatively impacted the preservation of architecture in these areas, which was difficult to delineate. Short linear alignments of stones were observed in several areas,particularly Trenches 1 and 4, but these for the most part did not form coherent structures and were not very substantial. Severalpostholes were notedin Trenches 1 and 4, andapossible post base was identified in Trench 1, but the shape of the overall structure, if indeed there was one, remains unclear. In thenorthwestern corner ofTrench 4, setback against several flat stones and sittingjust above thebedrock, was a set of unusual vessels, including a censer and a goblet. A charcoal sample from near these vessels yielded a calibrated date range in the 15th-14th century B.C.

Evidence of alater phase wasbest documented in Trench 1. In deposits sitting stratigraphically above the earlier floor surface, numerous pieces of metallurgical debris were identified (slags, hammerscale, and vitrified hearth material). A radiocarbon date from these deposits indicated a date in the 8th-6th century B.C. No fragments of metallurgical debris were identified on the earlier floor surface, suggesting that metallurgical activities were restricted to this later phase. Architecture and floor surfaces of this later occupation were unfortunately not well preserved-linear stone alignments and patches of unfired clay were noted

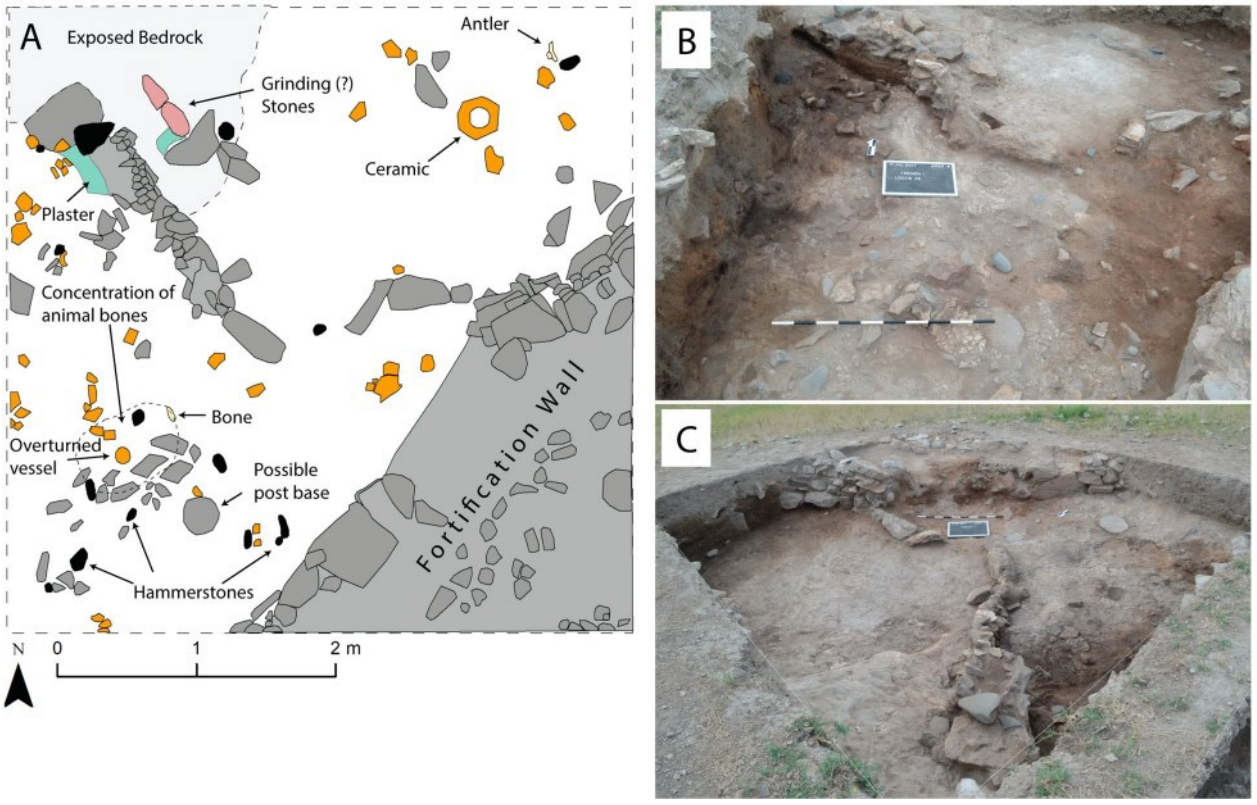


Figure 3. A) Plan and 8-C) photographs of 14th-13th century s.c. floor surface in Trench 1 with hammerstones, ceramic sherds, and manghal fragments.

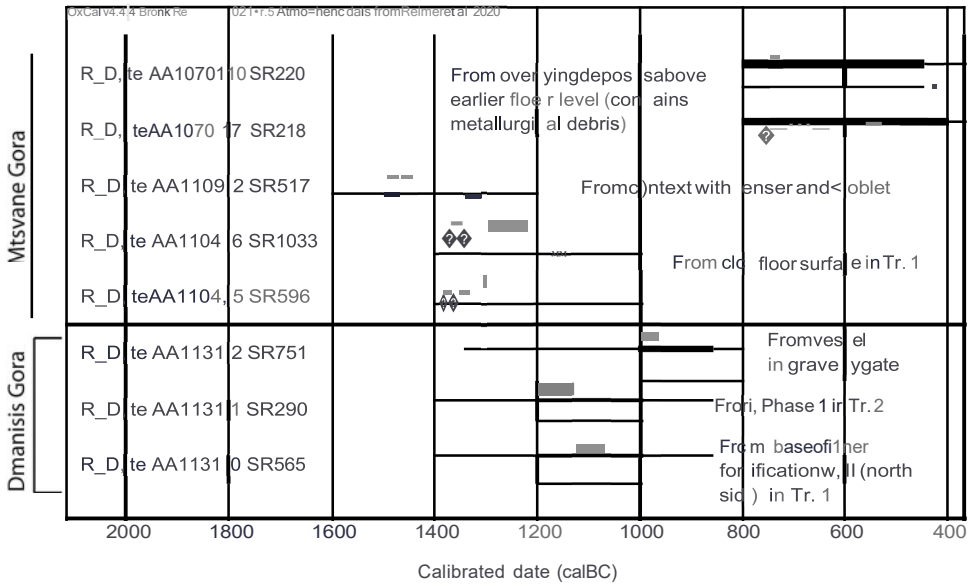


Figure 4. Calibrated radiocarbon dates from Mtsvane Gora and Dmanisis Gora.

in excavation of these deposits, but no coherent structure could be defined.

Ceramics and small finds

Ceramics dating from ca. 1500-500 B.C. in the South Caucasus are often difficult to assign to more specific subdivisions. Settlement assemblages probably include a wider variety of ceramic fabrics (e.g. of cooking vessels) than mortuary assemblages, on which most ceramic chronologies in the Bronze Age Caucasus are based. Secure radiocarbon-dated settlement contexts are therefore especially valuable for developing robust ceramic chronologies that can untangle subtle geographic and chronological variations during this period.

Unfortunately, the lack of well-preserved floor layers in the later phase, as well as the possibility of residual early-phase pottery in later deposits, made it impossible to define a distinct ceramic assemblage corresponding to the 8th-6th century B.C. phase. However, the better preserved remains from the earlier phase yielded a coherent ceramic assemblage of the 15th-13th century B.C. (Figure 5). One notable feature isthat the coloration of ceramics, particularly coarsewares whose soot staining suggest a culinary purpose, diverged significantly from the traditional corpus of black and grey burnished wares most commonly associated with Late Bronze and Early Iron Age contexts. Buff-colored and even reddish-orange colors were observed among ceramics in floor assemblages of unequivocal 2nd millennium B.C. date, a finding with implications for surface surveys relying onundecorated body sherds for dating.Nevertheless, typical black and grey wares were dominant in the assemblage: roughly half of all Mtsvane Gora sherds were unburnished black or grey wares, while a quarter were burnished black or grey wares.

The floor assemblage included large joining pieces of storagejars, as well as severalmedium and small-size bowls and juglets (see Figure 5). Decoration included molded

Table 1. Radiocarbon datesfrom Dmanisis Gora and Mtsvane Gora.The Mtsvane Gora radiocarbon dateswere first published by Erb-Satullo and colleagues (2020, table 1). Minor differences in the Mtsvane Gora calibrated dates compared with the previous publication are due to the use of the newer IntCal 2020 calibration curve.

Lab#	Site	Field#	Context	Material	Uncalibrated Date (RC yrs B.P.)	Calibrated Date (2σ Date Ranges)
AA1070S7	Mtsvane Gora	SR218	Trench 1, deposits containing metallurgical debris, above earlier floor level	Wood charcoal (immature wood, short-lived, possible *Carpinus sp.)*	246S ±22	758-{;78 B.C. (35.1%); 671-465 B.C. (S8.6%);436-422 B.C. (1.7%)
AA107060	Mtsvane Gora	SR220	Trench 1, deposits containing metallurgical debris, above earlier floor level	Wood charcoal (immature wood, short-lived, possible *Carpinus sp.)*	2474±27	768-476 B.C. (94.9¾>); 431-426 B.C. (0.5%)
AA110425	Mtsvane Gora	SRS96	Trench 1, sample on clay floor	Wood charcoal (conifer, possible *Juniperus sp.)*	3026±25	1392-1336 B.C. (25.3%); 1323-1201 B.C. (70.1%)
AA110426	Mtsvane Gora	SR1033	Trench 1, sample on clay floor near base of fortification wall	Wood charcoal (short-lived branch, *Quercus sp.)*	3017±25	1386-1339 B.C. (18.4%); 1316-1196 B.C. (74.2%); 1173-1163 B.C. (1.3%); 1143- 1131 B.C. (1.6%)
AA110922	Mtsvane Gora	SRS17	Trench 4, near censer and goblet (see Figure SH-I)	Wood charcoal (possible *Fraxinus sp.)*	3151 ±33	1501-1382 B.C. (85.8%); 1342-1311 B.C. (9.6%)
AA113110	Dmanisis Gora	SRS65	Trench 1, below rubble on probable surface near base of fortification wall (exterior side)	Wood charcoal *(Carpinus sp.)*	2916±21	1208-1042 B.C. (90.5%); 1036-1017 B.C. (5.0%)
AA113111	Dmanisis Gora	SR290	Trench 2, earlier horizon	Wood charcoal (probable *Quercus)*	2947±22	1225-1054 B.C. (95.4%)
AA113112	Dmanisis Gora	SR751	Trench 3, seed from inside vessel in grave	Domesticated cereal (probable barley)	2797±40	1048-833 B.C. (95.4%)

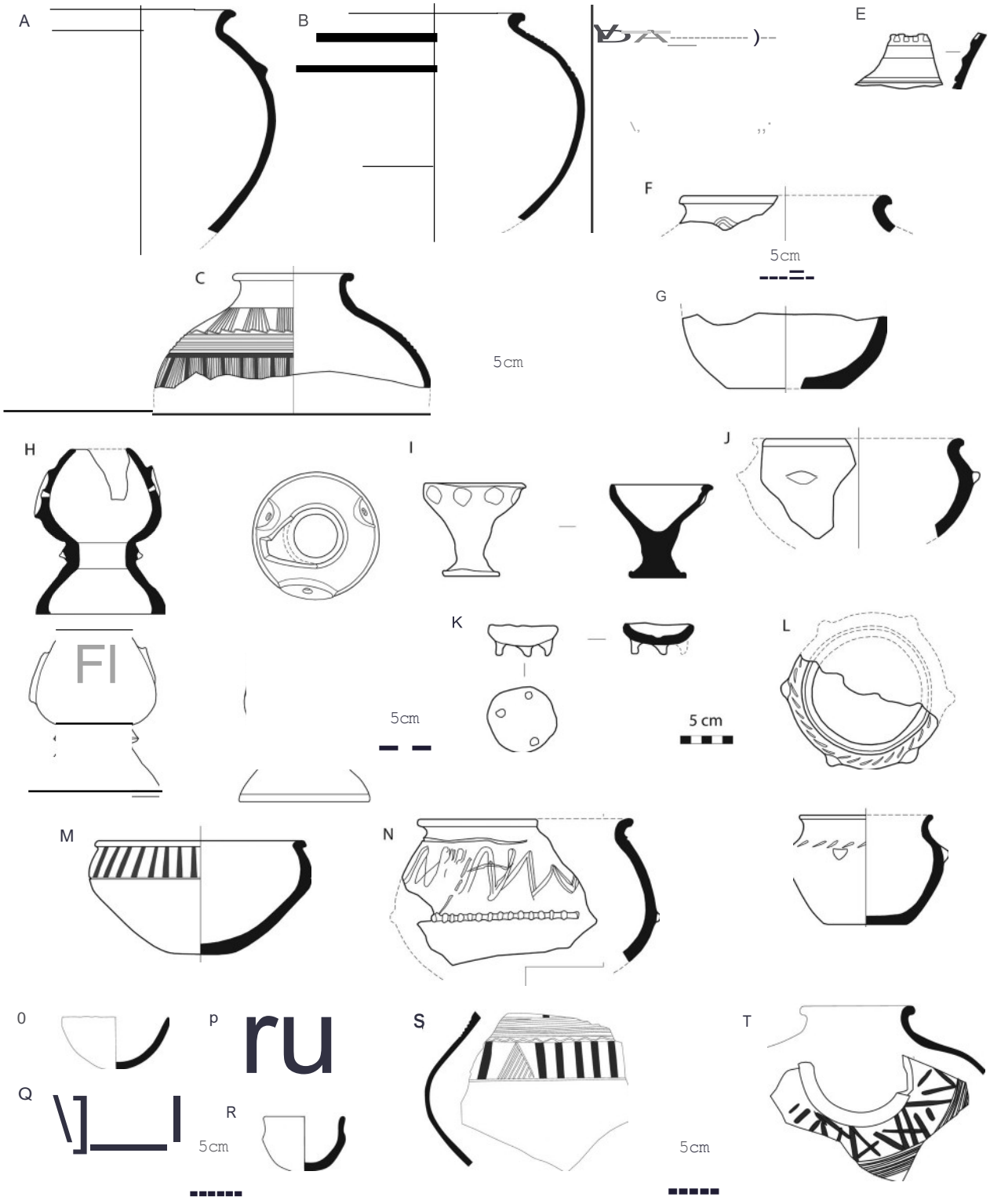


Figure S. Ceramic vessels from Mtsvane Gora. All vessels shown here derive from secure 15th-13th century a.c. contexts, except Q and R.

protrusions, pattern burnishing, and incisedlines of variable precision. Several sherds with wedge-shaped impressions were also identified, though these latter examples were not lying directly on the floor surface. Most vessel shapes and decorative motifs fall well within the expected range of Late Bronze and Early Iron Age pottery.

Nevertheless, several more unusual ceramic objects were also identified as belonging to the earlier phase of occupation. Two roughly-formed miniature dishes, roughly 4-6 cm in diameter were recovered: one, with tripod legs (Figure SK), was found inside a black-burnished bowl (Figure SM) sitting directly on the floor surface. As mentioned above, a conical goblet and probable censer were recovered from a context radiocarbon dated to the 15th/14th B.C. (Figure SH-I). Another unusual class of ceramic materials found in significant quantities on the earlier floor level consisted of thick coarse sherds, mostly light brown to reddish-orangein color with frequent curves, flanges,perforations, and rope-like decoration {Figure6). Partial reconstructions of multiple joining sherds showed that these ceramics belong to an unusual class of objects referred to as "manghals" in sites farther south (e.g. Smith and Leon

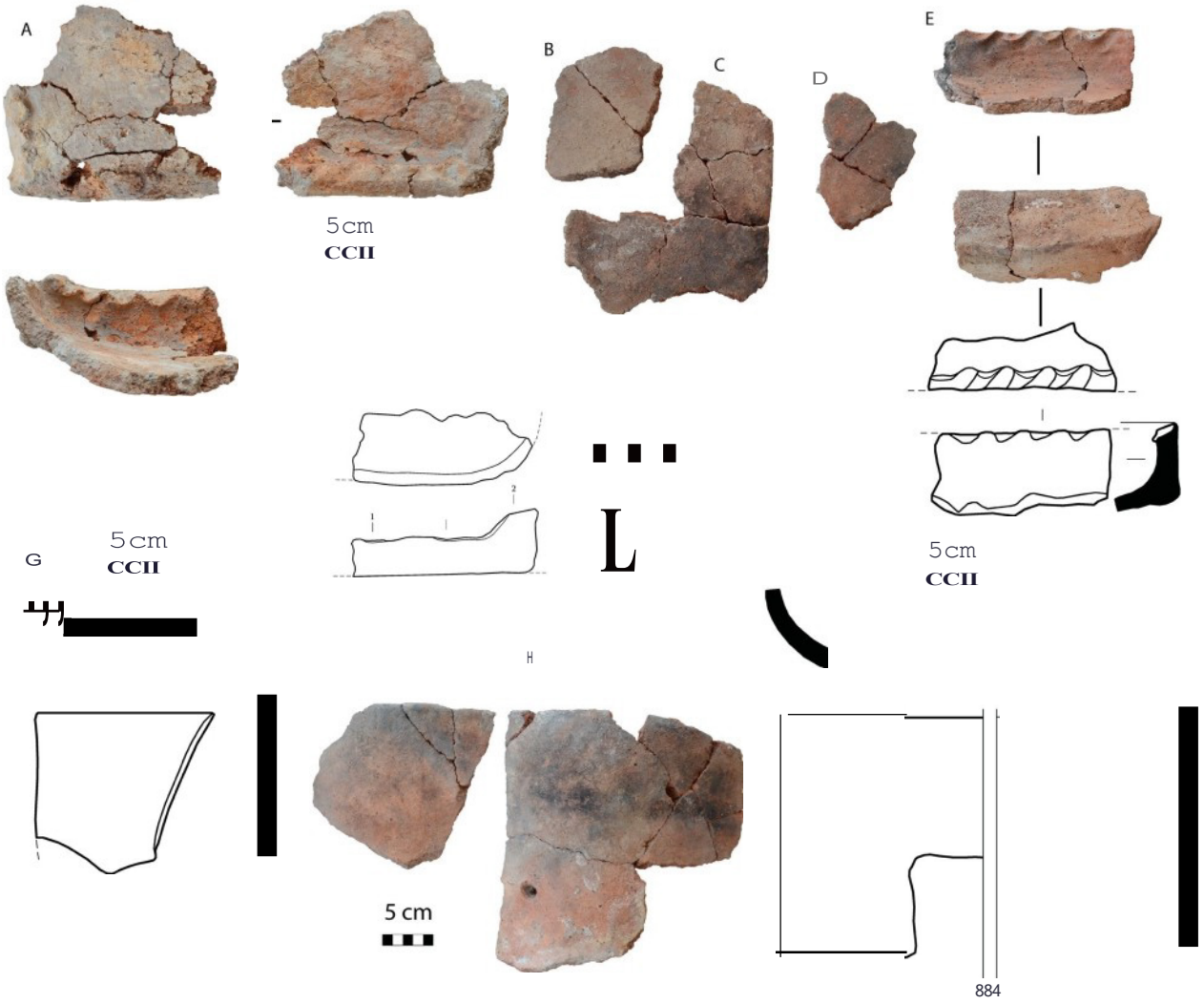


Figure 6. A selection of manghal fragments from Mtsvane Gora.

2014, 553). Their function is unknown, but they were found in shrine contexts at these other sites, suggesting aritual purpose. The objects take the shape of alaterally-flattenedcylinder, with one end entirely open and the other partially enclosed with a flange. Finally, three ceramic stamp seals with geometric patterns were recovered (Figure 7A). The most complete example, found in Trench 4, was reversible, witha cross-decoration on thelarger face and aswastika decoration on the smaller face.

Metallurgical remains

Laboratory analysis of metallurgical remains indicates that the fortified enclosure at Mtsvane Gora housed a secondary metallurgical workshop producing both iron and copper-alloy objects, with evidence of both tin and arsenic as alloying elements (for full analytical details, see Erb-Satullo et al. 2020). Both stratigraphy and radiocarbon dates strongly indicate that these metallurgical remains belong to the later period of occupation at the site, roughly the 8th-6th century B.C. Metallurgical debris includes small cakes and fragments of slag (Figure 7B) and light vesicular pieces of vitrified material-probably fused hearth material and fuel ash-as well as a variety of microdebris, including hammerscale. In addition, surface collection at the site identified a fragment of slagged technical ceramic (probably a crucible) and a fragment of a slagged tuyere tip. The quantity and diversity of debris provide unequivocal evidence for metallurgical activities within the walled enclosure, as the topography precludes erosional redeposition from elsewhere.

Finds of hammerscale-small flakes of iron oxides which flake off iron objects during the forging process-provide strong evidence for iron smithing, a conclusion supported by chemical and mineralogical investigation of the slags, which consist primarily of smithing hearth bottoms. This type of slag forms in the smithing hearthas fragments of oxidized metal combine with heath material, excess slag from unconsolidatedblooms, and other material to form a small cake. The modest quantities of slag are also consistent with smithing, as smelting generally produces much larger amounts of debris.

Interestingly, chemical and mineralogical analysis also indicated the presence of copper-alloy working at the site. The slagged crucible fragment contained tiny prills (droplets) of acopper-arsenic alloy.Many of the smithing hearth bottoms, despite bearing the classic macroscopic and microscopic features of iron smithing slags, are nonetheless contaminated with small quantities of copper, arsenic, tin, and other elements most associated with bronze production. This association indicates that iron and copper working activities were closely integrated at the site, taking place in the same workshops, likely even in the same hearths (Erb-Satullo et al. 2020).

Figure 7. A) Ceramic stamps and BI iron smithing slag from Mtsvane Gora.

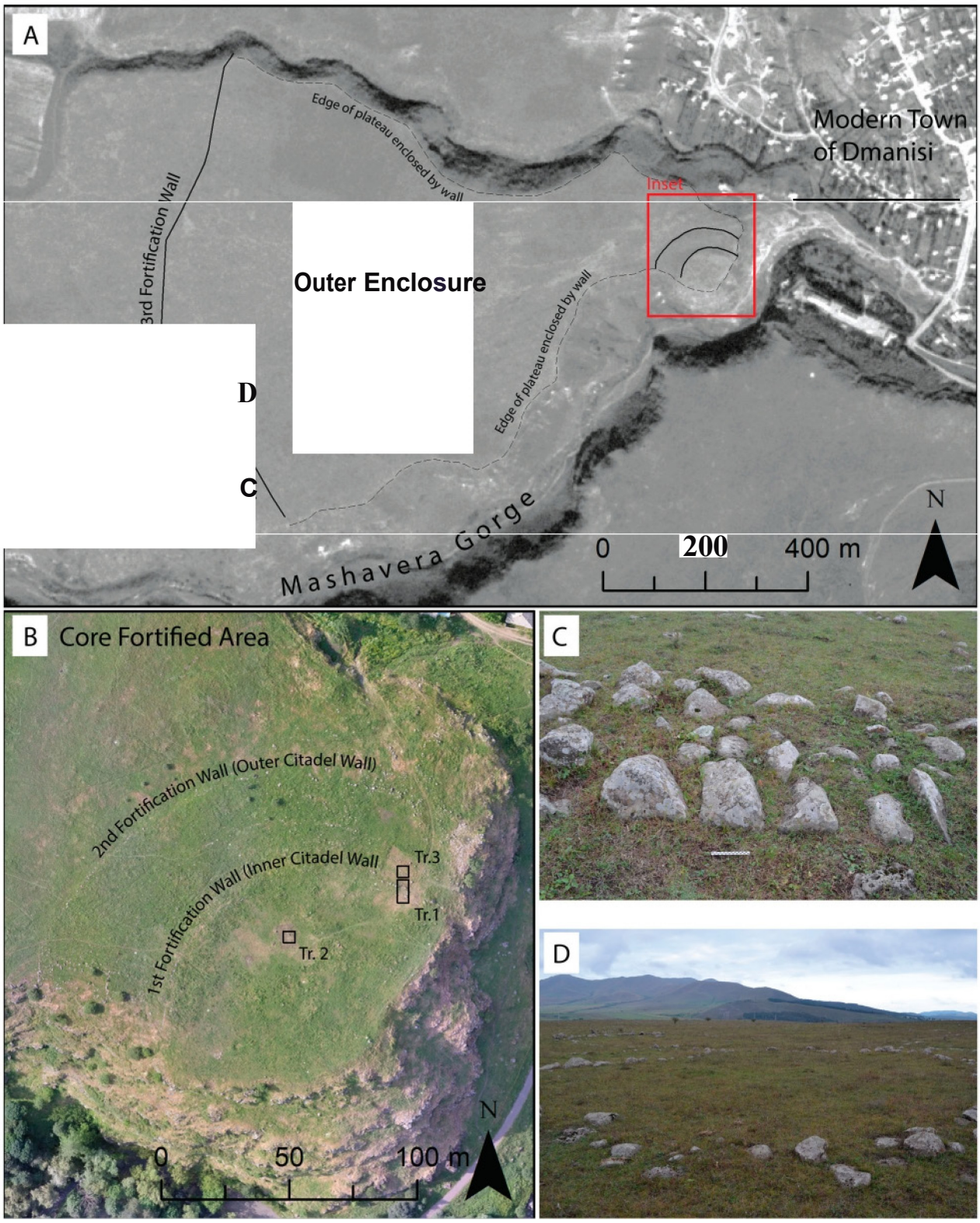
The finds of both copper and iron metallurgical activities link the workshop atMtsvane Gora with the richore-bearing zones in the foothills to the south and west. Significant copper, iron, and gold deposits are found on both sides of the modern Georgian-Armenian border, including major ore mineralizations at Madneuli and Kvemo Bolnisi in the Mashavera Gorge and at Alaverdi in the Debeda Gorge upstream from Mtsvane Gora (Mederer et al. 2014;Nazarov 1966). While smelting clearly took place elsewhere, the links with nearby ore deposits areunderlined by the discovery of a fragment of unprocessed jarosite, pyrite, and sulfur, which likely derived from one of these nearby mineralizations (Erb-Satullo et al. 2020, 8, 12).

Dmanisis Gora

Site structure and layout

Dmanisis Gora (elevation: ca. 1300 masl) is located at the northeastern edge of the highland zone extending west and south. Today, thelandscape consists of mostly treeless grassland plateaus cut by steep-sided gorges. Dmanisis Gora is situated between two such gorges, with the fortress created by walling off the promontory between them (Figure 8). The site consists of a compact defensive core with two major fortification walls. Linear stone alignments and low undulations in the site's topography indicate the presence of architecture within and between the two major fortification walls. A linear alignment of stones, running parallel to and between the two walls, is visible in aerial imagery, but its lack of topographic prominence in contrast to the other two walls suggests it is an alignment of structures oriented to the two larger walls, rather than another fortification wall. The area enclosed in the double-walled core fortified area is approximately 1.5 ha. While the capacity for landscape surveillance is often a noted feature of LBA-EIA fortresses (Earley-Spadoni 2015; Lindsay and Greene 2013, 708), there islimitedvisibility fromthe fortified core towards the south and west, where rising ground obscures the view.

On the plateau behind the citadel area, a third wall, extending about 1000 m from edge to edge on the plateau, encloses a much larger area of about 56 ha (see Figure 8). For comparison, this area is significantly larger than the fortifiedperimeter of the important medieval town and episcopal seat of Dmanisi (14 ha) located just downstream on the Mashavera River (see Figure 1) (Kopaliani 2017). This wall, much more substantial than a simple field boundary, is narrower than the fortification walls of the fortress corebut isof asimilar construction, usinglargebasalt stones without mortar (FigureSC).Numerous circular and linear stone features were observed in the area enclosed by this third wall (Figure 8D). Prior regional surveys mention further fortification walls and structures at the site, covering 82 ha (Narimanishvili 2019, 72-73), but full mapping of these features must await further investigation. A reasonable preliminary interpretation is that the third fortification wall is roughly contemporary with the fortified core. At present, it seems unlikely that the full 56 ha enclosure was densely settled in a continuous urban zone. Long stretches of wall associated with Late Bronze and Iron Age fortresses are known from other areas of the South Caucasus (e.g.Herrmann andHammer 2019),but many aspects of the chronology and function remain unclear. Even if only part of the area enclosedby the third wall at Dmanisis Gora was occupied, it likely ranks as one of the larger fortified complexes in southern Georgia in terms of areal extent (cf. site gazetteer in Narimanishvili



Figures. Map of Dmanisis Gora showing A) extensive outer enclosure defended by a 1 km longforti cation wall andB) core fortifiedarea.Letters on the Corona satellite image in A correspond to the approximate locations of C-D) photographs on the bottom right.

2019). In this sense, it sits at a different position within the settlement size hierarchy than Mtsvane Gora.

Initial investigations focused on the main fortified core area in order to obtain a basic occupational sequence at the fortress and assess its character, distinguishing between a permanent settlement and a temporary refuge. Two trenches (1 and 3) were openedat theinnermost fortification wall, near apossible gate, while another (2) was opened to explore the gentle mounds in the innermost enclosure.

Stratigraphy and chronology

Two clear occupational phases with well-preserved architecture were identified within the fortress compound, a sequence best documented in Trench 2 (Figure 9). The earlier phase consisted of structuresdug slightlybelow the contemporary ground surface, with retaining walls. Semi-subterranean houses areknown from earlier (Narimanishvili and Amiranashvili 2010), contemporary (Bertram and Bertram 2012), and later (Badalyan et al. 2008, 86) periods in

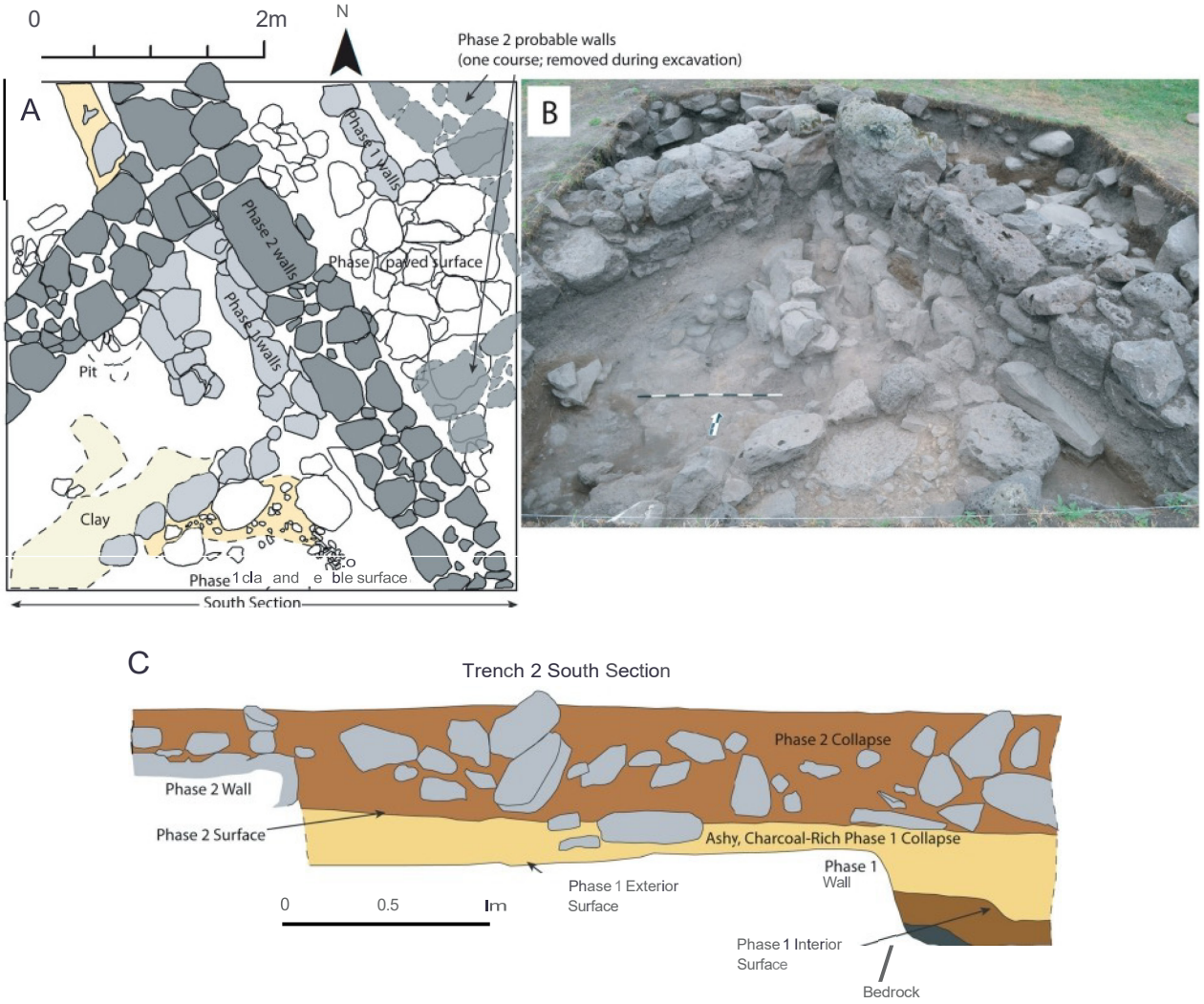


Figure 9. Al Plan, Bl photograph, and Cl south section of Trench 2 excavations, showing two architectural phases with associated floor surfaces.

the region. Comers of two such structures were identified in Trench 2. The (presumably exterior) space between them was paved with flat stones and, in one patch in the southern portion of the trench, a mixture of clay and small cobble-sized stones. Only 1-2 courses of stones are present in the Phase 1 walls, but in places, remains of clay pise-type construction were visible. Ceramics of this phase were characteristic of theLateBronze andEarly IronAge, being dominated by black and gray wares, sometimes burnished. A carnelian bead and bone needle were identified in the small exposure of the structure in the northeastern corner of the trench. Phase 1 deposits consisted of yellowish, soft, ashy sediments. Abundant charcoal was noted in these layers, and a wood charcoal sample from these deposits was dated to 1225-1054 CAL B.C. (95% confidence) (see Figure4, Table 1).

Phase 2 structures sat directly on top of Phase 1 deposits, with the uppermost interface of the Phase 1 destruction/abandonment deposit serving as the floor surface associated with the Phase 2 walls. Phase 2 architecture consisted of robust dry-stone walls which, unlike the retaining walls of the dugout structures of Phase 1, seem to have been free standing. Large quantities of stone rubble were encountered in the Phase 2 collapse, suggesting walls built entirely or almost entirely of stone. Ceramics from this phase were largely similar to those of thepreceding phase, though preliminary examination gave the impression of slightly higher frequencies of buff and reddish-brown fabrics. As the Phase 2 collapse is effectively at modern day ground surface level, low frequencies of possibly post-Iron Age ceramics were identified as well. Unfortunately, we did not identify any charcoal samples that could be securely linked with the Phase 2 floor surfaces, as opposed to the uppermost parts of the charcoal-rich Phase 1 abandonment/destruction deposits. Given the overall character of the Phase 2 ceramic assemblage and the lack of any significant hiatus between Phase 1 and Phase 2, we provisionally assign Phase 2 structuresto theIron Age,probably in the first half of the 1st millennium B.C. Occasional finds of fabrics atypical for the Iron Age possibly indicate later activity, but one would expect a much more substantial post-Iron Age ceramic assemblage if the Phase 2 structures were themselves later.

Excavations near the innermost fortification wall (Trenches 1 and 3) confirmed the presence of a gate, the southwestern corner of which was identified within the bounds of Trench 1 (Figure 10). Wall stones visible at the surface to the east of Trench 1 suggest that the gate was approximately 3 m wide. Better preserved examples of cyclopean fortress gateways in southern Georgia are covered with massive stone lintels (Narimanishvili 2019, 141, 157), but these other gates areusually only 1-2 m wide, so it is not certain whether thewider Dmanisis Goragate would havebeen covered. The fortification wall isroughly 4.5 m thick and is constructed with a facing of large boulders and an interior filled with smaller stones. It is preserved to a maximum

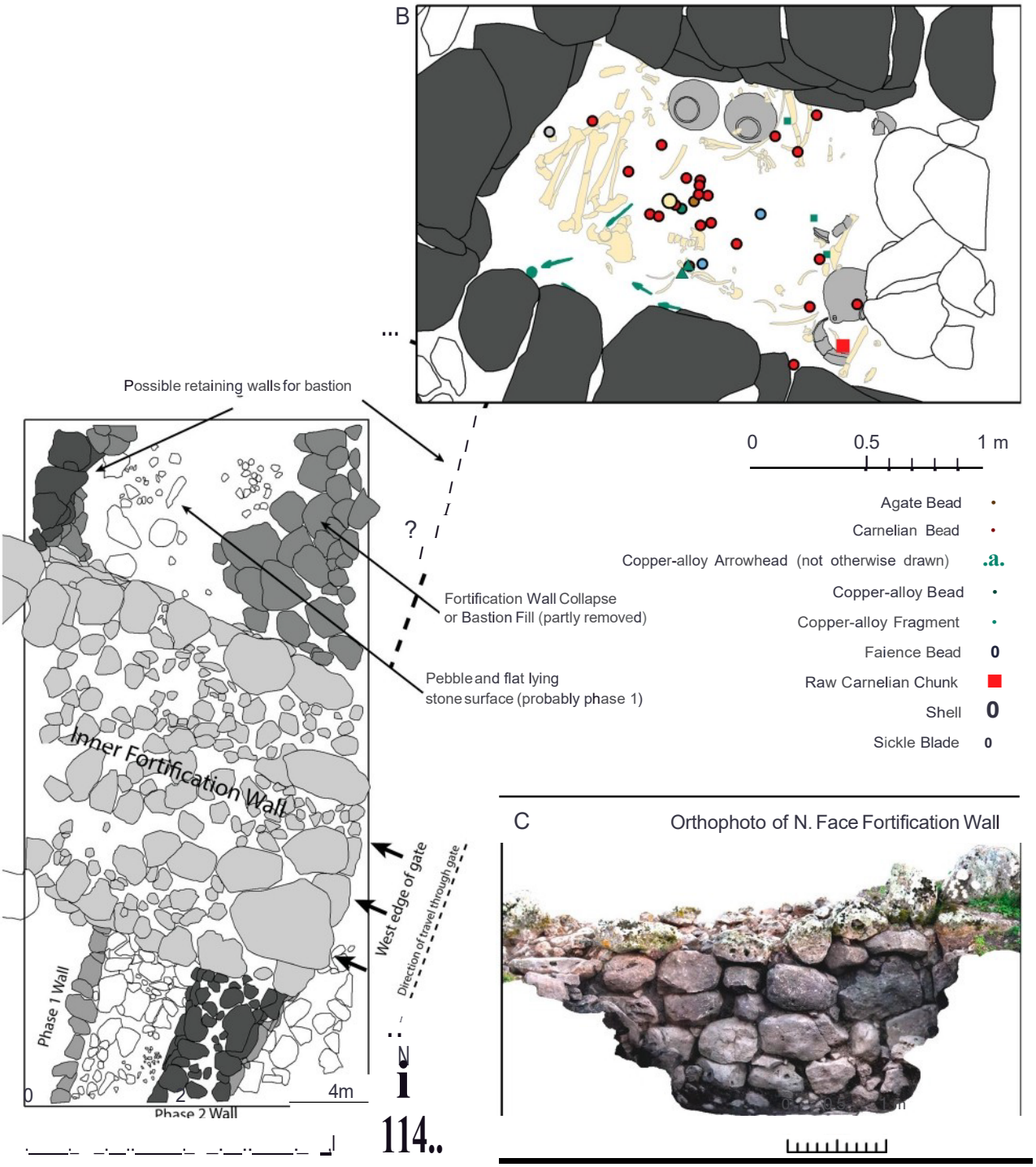


Figure 10. Excavationsat the gatecomplex in the innermost fortification wan, including A) a plan ofTrenches 1 and 3, B) a detail of the Early IronAgegrave, and C) an orthophoto of the northern face of the fortification wan in Trench 1.

height of about 2.5 m, including aportion that extends above the modern ground surface. The original wall was probably much higher. At Abuli, a well-preserved fortress far from recent settlements that might use the site for building stone, walls of similar thickness to those at Dmanisis Gora arepreserved to heights of 5-7 m (Narimanishvili 2019, 64).

On the interior side of the gate, a wall running perpendicular to the main fortification wall was identified, constructed of robust dry-stone masonry similar to the Phase 2 structures in Trench 2. This wall had an associated floor level consisting of yellowish sediment, which appeared to be the collapse of the earlier phase. As in Trench 2, Phase 1 appears to consist of a stone-paved, probably exterior surface. Moreover, excavations in the southwestern corner of Trench 1 exposed the edge of what appears to bea semi-subterranean structure similar to those of Trench 2. Thisline of stones was oriented perpendicular to the main fortification wall, but the interior of this structure was not excavated. While further stratigraphic confirmation isnecessary, atpresent it seems that this Phase 1 structure isbuilt against the large fortification wall, suggesting that the inner fortification wall dates to the earliest phase of settlement.

Several aspectsof the gate structure were difficult to resolve given the size of the wall relative to the excavated areas. Specifically, it is unclear whether the large amounts of rocky rubble on the outward-facing (northern) side of the fortification wall are simply collapse from the main wall or rubble fill for a protruding bastion, the facing stones of which extend

outside the bounds of the trench (seeFigure 10). Part of this rubble was removed (in the northwestern corner of Trench 1), exposing large facing stones on the northern face of the main wall {Figure IOC). This could indicate either that the boulders north of the wall facing are indeed collapse or that the bastion was added after this initial facing was complete. Several large stones were visible on the surface outside the excavated areas but aligned with the gate opening, which might indicate the presence of facing stones for a bastion. Stone alignments in Trench 3 might also support the bastion hypothesis, but confirmation requires expansion of the excavated areas. A radiocarbon sample taken from beneath the rubblein thenorth of Trench 1, close to thebase of the fortification wall, froma surface ofpebbles and flat-lying stone gave a calibrated radiocarbon date range mostly in the 12th-11th century B.C., similar to the Phase 1 radiocarbon date from Trench 2 (see Figure4, Table 1). While the oldwoodproblem is acknowledged as a potential issue with these samples (no alternatives were available from these contexts), the correspondence between them supports the stratigraphic indications from the other side of the wall that the main fortification wall dates to the earliest phase of settlement.

Early Iron Age grave

Trench 3 was opened late in the season to resolve questions related to the bastion but very quickly uncovered an Early Iron Age grave consisting of a stone-lined rectangular cist inhumation aligned to the fortification wall and positioned such that anyonepassing through the gate wouldhavepassed directly by it. Some skeletal elements were disturbed after burial: one radius was found protruding from a ceramic vessel, the mandible was fractured in two parts found in different parts of the grave, and the cranium was out of position, stratigraphically abovemuch of therest of the skeleton. Oddly, however, other parts of the skeleton and many grave goods remained undisturbed and indicated that the deceased originallylay flexed on their right side. Grave goods included carnelian, copper alloy, faience, andpossibly glass beads (the only example of the latter being completely corroded), a shell, a ca. 6 cmchunk ofunworked raw carnelian, eight copper-alloy arrowheads, anda copper-alloy pommel or finialof uncertainpurpose withperforations around the edge {Figure 11). Very similar metal artifacts, including pommels and arrowheads, were recovered in earlier excavations on the Trialeti plateau, just to the north (Kuftin 1941, 75, 309, 311). Three complete, whole vessels were found, along with one nearly complete but broken vessel and large sherds of another. Fauna! remains, including large ribs, were also found, and probably represent additional food offerings. A domesticated cereal seed (identified as probable barley) from one of the vessels gave a calibrated radiocarbon date of 1048-833 B.C. (95% confidence), a date consistent with the vessel forms. This date is slightly later than the two

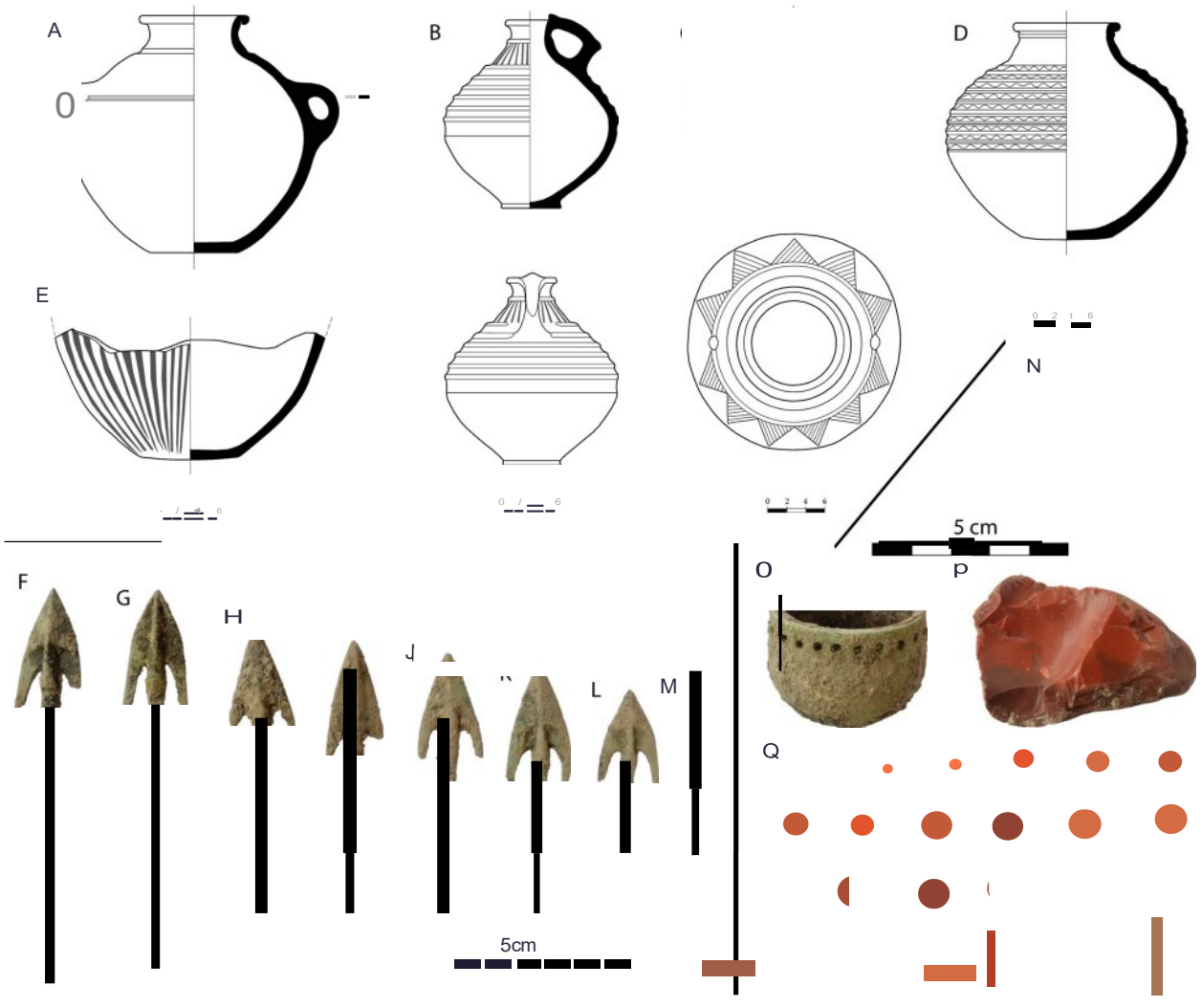


Figure 11. Selected grave goods found in the Early Iron Age grave outside the innerm ost gate in the fonific:ation wall.

other radiocarbon dates from the site-thePhase 1 deposit in Trench 2 and the wall base date from Trench I-though it is important to note that only the seed date is on a short-lived sample. Stratigraphically,however, the grave sits close to the modern ground surface and well above thebase of the fortification wall, suggesting that the gravepostdates the very earliest settlement of the site. As no clear stratigraphic distinction between Phase 1 and Phase 2 has been identified outside the innermost fortress wall, it is not yet possible to comment on the precise chronological relationship between the grave and the Phase 2 architecture on the interior side of the wall.

Ceramics and other finds

Most ceramics from Dmanisis Gora (nearly 75% of the > 2800 sherds processed so far) consist ofblack andgrey ceramics, some of them burnished, that are characteristic of the Late Bronze andEarly Iron Age. Much of the remaining ceramics consist of sherds with variably colored buff to reddish brown fabric, some of which were burnished. Preliminary observations suggest that the proportion of this latter seems to increase slightly in the later phase of the site, a shift which is noted elsewhere when comparing Iron Age II/III ceramics toIronI andLateBronze Age ceramics (Lordkipanidze 1989, 149). Two fabricswhich are likely post-Iron Age in date, both found in very small quantities(< 1% each) are ahighly fired,buff, relatively fine ware and ahighly fired orange ware. Most of these later fabrics were found in Trenches **1** and 3, near the fortification wall in the upper levels of these trenches. No glazed wares, regular features of Medieval ceramic assemblages in the region (Kopaliani 2017), even at village sites (Franklin, Vorderstrasse, and Babayan 2017), were identified. Based on these observations, it islikely that any post-Iron Age occupation of the site was fairly limited in scope. The massive stone fortification walls would have been an attractive refuge for centuries after its abandonment, so it is not surprising to find hints of later occupation. At present, however, this occupation is too ill-defined to characterize.

Worked antler and bone, including an antler object with incised lines and carved triangle decoration, a bone needle, and a hemispherical, lathe-turned bead or applied decoration, were also found during excavation (Figure 12). The

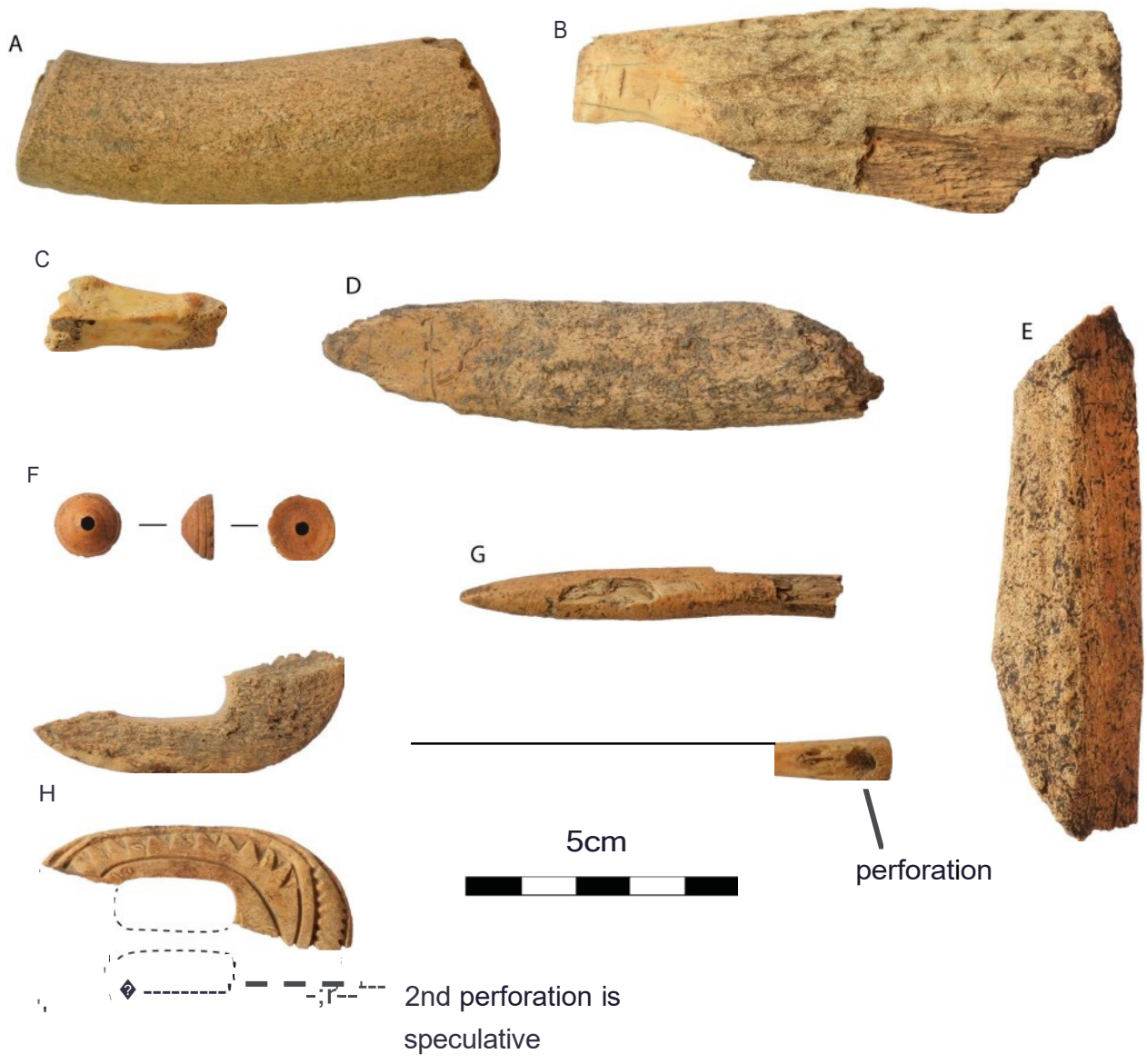


Figure 12. Worked antler andbone fragments from Trench 2at Dmanisis Gora,induding partially worked pieces andnearly finished objects.ItemsE-G come from Phase 2 contexts; the rest come from Phase 1.

vast majority of these items were recovered from Trench 2, indicating that thisdebris is not uniformly distributed across the site.Most workeditems derive fromPhase 1 contexts,but not exclusively so: the hemispherical decoration and alarge antler fragment were recovered from Phase 2. Assuming the incised decoration on the decorated antler piece was symmetrical, it is possible that it had two oblong holes and may have functioned as a buckle to secure cloth or leather straps (Figure 12H). While antler pieces with perforations and chop marks were also found at Mtsvane Gora, to our knowledge, the delicately carved antler buckle has no known parallels. The concentration of worked bone and antler materials in Trench 2, including finished or nearly finished items and more partially worked items, suggests the possibility that bone and antler carving activities took place either within or close to the structures identified in Trench 2.

Paralleling the finds of numerous beads in the grave, we recovered two carnelian beads, one small blue faience bead, and one apparently unglazed frit bead from the settlement contexts. Beads of various materials are well known from Late Bronze and Early Iron Age contexts across the South Caucasus (Kvachadze and Narimanishvili 2016). Faience and other vitreous materials (often described as "paste") appear in the South Caucasus from the Middle Bronze Age (Zhorzhikashvili and Gogadze 1974, 65-66, 70), but they arenot well studied from a technological or provenance perspective, making it difficult to assess their relationship with the vitreous technologies of Mesopotamia and Egypt.

Discussion

Excavations at Mtsvane Gora andDmanisis Gora documented substantial Late Bronze and Iron Age occupations. The resultsof fieldworkprovide insight into the threeintersecting aspects of fortress communities: their spatial structure and character, the role of craft production, and ritual practices.

Fortress structure and spatial order

Though the sites are of similar date, the structure and spatial order of Mtsvane Gora and Dmanisis Gora differ significantly. Mtsvane Gora's single enclosure wall is less than half the thickness of Dmanisis Gora's innermost fortification wall and is constructed of far smaller stones. Even without considering the enormous outer enclosure at Dmanisis Gora, its double-walled core is more than twice the size of the enclosed area at Mtsvane Gora. Stone-built fortresses with large cyclopean masonry walls like those at Dmanisis Gora are largely restricted to areas to the south and west of the study area.Fortified hilltops with terraced systems of fortification are known from the Kura and Alazani lowlands to the north and east (Bukhrashvili et al. 2019; Erb-Satullo et al. 2019),but these generally do not make such extensive use of massive boulders. Nevertheless, the substantial terraforming of hilltops in the lowlands would also have required a considerable amount of labor.

The outer enclosure of Dmanisis Gorahas only just begun to be mapped, so observations must remain preliminary. Long stretches of wall, often articulating with Late Bronze or Iron Age fortresses are known at Joj Kogh-1 and Armavir/Argistil}inili in Armenia and Oglanqala/Qizqalain Azerbaijan (Biscione, Hmayakyan, and Parmegiani 2002; Hammer 2014; Herrmann and Hammer 2019). Definitive dating evidence is lacking for theselong walls, and theirpresumed Late Bronze or Iron Age dates rely on their articulationwith fortresses ofknown dates. Some, suchas that at Joj-Kogh 1, do not appear to physically enclose space, while at Oglanqala/Qizqalathepictureis more complicated. Multiple partial stretches do form a broad arc around the twin fortresses, andgeophysical surveyhas documented the continuation of the wall into the fertile plain, but the known segments cover only a fraction of the putative full circuit (Herrmann and Hammer 2019). Regardless of whether these walls formed a sealed enclosure, the perimeter seems far too long to be defended against concerted attack, and no one has argued that enclosures were fully occupied by residential structures across their whole area. At Dmanisis Gora, the line of the wall and the steep sides of the ravine form a clearly defined enclosure, but the length of the perimeter here alsoposes difficulties for defense, unless the resident population was muchlarger than currently envisioned. A range of intended functions is possible, from controlling movement to protecting livestock from predators or lightning raids, and these walls need not havebeen ahard defensive perimeter akin to a city wall (Herrmann and Hammer 2019, 673). One possibility is that these larger enclosures served as temporary protection for mobile pastoralists. The continued existence of a significant mobile pastoralist population in the Late Bronze Age has been inferred due to the mismatch between the large numbers of burials identified on survey relative to the much smaller areas of known LBA-EIA settlement (Smith 2015, 162).

One key result from excavations at Dmanisis Gora and Mtsvane Gora is evidence of substantial occupation within these fortified compounds, suggesting established communities rather than periodically occupied refugia. Population mayhave ebbed and flowed with the seasons,but occupation here was probably not episodic. At Dmanisis Gora, the sequence of robust architectural phases built one directly on top of the other hints at apermanent place of settlement, and the evidence of stone features within, between, and beyond two walls of the inner fortified core suggests a community of some size, even if it is unlikely that the whole area enclosed by the outer wall was filled with structures. At Mtsvane Gora, interior architecture was poorly preserved, but the thousands of ceramic sherds, carefully prepared clay floor surfaces, and evidence for varied metallurgical and ritual activities allpoint to amore permanently occupied fortress.

A central key questionin the study of South Caucasus fortresses is whether they were highly centralized seats of elite authority or communities with a flatter social hierarchy. Within the impressive walls of Late Bronze and Early Iron Age fortresses, excavations have found surprisingly little evidenceof elitestructures orcentralizedadministrativesystems. The fortress at Gegharot, for instance, contained no fewer than three separate, relatively small shrines in an area less than 1 ha (Smith and Leon 2014, 552-553). Assuming that some of the shrines were in operation simultaneously,2this arrangement suggests that the religious authorities directing flows of materials and animals to the sitewere at least partly heterarchical.In thislight,it isworth drawingparallels to fortified communities in the Andes, where external threats contributed to the development of fortified communities that contain only muted evidence for social hierarchy (Arkush

2017). This is not to suggest that Late Bronze Age society in the South Caucasus lacked any social stratification.However, it is increasingly clear that the social order differed significantly from both the preceding Middle Brome and later Iron Age, periods where material culture and, in the latter case,written inscriptions, place emphasis onindividual authority and rulership.

The modest horizontal exposures at Mtsvane Gora and Dmanisis Gora make it difficult to assess administrativecentralization in the economic and social life at these sites. The good architectural preservation at the latter, however, holds promise for understanding the internal spatial and social structure through further fieldwork. Comparisons between areas within and beyond the fortress walls will allow us to resolve key questions about the relationship between the institution of the fortress and its associated settlement.

Crafting activities

BothMtsvane GoraandDmanisis Gorayielded traces of craft production. Clear evidence ofironandbronzemetallurgy was foundatMtsvaneGora,while probable evidence forboneand antler working wasatDmanisis Gora. These findsparalleland reinforce evidence for craftproduction at other sites andindicate that fortresses were important centers of production in their own right and not simply receivers of goods produced elsewhere. Jewelry molds and small ladles or crucibles were foundatLateBronze AgeGegharot andAragatsiBerd(Badalyanet al. 2008,71;2014, 189;Smith2015, 168-711),while furnaces, slags, and other production debris were identified in excavations at Metsamor (Khanzadyan, Mkrtchyan, andParsamyan 1973; Mkrtchyan et al. 1967).

The locating of crafting activities within fortified compounds implies an interest in controlling or protecting both craftspeople and their products. However, it would be premature to ascribe thelocus of that control to ahighly centralized fortress elite, the material signature of which has proven elusive, or to assume that all types of craft production were organized in the same way. For instance, although the nature of the pyrotechnological activities at Metsamor remain unclear, and some processes produce far more archaeologically visible waste than others, it seemsprobable that production at Metsamor occurred at a fairly significant scale, given the quantities of slag reported and the number of furnaces excavated. By contrast, metallurgical remains at Gegharot and Aragatsi Berd consist of modest assemblages for the production of small items. Likewise, the quantities of slag at Mtsvane Gora also suggest arelatively small scale of production.

The emergingpicture of fortress communities is that they were important mediators in LBA-EIA economic networks -systems that are just beginning to come into focus. Many fortresses are clearly situated and constructed with defense in mind, but the economic and religious roles of these communities seem to have been equally as important to their political power as their military function. The destinations of craft goods produced in these fortresses remain unclear at present; they may have been destined for a wider regional or interregional market, or they may have served primarily to meet the needs of those resident in the fortress itself. Research has documented the flows of animal products and ceramics into LBA-EIA fortresses from the surrounding countryside (Lindsay et al. 2008),but theextent to which these were reciprocated material exchanges or unidirectional tributary obligations remains unclear. N onetheless, the evidence for craft production suggests that material production was an important aspect of the fortresses' role as social and political institutions.

Ritual practice

The material assemblage at Mtsvane Gora has strong affinities with assemblages found in shrine contexts at Gegharot andMetsamor (Khanzadyan,Mkrtchyan, andParsamyan 1973; Smith and Leon 2014). While none of the stamp seals at Mtsvane Gora came from a radiocarbon dated floorlevel, their association withmanghals andcensers elsewhere reasonably associates them with these other materials. The physical space in which ritual activities took place is not as well defined as at Gegharot, but the patches of ashy material, clusters of animalbone, the manghal sherds lyingin situ on clay floors, and the intentional placement of censer and goblet against the stone facing in Trench 4 all suggest that these rituals took place either in this space or very close by.

The strongest parallels to theMtsvane Goraritual assemblage come from the south, but elements of this ritual assemblage are present in the Kura lowlands to the north. Stamp seals (often speculated to be for marking bread) similar to those found at Gegharot and Mtsvane Gora are regularly found at sites in eastern Georgia (Bukhrashvili et al. 2019, 2020; Kunze 2017), and globe-headed, conical-bodied censers arereported from agrave at Trell (Lordkipanidze 1989, 144). Manghals, of a slightly different shape from those at Gegharot, are also reported from the large building at Treli (G. Bedianashvili, personal communication 2022). In some parts of eastern Georgia, however, quite different kinds of shrines have been found at Shilda and at Nazarlebi (Bukhrashvili et al. 2019; Maisuradze and Inanishvili 2006). No manghals are reported from the shrine at Shilda (Maisuradze and Inanishvili 2006), and none were found in the newly excavated shrine atNazarlebi (Bukhrashvili et al. 2020; S. Arnhold, personal communication 2021). Unlike the shrinesat Gegharot andMetsamor, the Shilda andNazarlebi shrines are circular structures and are notable for their very large deposits of metal artifacts (> 1200 at Shilda).

It might be tempting to link the ritual assemblages at Mtsvane Gora with the metal production debris, given the well-documented association between metallurgy and ritual globally (e.g. Budd and Taylor 1995; Schmidt and Mapunda 1997) and,more locally, the finds of jewelrymolds in ashrine context at Gegharot and in apit with manghal fragments at Aragatsi Berd (Badalyan et al. 2008, 71; 2014, 189). However, the direct association between metallurgy and ritualpractice is not supported by the stratigraphy atMtsvane Gora. Abundant manghal fragments are founddirectly on the 14th-13th century B.C. floor surface, and the censer also comes from a context radiocarbon-dated to this earlier phase. In contrast, metallurgical debris is notably absent from the earlier floor levels(Erb-Satullo et al. 2020). Manghal fragments do appear in deposits stratigraphicallyabove the14th-13th centuryB.C. floor, but the lack of well-defined floor assemblages means that they may be earlier materials mixed into later levels. Most likely, the ritual assemblages and metallurgical debris belong to different phases.

At Dmanisis Gora, the placement of a grave aligned with and just outside the gate, but inside the second wall, also carries important symbolic meaning. It remains to be seen whether this grave is isolated or one of many in this part of the site. In general terms, gates in the ancient Near East are carefully ordered monumental spaces (see e.g. Curtis and Tallis 2008; Herrmann 2017; Manuelli and Mori 2016), and graves closely associated with fortress gates are well documented in the Aegean Bronze Age (Hubert 2016). In the Aegean case, these graves are often found singly or in pairs and often serve to underline the importance of the individual through their placement in a prominent position.

To our knowledge, such close spatial articulation between a grave and a gate at Dmanisis Gora is unique in the South Caucasus, though very few gate complexes in LBA-EIA cyclopean fortresses have been excavated. While aspects of the occupational sequence in the space between the two fortification walls remain unclear, it is fairly clear that the inner fortification wall predates the grave, so the positioning and alignment of the latter must have been intentional. Late Bronze and Early Iron Age cemeteries are typically located outside fortresses, but usually some distance away (Badalyan and Smith 2017; Kuftin 1941, 65).

In relation to other Late Bronze and Early Iron Age graves in the South Caucasus, the burial inventory at the Dmanisis Gora grave is not particularly exceptional, a pattern which differs from gate-associated graves in the Aegean (Hubert 2016, 68). As noted above, many items have strong parallels with other graves excavated in the region. Perhaps the most unusual item is the chunk of raw carnelian, but this alone is far from enough to mark the individual as particularly high status. Nonetheless, placement of the grave in such a way that anyone passing through the gate would have passed by the grave suggests some measure of significance, though not necessarily high status.

The grave at Dmanisis Gora is not the only instance of Bronze Age mortuary complexes in the Caucasus sited with special attention to avenues of access. Middle Bronze Age kurgans in Trialeti (also in southern Georgia) are known for their long processional ways paved with stones (Narimanishvili 2009). Though the modest Dmanisis Gora grave differs in crucial and fundamental ways from these long processional ways and the large, richly furnished Middle Bronze Age kurgans, we note here the same interest in constraining and directing the movement of people around mortuary spaces. In both cases, the association between monumentality, mortuary space, and directed movement is potentially significant, given that the cyclopean fortress largely displaced the kurgan as the largest, most impressive monumental structures in the landscape during the Late Bronze Age. While there are indications that Late Bronze Age societies rejected the most extreme forms of social hierarchy seen in the Middle Bronze Age (Erb-Satullo 2021), it is possible that the patterns seen at Dmanisis Gora may represent an echo or reformulation of these earlier traditions. Clarity on these issues, however, must await further excavations in this part of the site.

Conclusion

Excavations at Dmanisis Gora and Mtsvane Gora reveal important aspects of life in fortress communities in the South Caucasus, providing data relating to craft production and ritual practice. Abundant ceramic assemblages and radiocarbon dating revealed multi-phase occupations at both sites, spanning the second half of the 2nd and first half of the 1st millennium B.C. As relatively few of these fortresses have been excavated and radiocarbon dated, the data from Project ARKK excavations at these two sites furnish valuable comparanda for understanding regional variation and chronological change in these communities.

Evidence for craft production (metallurgy and bone/antler carving) at both sites aligns with evidence from other sites and suggests that crafting activities were often carried out within fortress walls. Questions of control and administration of production remain to be clarified, however. Elsewhere, evidence for highly centralized elite administration of these fortresses is limited, and the case for elite centralization is largely predicated on assumptions about the labor coordination required to build monumental cyclopean walls. Possible modes of craft production range from attached specialists supervised by religious or political authorities to independent producers making items for a broader market. The interpretation hinges on the question of whether fortress interiors are restricted, elite spaces and on the relationship between residents of the inner and outer enclosures at fortified settlements like Dmanisis Gora.

A key element of contrast between the two sites is site size and defensive construction. Dmanisis Gora's cyclopean construction with multiple defensive walls is emblematic of fortress-building traditions to the south and west, while fortified sites in the Kura valley adhere to different architectural traditions, possibly influenced by the available building materials. Dmanisis Gora's size, if the outer enclosure is included, put it on the larger end of the spectrum of fortress sizes, but the spatial organization and chronology of these outer areas have yet to be explored.

Ritual activities were clearly central to political legitimation in fortress communities, as illustrated by the ritual assemblage at Mtsvane Gora, which strongly parallels those at shrine sites farther south (Smith and Leon 2014). Such activities could have served to legitimize the power of a centralized elite, if indeed power was concentrated in that way, or that of the corporate institution of the fortress itself, if power was organized in a more distributed manner.

The placement of a grave just outside the gate to the innermost compound at Dmanisis Gora clearly represents an intentional symbolic act, though one whose interpretation is difficult to assess, given the lack of local parallels and the lack of excavated gate complexes in the region so far. While noting several other cases in the Bronze Age Caucasus of directed movement of people around mortuary complexes and monumental structures, we refrain from further speculation about the meaning of this placement at present.

As a whole, research on Mtsvane Gora and Dmanisis Gora extends our understanding of regional variability and commonalities within the broader cultural horizon of the central South Caucasus region in the 2nd and 1st millennia B.C. The importance of the period derives in part from its chronological position between the resurgence of more settled lifeways after the Middle Bronze Age and the appearance of larger, historically attested polities in the 1st millennium B.C. While the exploration of the social and political organization of these fortress sites is an ongoing subject of research, the work so far indicates that they were multifaceted sites that engaged in a range of activities and served

multiple functions. Research on these sites contextualizes Late Bronze and Early Iron Age society on its own terms, rather than placing them uncritically into evolutionary sequences of state formation. Within a global context, the work highlightshow fortressesaremultivalent communities with dimensions that extend beyond questions of defense and control. Cyclopean walls and other hilltop defenses loom largein fortress research,both figuratively andliterally, but there is considerable merit in looking beyond this one aspect to develop a genuine understanding of how these communities functioned.

Endnotes

1. For instance, was an existing settlement fortified or did a settlement grow around a fortress?
2. At a minimum, all date to the Late Bronze Age, and the excavators suspect that all date to stratum 2b, 1264-1186 B.C. (A. Smith, personal communication 2022; Manning et al. 2018).

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Geolocation Information

Mtsvane Gora: 41.282437°N, 44.787227°£; Dmanisis Gora: 41.327885°N, 44.189831°£.

Notes on Contributors

Nathaniel Erb-Satullo (Ph.D. 2016,Harvard University) is aLecturer in ArchaeologicalScience at theCranfieldForensic Institute,CranfieldUniversity. Heis aco-director of Project ARKK,with specialinterestsin the archaeology of technology and innovation, spatialanalysis, and archaeomaterials research.

Dimitri Jachv/iani (M.A. 2015, Leiden University) is aResearch Scientist at the Otar Lordkipanidze Archaeology Institute, Georgian National Museum. He is aco-director of Project ARKK and hasinterestsin landscape archaeology and the archaeology of the Bronze and Iron Age in the South Caucasus and theNear East.

ORCID

Nathaniel L. Erb-Satullo G http:l/orcid.org/0000-0001-6463-3120

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