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In search of Tabal, central Anatolia: Iron Age interaction at Alişar Höyük

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Abstract

Trajectories of social complexity following socio-political collapse have provided fertile ground for new theoretical and methodological perspectives in archaeology. Here we investigate ceramics from the site of Alişar Höyük, a settlement that was likely part of the Iron Age polity of Tabal. Best known from Assyrian texts, Tabal emerged in central Anatolia after the Late Bronze Age Hittite collapse, but its structure and operation remain enigmatic. Excavated in the 1920s and 1930s, a large sample of ceramics from Alişar has since been curated at the Oriental Institute, University of Chicago. Using multiple perspectives on this Middle Iron Age ceramic sample, we explore the political and economic structures at this site in terms of its interaction sphere. Our results suggest that if Alişar was part of Tabal, by the Middle Iron Age this polity was highly intra-regionally integrated, competitive and heterarchical.

Özet

Sosyo-politik çöküşü izleyen toplumsal kaos, arkeolojide yeni teorik ve metodolojik bakış açıları için verimli bir zemin sağlamıştır. Bu çalışmada, Tabal'ın Demir Çağı yönetiminin bir parçası olması muhtemel bir yerleşim yeri olan Alişar Höyük'teki seramikleri araştırmaktayız. Orta Anadolu'da Geç Tunç Çağı Hitit çöküşünden sonra ortaya çıktığını Asur metinlerinden iyi bildiğimiz Tabal'ın yapısı ve işleyişi hala gizemini sürdürmektedir. 1920'li ve 1930'lı yıllarda yapılan Alişar kazılarında bulunmuş seramik örneklerinden oluşan geniş bir koleksiyon, halen Chicago Üniversitesi'ndeki Oriental Institute'ta korunmaktadır. Orta Demir Çağı'na ait olan bu seramik örnekleri üzerinde çoklu perspektifler kullanarak, bu yerleşim yerindeki politik ve ekonomik yapıları etkileşim alanı açısından araştırmaktayız. Sonuçlar, Alişar'ın Tabal'ın bir parçası olması durumunda, Orta Demir Çağı'na gelindiğinde, bu yönetimin bölge içinde oldukça bütünleşmiş, rekabetçi ve heterarşik olduğunu göstermektedir.

Historically, archaeologists interested in cultural transformation of complex societies have focused on the emergence of novel institutions and polities (e.g., Childe 1925; Cohen, Service 1978; Service 1975). In the late 1970s and 1980s, interest turned to themes of political and societal collapse (Eisenstadt 1988; Tainter 1988; Yoffee 1988). Most recently, archaeological focus has shifted to examining cultural transformations after the collapse of the earliest cities and states (McAnany, Yoffee 2009; Schwartz, Nichols 2006). However, understanding post-collapse societal transformations and addressing these more complex themes requires appropriate case studies to better define relevant archaeological data and methods. Here we investigate an iconic Anatolian archaeological site of central Anatolia – Alişar Höyük – as one such case study, on the margins of a historically well-attested but little-understood political territory, the polity of Tabal in the Middle Iron Age (ca 900–?700 BCE; Bryce 2012; Genz 2011). The evidence from Alişar documents a cultural transition, the re-emergence of social complexity after the collapse of the Hittite Empire. Developing a better sense of political and economic practices in such interstitial places and periods will enable us to better define political and economic organisation of re-emergent polities.

Until recently, knowledge of the Iron Age in inland Anatolia was dominated by archaeologically prominent sites like Gordion and Ayanis that have situated our understanding of this period in the historical polities of Phrygia and Urartu (Çilingiroğlu 2011; Roller 2011; Voigt 2011; Zimansky 2011). The limited historical data do not always sit conformably on the material record, describing events in Anatolia either contemporarily but from afar – e.g., from northeastern Syria – or from places distant in both time and space – e.g., Classical Greece (Hawkins 1982; Sams 2011). Over the last few decades there has been a change in perspective as archaeological investigations of the central and eastern Anatolian plateau slowly repopulate these Iron Age landscapes.

Phrygia and Tabal are the two main historico-political entities of the Anatolian plateau in the Middle Iron Age (Gunter 2012; Hawkins 1982). Although the extent of Phrygia, with its capital at Gordion, remains ill defined, the location and territorial extent of the polity of Tabal is even more ambiguous and controversial (d'Alfonso 2012; Simon 2017; Summers 2009). The Kızılırmak (Halys River) is often identified as a likely landscape boundary separating the two polities (fig. 1) (Summers 1994; 2013).

In this paper, we explore an archive of excavated Iron Age ceramics from within this Iron Age boundary zone. The site of Alişar Höyük was excavated in the late 1920s and early 1930s, and provided a large corpus of ceramics now held at the Oriental Institute, University of Chicago (Schmidt 1933; von der Osten 1937). Our analysis is part of a larger research programme of the Anatolian Iron Age Ceramics (AIA) project concerned with interaction and exchange during the Iron Age in central and western Anatolia (Grave et al. 2008; Grave et al. 2009; Grave et al. 2012; Grave et al. 2013; Grave et al. 2014; Grave et al. 2016; Kealhofer et al. 2009; Kealhofer et al. 2010; Kealhofer et al. 2013; Kealhofer et al. 2022). To explore the complex landscape of cultural interaction around Alişar through the Middle Iron Age we use compositional analysis of 287 pottery sherds from Alişar and 22 sediment samples from the local region. We compare these analyses with results from three other sites investigated by the AIA project (nearby Çadır and Kerkenes, and more distant Kaman Kalehöyük [fig. 1]). Our goal is to evaluate the political and economic dynamics of central Anatolia in relation to ideas about the nature of Tabal's political organisation during the re-emergence of societal complexity in the Middle Iron Age.

Background

Following the early 12th-century BCE collapse of the Hittite Empire, groups across Anatolia reorganised in highly diverse ways (d'Alfonso 2020). In western Anatolia, new patterns of settlement and material culture are conventionally interpreted as evidence of in-migrating

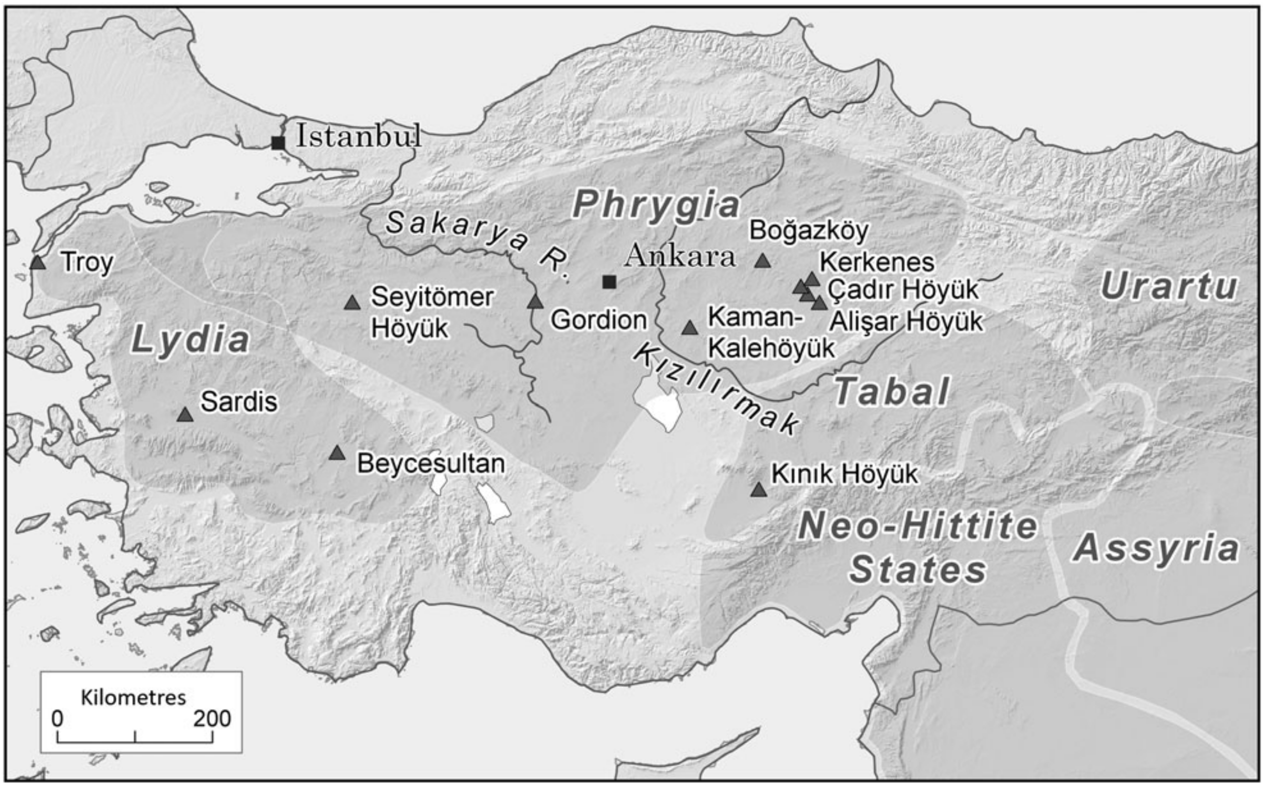

Fig. 1. Map of Alişar Höyük in central Anatolia and other sites mentioned in the text, with reconstructed Middle Iron Age polities (Kim Newman with revisions).

populations occupying a relatively passive and malleable cultural landscape (Sams 1995; 1997). In south central Anatolia, local groups are understood to have maintained some Hittite strategies of empowerment, particularly evident in forms of language and architecture (e.g., at Kınık; d'Alfonso et al. 2020). However, settlements within the former Hittite heartland appear to have developed some of the most varied and complex post-collapse responses (e.g., the more dramatic changes at Boğazköy [Genz 2004; 2006] compared to those at Çadır Höyük [Ross 2010]). Iron Age Alişar, while perhaps more modest than its Late Bronze Age predecessor, nonetheless developed into a substantial fortified settlement with a lower town (von der Osten 1937).

Tabal

Information on Tabal comes almost entirely from textual sources. References to Tabal and its kings, with Luwian names, first appear in Assyrian records in the ninth century (837 BCE, the era of Shalmanezer III [d'Alfonso 2012; Hawkins 1982: 394]), and Assyrian records continue to reference Tabal until the seventh century BCE (Gunter 2012). Limited material evidence from within the vaguely defined Tabal territory has also hampered progress in defining the political extent, organisation and wider sphere of influence of this polity. Archaeologically, sites that show continuity in occupation from the Late Bronze Age to the Early Iron Age have as yet not been used to advance understanding of the nature or impact of the emergence of Tabal or other central Anatolian polities in the ninth century BCE.

Zsolt Simon (2017) recently reviewed the archaeological, linguistic (Luwian) and historical (Assyrian) evidence for Tabal. Beyond discussion of the nature of its political organisation, he highlights its territorial extent as a central controversy, specifically whether areas within the bend of the Kızılırmak (including Alişar) were within Tabal's territory (Genz 2011; Hawkins 2000). Assyrian texts are largely inadequate for evaluating Tabal's political boundaries. If the extent of Tabal is linked to the distribution of the Luwian language (Luwian inscriptions and names from within the bend of the Kızılırmak in the eighth century, including from Alişar) then this region appears to have been within the geopolitical extent of Tabal. However, Erik van Dongen (2014) suggests that Phrygians, with their capital at Gordion in central western Anatolia, extended control as far east as the region within the bend of the Kızılırmak (see also Matsumura 2005). Geoffrey Summers (1994) suggested that the distribution of Alişar IV style ceramics is a good archaeological proxy for the territorial extent of Tabal, in line with his argument that the distribution of Grey Ware (identified with Phrygian Gordion) maps onto the political footprint of Phrygian hegemony (Summers [2013] noted this relationship needed further study). If its extent is marked by pottery styles, such as Dark-Painted Geometric-Monochrome Ware (see discussion below), then the territory of Tabal would appear to extend well beyond its conventionally defined area from the southern foothills of the Pontic to the Taurus Mountains. Based on multiple strands of evidence, Simon (2017) concludes that it is likely that some part of the region within the bend of the Kızılırmak was part of Tabal. If so, then the location and chronology of Alişar would firmly place it within the territory of this polity.

A further uncertainty is whether the name 'Tabal' refers to a geographic region, akin to 'central Anatolia,' or to a historico-political entity. From textual evidence, Lorenzo d'Alfonso (2012) argued that the meaning of Tabal changed several times. Initially, Tabal appears to denote a region controlled by a loose political coalition. For example, after conquering Que (Cilicia), Shalmanezer moved north to conquer the '20 kings of Tabal' (Hawkins 1982). At a later point, Tabal is seen more as a consolidated entity or polity. Repeated Assyrian military campaigns in this region were required to maintain its subject status. By the late eighth century the region appears to have reverted to a loose political grouping with multiple rulers who swore 'tributary oaths' to Sargon II (Hawkins 1982: 417). At least in one case, Sargon attacked a king of Tabal, Kikki, in 718 BCE for not providing tribute. Related ongoing regional conflicts through the late eighth century BCE involved Phrygians shifting their allegiance between the Assyrians and Carchemish (Hawkins 1982: 418). The eighth-century BCE Middle Phrygian polity also occasionally allied with the Assyrians against the rulers of Tabal (Hawkins 1982: 421–22). In 705 BCE, Sargon was killed while campaigning in the region. By the seventh century BCE, Tabal is no longer referred to in Assyrian records. As kings of Tabal appear to be in control in 675 BCE, this absence seems to reflect a lack of Assyrian engagement in the region (Hawkins 1982: 426–27) rather than the dissolution of the polity of Tabal. Reference to the last known king of Tabal is dated to ca 640 BCE (Simon 2017), marking its political decline from the mid-seventh century, coinciding with waning Phrygian power further west at Gordion, the eastward expansion of Lydia (Kealhofer et al. 2022) and the establishment of the fortified hilltop town of Kerkenes near Alişar (Summers, Summers 2013).

In sum, the limited archaeological, linguistic and textual evidence has allowed multiple and competing interpretations of the territorial scale, organisation and duration of Tabal. While resolving such issues will require more work across inland central Anatolia, here we argue that Alişar is at least representative of settlements at or near the margins of this polity. Therefore, ceramic data from Iron Age Alişar provide a measure of the organisation of production in this context, as well as its place within the larger regional interaction sphere. We suggest that patterning in this dataset allows us to address the scale of political complexity of Tabal, either as a single political unit or as a complex of smaller interacting polities. Characterising the interaction sphere of this polity contributes baseline data for a broader understanding of post-collapse, re-emergent polities across this region.

The site

Alişar is located on the central Anatolian plateau, ca 45km southeast of the modern provincial centre of Yozgat and ca 30km south of the modern town of Sorgun (fig. 2). The site consists of a ca 30m-high mound with lower terraces and multiple nearby tumuli. On its south flank is a lower terrace whose walls enclose a ca 18ha area (Gorny 1990). In the 1920s, the site was explored by researchers from the University of Chicago's Oriental Institute (OI), who investigated it as a provincial Hittite settlement with the potential to establish a Late Bronze Age stratigraphic sequence.

Alişar was excavated from 1927–1932 by Hans Henning von der Osten (1937) from the OI, as well as Erich Schmidt and Kurt Bittel (Gorny 1990) (fig. 3a). Additional small-scale excavations were undertaken by Gorny in the early 1990s (Gorny 1994; 1995). The site included phases from the Chalcolithic to the modern Turkish period, with few apparent hiatuses in occupation. Although the Chalcolithic levels appear to be substantial (Gorny 1990; Martino 2014; von der Osten 1937), the main focus of excavations was on the Hittite levels of the Late Bronze Age. The post-Hittite, referred to as 'Phrygian', phases were published in 1937 with a contribution by Bittel on his excavations of the high mound or citadel. While excavation and recording methods improved over the excavation seasons, from unmapped 'plots' to a grid system, insufficient attention was given to contextual information that could associate pottery with architecture or features (Gorny 1990: 10–11). For example, sherds catalogued with grid location and depth lack links to specific excavation contexts (e.g., von der Osten 1937: 385).

The final Hittite occupation ended at Alişar in a site-wide destruction level, including the terrace fortification walls. The post-Hittite, or Iron Age, levels (IVa-c M) are considerably less substantial than those of earlier phases, although the largest post-Hittite level, phase IV, produced over 3m of deposit (fig. 3b). The earliest identified Iron Age occupation is preserved on the high mound (phase 1/IVc), with more sparse evidence on the lower terrace (phases 2-3/IVb-a). The later phases include a fortified zone on the

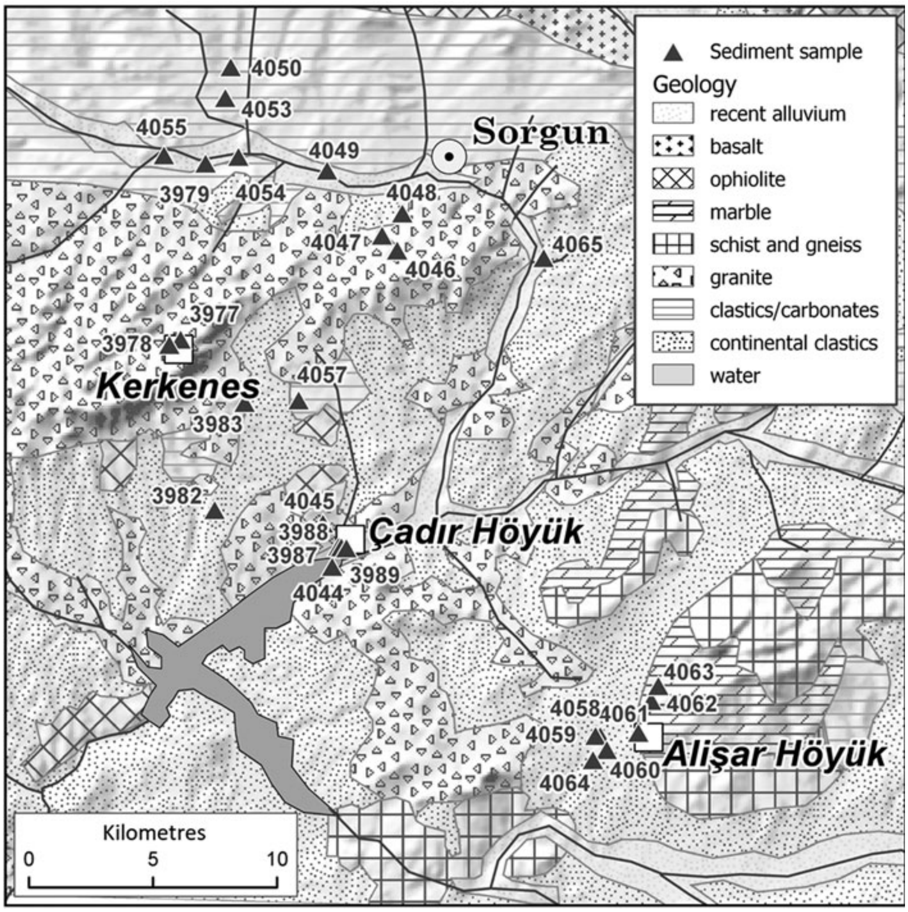

Fig. 2. Geology in the area near Alişar Höyük with locations of sites (boxes) and sediment samples (numbered triangles) (map by Ben Marsh; source data, Erentöz 2002).

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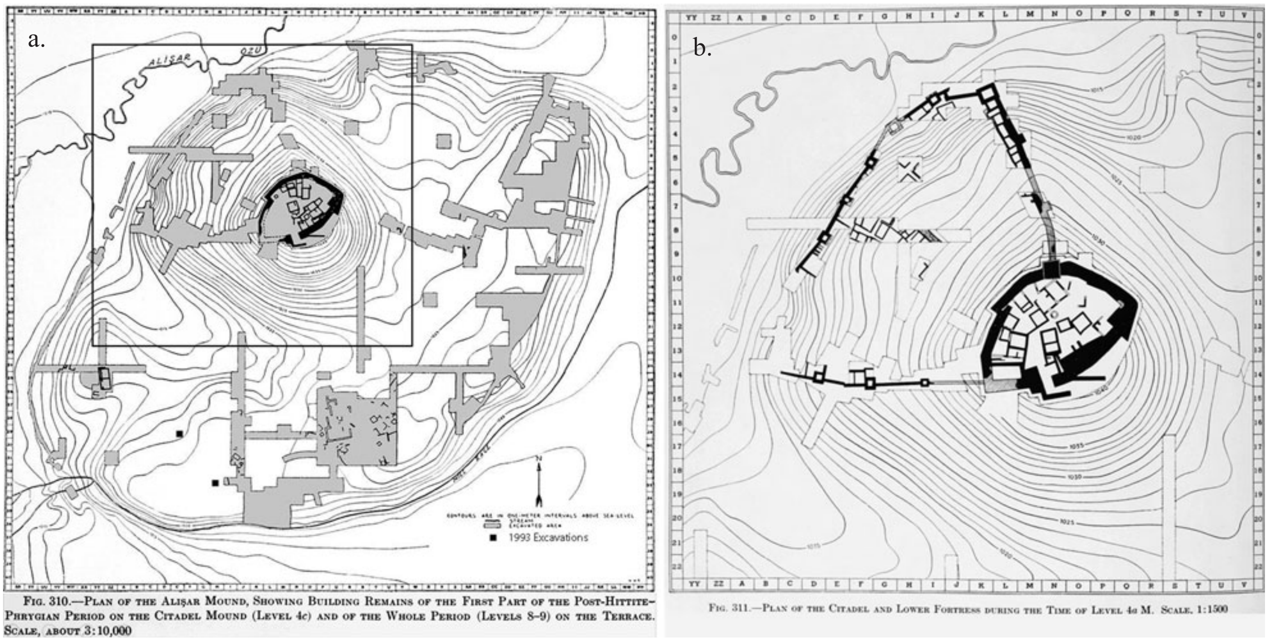

Fig. 3. Alişar site maps: a. areas excavated by von der Osten and by Gorny in 1993 (adapted from Gorny 1990; von der Osten 1937: fig. 310); b. IVa partial plan, extent shown as box in 'a' (von der Osten 1937: 288, fig 311). Courtesy of the the Oriental Institute, University of Chicago.

	Regional periods	*Gordion phases*[1]	*Boğazköy*[2]	*Alişar Höyük*[3]
1180–900 BCE	Early Iron Age	Early Iron Age YHSS7B and 7A	Early Iron Age	IVc ?
900–800 BCE	Middle Iron Age	Early Phrygian YHSS 6B and 6A	Middle Iron Age	IVb ?
800–700? BCE		Middle Phrygian YHSS 5C		IVb ?
ca 700–600 BCE	Late Iron Age	Middle Phrygian YHSS 5B	Late Iron Age	IVa ?
?600–540 BCE		Middle PhrygianYHSS 5A	Late Iron Age?	V
540–330 BCE	Achaemenid Period	Late Phrygian YHSS 4	(hiatus?)	

Table 1. Iron Age dates and phases, and related phases at Gordion, Boğazköy and Alişar (see Genz 2011; Kealhofer et al. 2019; von der Osten 1937: 463). [1]based on Kealhofer et al. 2019, Kealhofer et al. 2022, Rose, Darbyshire 2011; [2]Genz 2004; [3]based on von der Osten 1937:463; Oriental Institute Publications XIX & XX.

western terrace with the more densely settled areas adjacent to the circuit wall (von der Osten 1937: 339). Excavations encountered at least two levels of Iron Age building construction in the adjoining Lower Town.

Von der Osten (1937: 339) attributed the earliest Iron Age phase (Early Iron Age, ca 12th–ninth century BCE) to Luwian speakers responsible for the downfall of the Hittites and saw the two later phases of IV as contemporary with the Phrygians (that is, ca ninth–sixth century BCE; table 1). Comparisons of the Alişar ceramic assemblage with those from more recent work at Iron Age Boğazköy and nearby Çadır suggest a hiatus at the site in the Early Iron Age, if not earlier (Bossert 2000; Genz 2004; Ross, Steadman et al. 2019; Summers 2009). The 'Phrygian' Iron Age levels at Alişar therefore may be no earlier than the Middle Iron Age (beginning ca 900 BCE; Kealhofer, Grave 2011). The final subphase of IV (IVa) produced evidence of substantial urban planning, terminating in a destruction event attributed to the Kimmerians (fig. 3b) (von der Osten 1937: 289). However, the combination of poor stratigraphic control with the absence of a clear dating framework obscures potentially significant cultural transitions at the site (Genz 2011; Gorny 1990).

Bittel's excavation of the IVc-a (12th–seventh-century) high mound or citadel at Alişar (Bittel in von der Osten 1937: 290–460) identified a series of walls, fortifications and gates. These appear to have been rapidly renovated and modified, making building plans difficult to interpret. Bittel opined that the IVc citadel was the home of a 'feudal lord' (von der Osten 1937: 339). In level IVb M (ninth–eighth century BCE?), the citadel wall and gate were rebuilt with large bastions. Bittel associated this style with

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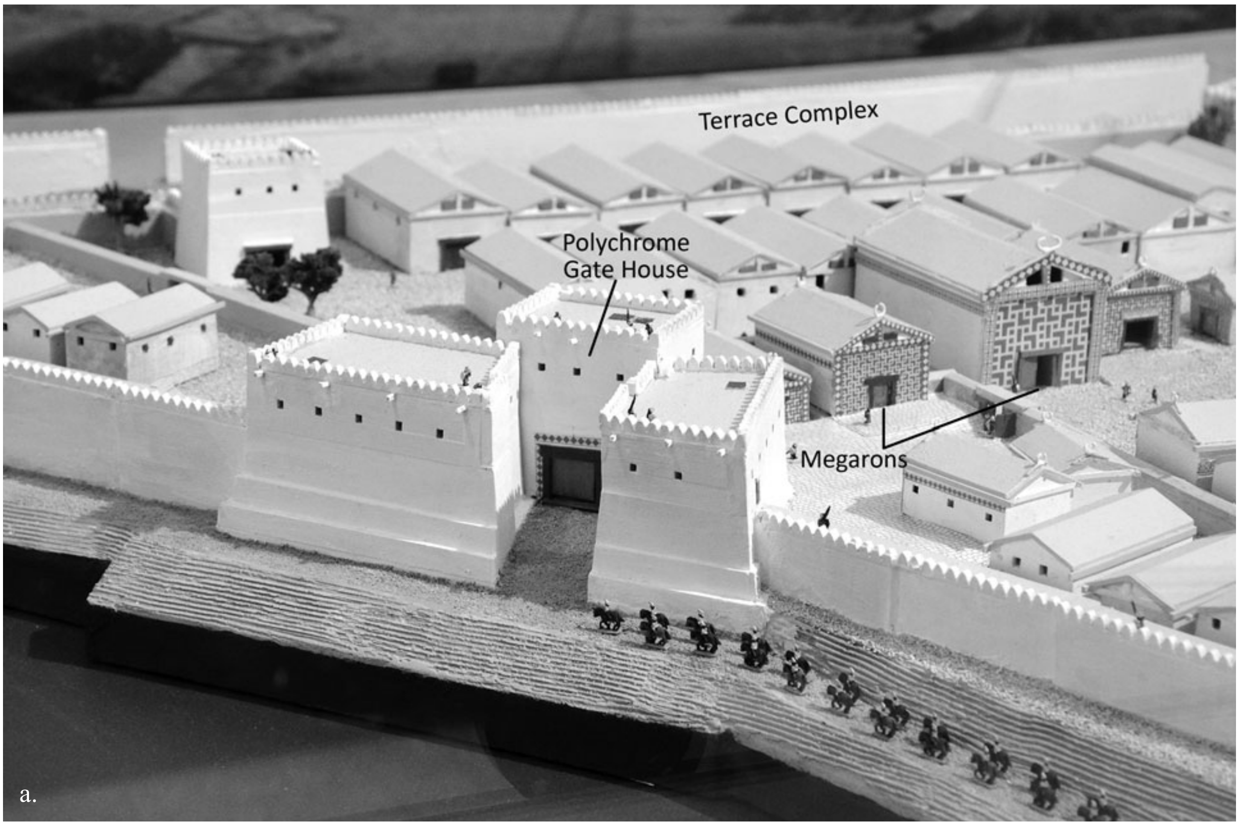

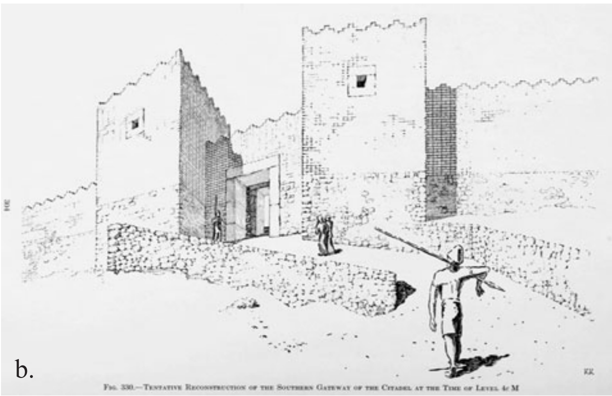

Fig. 4. Comparison of MIA fortified gate reconstructions: a. Gordion's Early Phrygian citadel, ca 825 BCE (scale model designed and built by Gareth Darbyshire and Christopher Ray; courtesy of the Gordion Archives, University of Pennsylvania Museum); b. Alişar Höyük IV (von der Osten 1937: 330; courtesy of the Oriental Institute, University of Chicago).

the Assyrians (Assur?), although we note it also closely parallels a recent reconstruction of architectural remains from Early Phrygian Gordion (fig. 4a–b; Rose, Gürsan-Salzman 2017; von der Osten 1937: fig. 330). The rebuilt IVb walls were much thicker and included a new pedestrian passage on the west side that led down to the lower fortified town. Room D on the citadel produced a loom weight cache (30 weights) and four large four-handled pots (craters) in Dark-Painted Geometric-Monochrome Silhouette style (fig. 5; d'Alfonso et al. 2022; von der Osten 1937: plate X). Level IVb ended in a destructive fire, with the subsequent IVa phase rebuilt with a very similar orientation and scale, suggesting cultural continuity. Phase IVa also terminated in a burnt destruction level. Large storage vessels were common in IVa buildings on the citadel.

Excavations in the Lower Town focused mainly on the circuit wall made up of sections connected by towers. Wall thickness and angle varied for each section suggesting construction by different work (corvee?) groups. A comparable scenario is suggested for construction of the fortification wall of Iron Age Gordion (Kealhofer et al. 2022; Voigt 2013: 191). Excavation adjacent to the walls revealed small rectangular houses, relatively uniformly distributed. The levels were noted as 'shallow', with the duration of occupation undefined. However, this Lower Town, attributed to a IVb expansion, was interpreted as densely occupied and built in a single operation.

South of the citadel, on the Terrace outside the walled Lower Town (U29/T28), a more sparsely occupied zone had only one construction level of mudbrick houses built

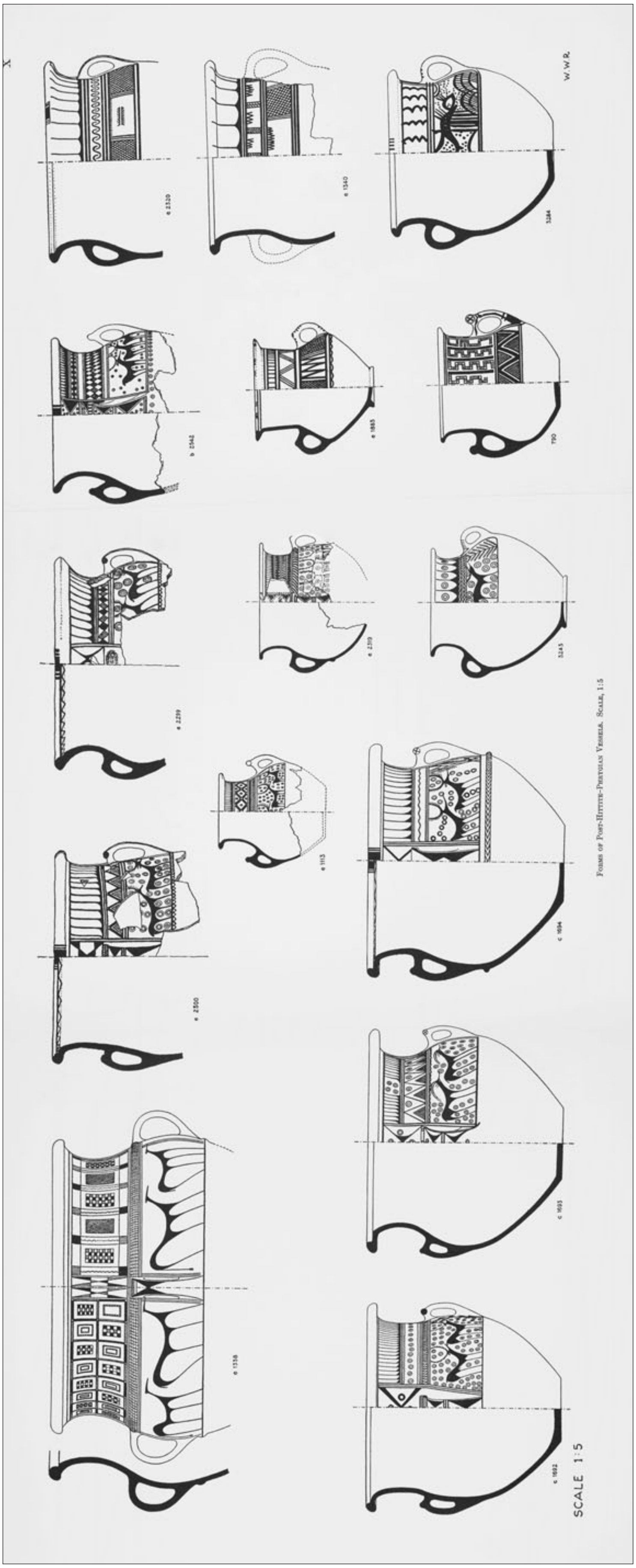

Fig. 5. Alişar Silhouette ware craters, also referred to as 'four-handled open pots' (illustrated in von der Osten 1937: Plate X; courtesy of the Oriental Institute of the University of Chicago).

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on stone foundations (not illustrated in fig. 3a). Sometime after the Hittite destruction level, but before construction of buildings in phase 8 or 9T, the area around the southern and eastern edges of the Terrace was filled with 'a great deal of dirt' (von der Osten 1937: 347), paralleling large-scale earthmoving at sites like Gordion. However, one zone of the Terrace has two phases of construction, with a more substantial and larger house in the earlier phase (deeper, heavier foundations and higher walls preserved). Elsewhere on the terrace, buildings were 'insignificant', with sherds being the primary material recovered. Phase IVa in this sector generally seems to be a continuation of IVb occupation, also ending in a destruction event.

Alişar lies in general proximity to several other excavated sites with overlapping chronologies and cultural affinities. Two of these are currently being excavated. Çadır Höyük, ca 13km northwest, a mound with a long sequence of occupation extending from the Chalcolithic to the medieval period, and Kerkenes, ca 25km northwest, with an Iron Age foundation and short occupation in the seventh–sixth century BCE (Ross, Steadman et al. 2019; Steadman et al. 2019; Summers, Summers 2013). More distant but contemporary sites also provide useful comparative information, including Gordion, Kaman-Kalehöyük and Boğazköy, all of which have Iron Age ceramics studied by the AIA project.

Alişar Iron Age ceramics

Since we cannot assume the Oriental Institute's ceramic assemblage is a representative sample of excavated material, we summarise here the pottery description published by von der Osten (1937: 350–408). The report identified three types of pottery in Phase IV – plain, decorated and kitchen ware – without describing the relative proportion of each type in the overall assemblage. All three types were wheel made with a gritty paste. However, at the neighbouring sites of Boğazköy and Çadır Höyük, and sites further afield such as Gordion, Kaman-Kalehöyük and Kınık Höyük, the Early Iron Age assemblage includes a substantial quantity of handmade pottery. The absence of this class of ware at Alişar suggests that either the cultural transformation at this site was unique or else handmade wares were not identified or collected during excavation or curation. Alternatively, the lack of handmade pottery supports the suggested hiatus in occupation during the Early Iron Age at Alişar.

According to von der Osten, most of the coarser wares at Alişar date to phase IVc (that is, earlier times), with finer wares more common in later periods (1937: 350). Kitchen ware was common to all periods. Hieroglyphic Luwian inscriptions on coarse wares were relatively common on earlier IVc sherds.

Both decorated and plain wares were usually slipped, while the kitchen ware was wet-smoothed or left rough. Both plain and decorated wares include fine and coarse fabrics (see also d'Alfonso et al. 2022). Plain ware, often polished, has a reddish to light-buff slip (like the base or ground for decorated wares). A few examples have vertical or radiating grooves. Decoration is mostly painted, with a few examples of modelling. The earlier coarser versions of painted ware include stags, trees and concentric circles (the so-called Silhouette style), and a few purely geometric designs usually in reddish brown or blackish brown on buff. Later decoration is mostly geometric, often covering the entire vessel rather than a zone just above the vessel shoulder (at the widest point). The designs are carefully applied lozenges, triangles, and wavy or zigzag lines. Bicolour or bichrome (red/brown) designs were introduced with decoration common on the rims and lips, and bowls can be decorated both inside and out. On larger jars, decoration can be divided into panels. Other motifs include a circle with a cross and a wheel-shaped decoration. 'Tongues' or vertical lines with a flared end (called 'rays') on the neck are common (fig. 5). Human forms are rare.

Plain and decorated ware forms include bowls with thickened or flaring rims, cups (or juglets) with high handles, trefoil pitchers or beak-spouted jugs. A high degree of variability in the shapes of these is noted and illustrated (e.g., von der Osten 1937: 408–10). Pitchers, or in some cases jugs, have lateral strainer spouts (as at Gordion [Sams 1994]). Large two- and four-handled jars were often open mouthed (e.g., craters; fig. 5); however, there are also jars with constricted openings and ovoid forms. Kitchen forms are commonly open (large orifice) with one or two handles and a flat base (conservative form) (e.g., von der Osten 1937: figs 426–27). Storage vessels include both narrow and wide-necked types.

In subphase IVa, other Iron Age wares at Alişar include a range of undecorated grey and brown buff wares. Painted ware with lattice/chequerboard/geometric designs continued in this latest subphase of IV. However, as no Greek imports were recovered, IVa appears to have ended before the region-wide commencement of this trade, mid-sixth century BCE (Lynch 2016).

Silhouette ware

As the name indicates, Alişar IV, or Silhouette ware, was first identified at this site, with recent work suggesting it was produced at multiple sites (e.g., d'Alfonso et al. 2022; Kealhofer et al. 2010). The ware has assumed particular significance not only because of its highly distinctive and readily identified decoration, but also because of its proposed correlation with the zone of Tabal's political influence (Summers 2009). In a recent re-evaluation of this ware, d'Alfonso and colleagues (2022) noted that the style has been defined differently over time: a strict definition (that is, motifs of stags and goats in silhouette with sets of small concentric circles) that Ekrem Akurgal (1955) noted was found most often on 'cauldrons' or craters; and a broader definition (that is, dark-brown matte paint used for a range of geometric shape attributes) that d'Alfonso and colleagues suggest is better named Dark-Painted Geometric-Monochrome Ware.

We follow d'Alfonso and colleagues (2022), who consider Silhouette ware a subset of this larger tradition and maintain that the more narrowly defined Silhouette ware is comparatively rare at archaeological sites and limited in its spatial distribution. Silhouette-decorated vessels most commonly appear to be too large for individual use as tableware (that is, craters; see Akurgal 1955; von der Osten 1937: figs 422–23, 460–61). In addition to the deer and goat motifs highlighted by d'Alfonso and colleagues (2022) (fig. 6), a range of four-legged animals (and birds) are depicted in this style at Alişar (1937: figs 458–62). D'Alfonso and colleagues contend that this ware, typically associated with craters, reflects the introduction of new practices of wine drinking (attested by local grape seed remains at Kınık) linked to male elite (rather than royal) feasting and reciprocity in the early first millennium BCE in south central Anatolia.

Wares belonging to both strict and broad definitions of Silhouette ware have been recovered from multiple sites in the region, including Boğazköy (Genz 2004; 2007), Kaman-Kalehöyük (Matsumura 2005), Çadır Höyük (Genz 2001; Ross 2010), Kınık Höyük (d'Alfonso et al. 2020), and even further west at Gordion in small numbers (Kealhofer et al. 2022; Sams 1994). The Alişar assemblage studied here is decorated with an array of hatched and infilled geometric shapes, 'tongues' (or 'rays'), wheels, wavy lines and other geometric motifs (e.g., chequerboards) (fig. 7) common within the broader tradition of Dark-Painted Geometric-Monochrome Ware.

The lack of stratigraphic control and dating of Alişar's phase IV continues to impact our understanding of the local chronology of this ware. Recent excavations at sites like Kınık Höyük, with better dated and controlled stratigraphic contexts, suggest a 150-year range in the tenth–ninth

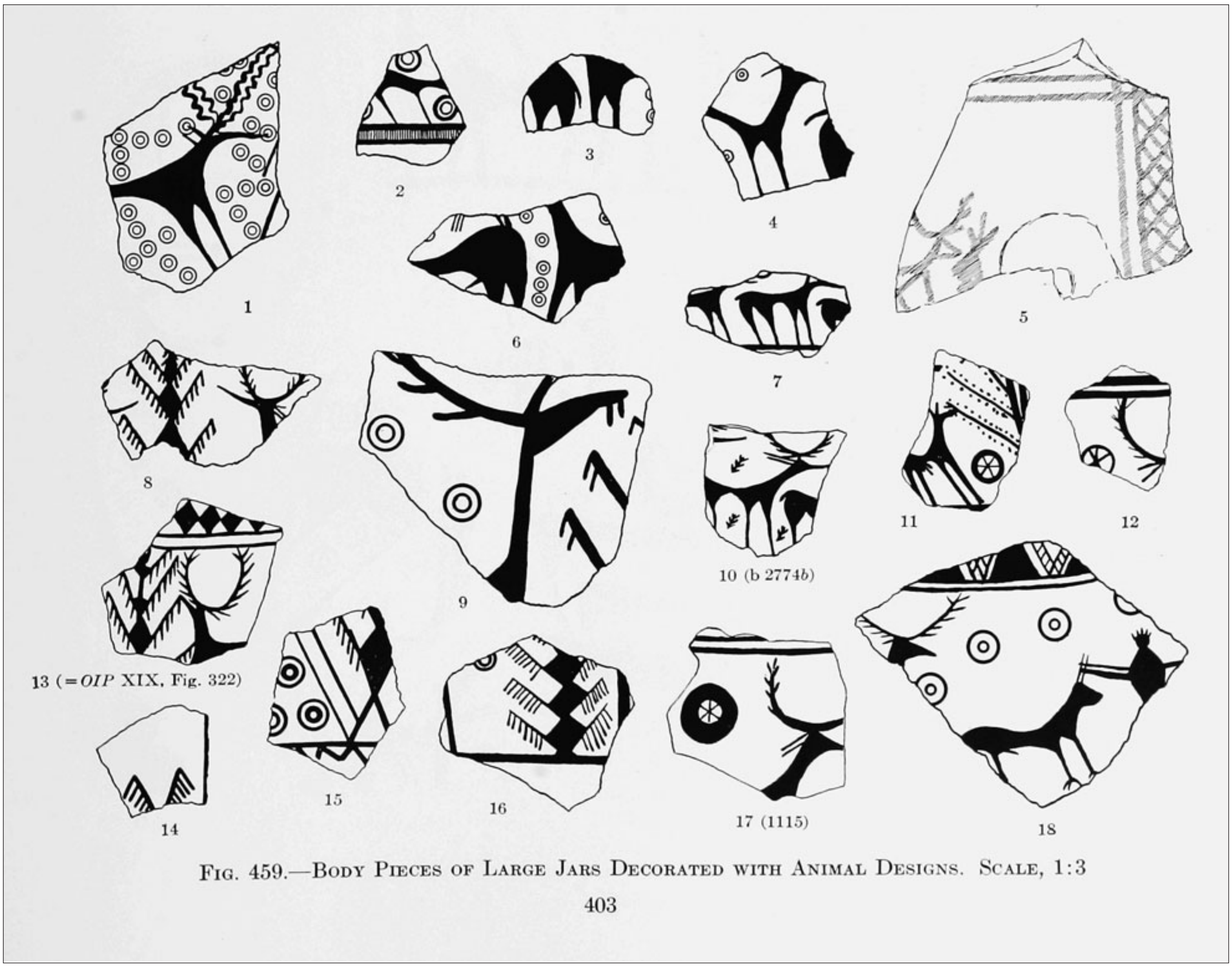

Fig. 6. Alişar Silhouette ware with a range of animals depicted (e.g., 1, 9?, 11, 18) (von der Osten 1937: fig. 459); courtesy of the Oriental Institute of the University of Chicago).

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Fig. 7. Alişar Iron Age ceramic decorative elements (von der Osten 1937: figs. 444 & 445; courtesy of the Oriental Institute of the University of Chicago).

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century BCE, with the main period of production in the ninth century (d'Alfonso et al. 2022). A ninth-century BCE end date at Kınık is at the earlier end of the dating of Silhouette ware at Middle Iron Age Gordion, where it occurs in small quantities from the Early Phrygian period (900–800 BCE) through to the beginning of the Middle Phrygian period (5C, eighth century BCE). A similar Middle Iron Age range is assigned to 'stag ware' at Çadır Höyük (Ross 2010), however, no radiocarbon dates have been published for the relevant context. Summers (2017) notes that it is present in seventh-century contexts at Göllüdağ; however, the site is not well dated, and none is found at (late seventh-century?) Kerkenes. While this is a challenging period to resolve in absolute chronological terms due to an extended radiocarbon calibration plateau, relevant contexts at these Middle Iron Age sites might support date ranges for Silhouette ware that extend later than at Kınık Höyük (that is, into the eighth century), where it appears relatively early (soon after 1000 BCE?).

In sum, the Alişar assemblage provides little scope for refining the chronology of Silhouette ware, as it can only be generally placed within phase IV excavations at the site. Based on relationships at other sites, it seems likely to date between 1000 and 700 BCE at Alişar, with a peak of production in the ninth and eighth centuries BCE. Nonetheless, even at this relatively broad chronological scale, the sources and variability within the Alişar assemblage can be related to changes in the broader economic interaction sphere of this regional centre.

Methods

The analysis of ceramics at Alişar can reveal aspects of the social organisation of post-Hittite central Anatolia and elucidate the scale and patterns of exchange between sites in this region. We studied the ceramics through both conventional stylistic analysis and geochemical analyses that included local sediments. Together these permit us to trace patterns of production and trade in relation to potential clay sources identified. Using both we can distinguish stylistically similar pots that appear to have been produced at the same location but in fact were made at separate locations or by different potters using different recipes. Emulation and exchange together contribute information about identity and interaction.

As part of the larger AIA project, we pursued a two-pronged approach to studying the geochemistry of the Alişar ceramic assemblage (Grave et al. 2013; Kealhofer et al. 2010). In the field, we collected soil samples from landscapes surrounding the site to capture the main geological differences (fig. 2) and to allow identification of geochemical 'local' signature(s) of pottery made from Alişar's nearby clay resources. At Alişar, we were also able to integrate sediment samples we previously collected from the vicinity of nearby Çadır and Kerkenes. Our second strand focuses on sampling ceramics. The Alişar sample represents a departure from our general AIA strategy of sampling only well-contextualised ceramics from ongoing excavations. Our study of the Alişar Iron Age pottery (labelled 'Phrygian' within the collection records) in the OI's collection was driven by the opportunity to contextualise this otherwise orphaned assemblage within our broader and better-contextualised sample of AIA sites. In particular, our previous work at the nearby sites of Çadır and Kerkenes strengthens our understanding of the regional context of the Alişar assemblage (Kealhofer et al. 2010).

The pottery sample from the Oriental Institute's Alişar collection

The 'Phrygian' pottery collection at the Oriental Institute consists of 61 boxes, each containing from ten to well over 100 sherds (fig. 8a). All curated sherds were decorated, the majority with geometric motifs executed in Brown on White (BOW) or Brown on Ground (BOG). As noted earlier, the absence of undecorated plain or kitchen ware potentially reflects a collecting/curation bias of the excavators. Most of the sherds were numbered but lacked contextual links to a specific feature or provenience (for example, a number might refer to a sherd within a bag which came from a 10mx10m unit or a plot). Given the lack of reliable stratigraphic contexts, we treated this collection as if it were a survey sample and assumed that it probably conflated multiple Middle Iron Age (phase IV) contexts and sub-phases.

Given the large size of the OI's Alişar assemblage, we limited our sample to 42 of the 61 boxes. We took an average of six samples per box, varying in relation to the number of sherds in a box, to capture a representative range of fabric and decorative differences. We also sampled a few earlier and later sherds (Early Bronze Age and Greek style [sixth century?]) to evaluate compositional range over time and across known styles.

Both exterior and interior surfaces of sherds selected for sampling were photographed and recorded with whatever additional information was available (e.g., box #, catalogue #) (fig. 8b). In consultation with OI conservation staff, small samples (<2gm) were removed from inconspicuous (that is, undecorated) portions of the sherd, bagged and shipped to the University of New England (UNE), NSW, Australia for preparation before submission for analysis by NAA.

Pottery forms and decoration

The identification of forms in this sherd assemblage is necessarily limited and largely generic. For most sherd assemblages, dominated by infrequently decorated

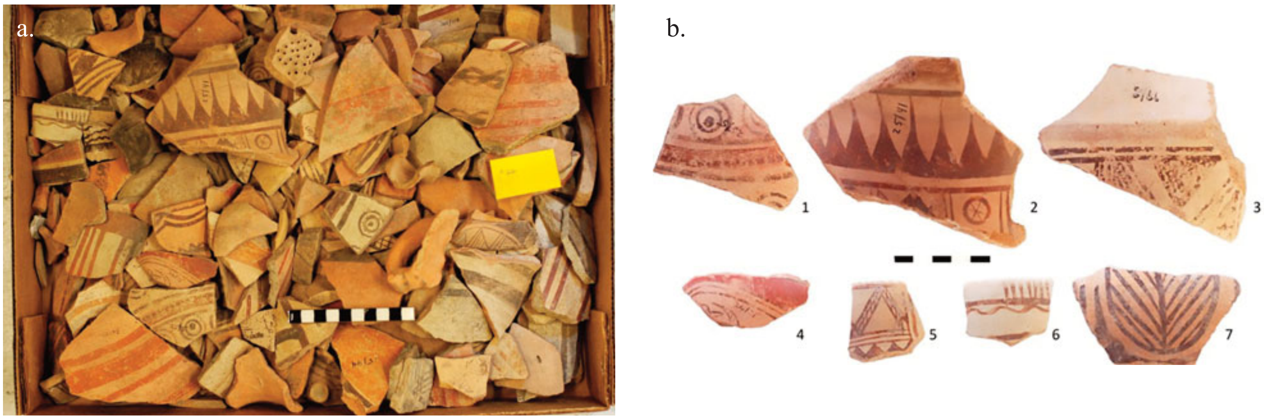

Fig. 8. Iron Age ceramics and samples from the Alişar collection at the Oriental Institute, University of Chicago: a. Oriental Institute Alişar Box 22; b. AIA sample numbers: 1: 5489, 2: 5491, 3: 5497, 4: 5495, 5: 5493, 6: 5494, 7: 5490.

common wares, the default form for closed vessels with unfinished interiors is considered to be a 'jar'. In this case, the lack of common undecorated ware led us to designate sherds from apparently closed but decorated vessels as jar/jugs or craters rather than as jars. Our assumption was that most decorated vessels were likely to be serving vessels and/or tablewares given that most sherds exhibited well-finished interior surfaces. Most forms appear to be medium-to-large tablewares, with no obvious large storage vessels. Sherds with decorated interior and exterior surfaces were identified as bowls. Jugs were identified by finished interiors, above-shoulder decoration and/or handles. Craters were defined by undecorated finished interiors and relatively large and open rim diameters. Identifiable craters compose ca 8% of our sample, though it is likely that some of the sherds identified as jar/jugs were craters. Based on this, jugs, jar/jugs, craters and bowls account for over 90% of the assemblage. Very few cups, plates, open vessel/pots or platters were identified; however, forms identified as juglets could be considered a version of a cup/mug (3–4%), as elsewhere smaller bowls were used as cups (e.g., Early–Middle Phrygian Gordion; Kealhofer et al. 2022).

Decorative styles are dominated by Brown on White or Brown on Ground (together ca 60%). Bichrome variants (on white [BiOW] or on ground [BiOG]) compose a further 20%. Small numbers of black polished (BP), black burnished (BB), red decorated (R), and glazed (red [GlR] or black [GlBl]) make up the balance of the assemblage (table 2). The substantial range of decorative geometric motifs (see von der Osten 1937: figs 437–45), includes complex combinations of hatching, triangles, diamonds, chequerboards and circles (e.g., fig. 7). Given this range of styles and combinations, attempts to group motifs have produced a large number of small groups, making inter-group comparisons problematic (Cowgill 1975). Beyond the more ubiquitous use of 'tongues' or 'rays' on the necks of jars and craters (e.g., fig. 5), combinations of style elements were often unique and highly individualised, suggesting a large and diverse group of potters or pot decorators using the same design regime. Quality – of both decoration and fabric – and fabric colouring were also highly variable. In contrast to the ubiquity of small concentric circle designs, animal silhouettes or tree motifs diagnostic of Alişar IV or Silhouette ware occur on relatively few sherds.

Preparation and analytical methodology for compositional analysis

Our compositional analysis of the Alişar sherd sample was a multistage process. In the first stage, sherd samples were processed for Neutron Activation Analysis (NAA) at UNE. This involved removing all surfaces with a tungsten carbide high speed burr, enclosing the cleaned sample in an acetate envelope for crushing in a hydraulic vice, and sealing ~1gm of the resultant coarse powder in a numbered plastic vial for shipment to a commercial NAA facility in Ontario, Canada (Becquerel/Maxxam). To establish an independent measure of data quality we also included in the analysis up to five replicate samples of three NIST standards (679, 2711 and 1633b), quasi-randomly interspersed in each batch of samples (see Grave et al. 2013 for standards data).

NAA results for the ceramics and sediments were first evaluated using non-parametric multivariate techniques to establish data structure (e.g., Hierarchical Cluster Analysis [HCA] and Principal Components Analysis [PCA]). Highly structured datasets typically produce PCA scores that account for between 60–75% of overall variation on the first two to three components – and allow preliminary identification of data clusters. Kernel Density Estimation (Baxter et al. 1997; Beardah 1999; Spencer et al. 2017) was used to identify and tag sample clusters. A second parametric multivariate analysis (Discriminant Function)

	BOW	BOG	Bi OW	Bi OG	BOR	BP	Gl R	Gl Bl	ROW	BB	Gl P	ROG	Bi OWR	Bl OR	Gl Bi	R	RW	Total	%
jar/jug	30	17	20	9	4	5	0	1	4	1	0	2	0	0	0	0	1	94	33
jug	26	19	6	5	5	1	0	0	0	0	0	0	1	0	0	0	0	63	22
bowl	9	9	6	0	2	0	5	1	0	0	2	0	0	0	1	1	0	36	13
juglet	11	7	3	2	2	7	0	0	0	2	0	1	0	1	0	0	0	36	13
jug/crater	10	11	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	23	8
crater	8	11	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	22	8
cup	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	1
bowl - Greek	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3	1
bottle	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	1
crater/jug	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
jar	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
juglet/pot	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
plate	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
platter/plate	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Total	95	78	38	17	14	14	9	4	4	3	3	3	1	1	1	1	1	287	
%	33	27	13	6	5	5	3	1	1	1	1	1	0	0	0	0	0		

Table 2. Alişar sample assemblage: forms and decoration. In terms of decoration, Brown on white (BOW) and Brown on ground (BOG) compose 60% of the assemblage. Bi OW: Bichrome on white; BOR: Brown on red; BP: Black polished; Gl R: Red glazed; Gl B: Black glazed; ROW: Red on white; BB: Black burnished; Gl P: Polychrome glazed; ROG: Red on ground; Bi OWR: Bichrome on white and red; Bl OR Black on red; Gl Bi: Bichrome glazed; R: Red slipped; RW: Red and white.

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was then used to check/confirm cluster membership. At this stage we also determined the extent to which clusters could be defined by specific element pairs based on F-statistic probability analysis.

In order to place these results within a broader geographic context, we compared the NAA results from Alişar with those for Iron Age ceramics and sediments from neighbouring sites previously published as part of the AIA project (Çadır Höyük, Kerkenes [Kealhofer et al. 2010] and Kaman-Kalehöyük [Grave, Kealhofer 2006; Kealhofer et al. 2008]). This increased our initial comparative ceramic and sediment sample size to n=1,065 (Alişar: ceramics n=287, sediments n=9; Çadır: ceramics n=243, sediments n=13; Kerkenes: ceramics n=100, sediments n=13; Kaman: ceramics n=372, sediments n=28).

NAA results (table 3)

In the multivariate analysis of the Alişar NAA dataset, we first identified and removed compositional outliers that compressed/distorted the distribution of remaining samples in multivariate space and considered them separately. Results for both sediment and ceramic samples were analysed together to establish the relationship between the two. PCA indicates that the dataset is highly structured (63.5% of total variation accounted for by the first three components). With a couple of exceptions, in this first analysis most sediments in our sample map onto the lower left quadrant of a plot of the first two components, indicating a strong local signature for ceramics in that quadrant (mostly affiliated with macro group II in subsequent figures; fig. 9a–b). To better map compositional structure in the ceramic component of the dataset, sediments were then removed from subsequent analysis, with some further improvement in data structure (66.5% of total variation accounted for by the first three components and a small improvement [3%] in the first component over the sediment combined dataset). Four samples were removed from subsequent analyses, one as an extreme outlier and three in the general region of macrogroup 3. The small sizes of three of these (~0.4gm), suboptimal for compositional analysis at our facility, were analytically compromised. The fourth was an outlier of Silhouette ware.

The general compositional structure of the ceramic dataset contains three main groups (fig. 10a–b). Groups were first classed by macrogroup membership, then by HCA determined subsets (e.g., 3.1 is macrogroup III, HCA cluster 1 subset of the macrogroup). Evaluation of these groups by Factor and F-statistic analyses identifies the combination of Cr/Th as a strong group-membership predictor and supports the robust identification of these macrogroups.

Application of Kernel Density Estimation to object scores for the first two components of the PCA identified a relatively large number of discrete clusters and several outliers within each macrogroup (fig. 11a–b). Identifying the strongest elemental predictors of macrogroup I and II clusters by Factor and F-statistic analysis shows they are also defined by different (geo)elemental regimes (that is, macrogroup I sub clusters can be readily distinguished, with no overlaps, by Lu/Ca; macrogroup II sub clusters can best be distinguished by Sc/Sm).

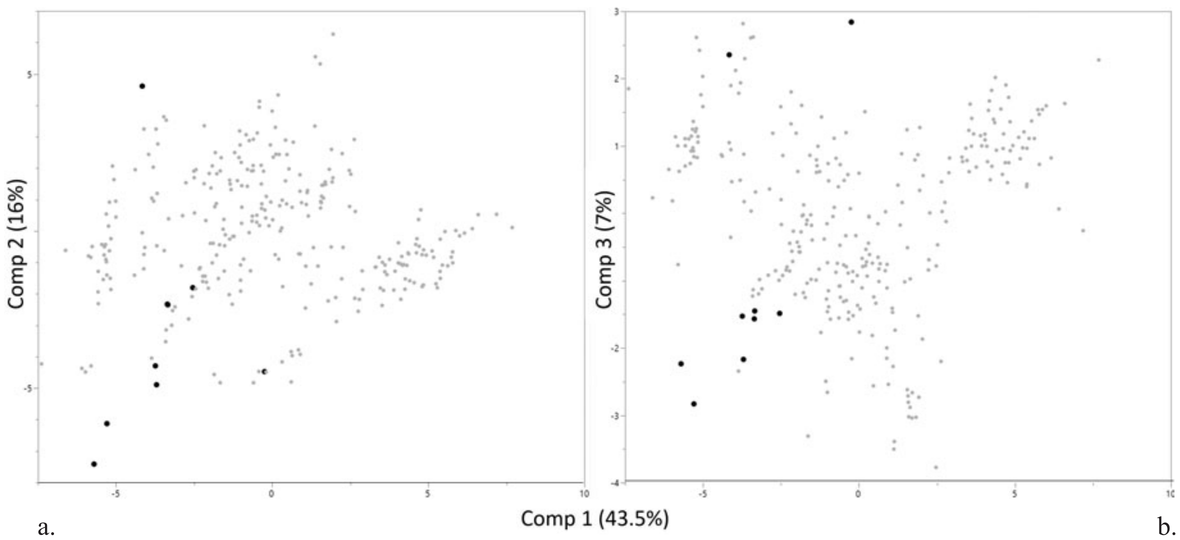

Fig. 9. Scatterplots of Principal Components Analysis of NAA dataset for Alişar ceramics and sediments (solid circles) showing the geochemical relationship between the NAA ceramic assemblage and the sediment samples. Note that the best sediment matches are with the central macrogroup (macrogroup 2 in fig. 10) using all three components: a. Components 1 x 2; b. Components 1 x 3.

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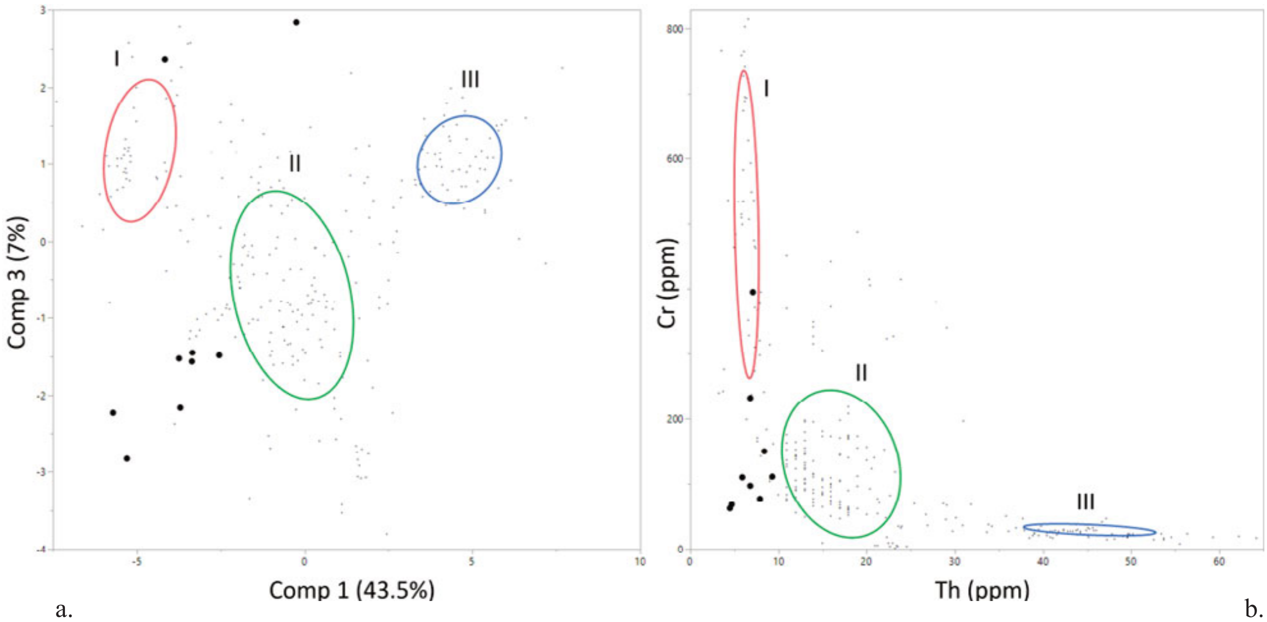
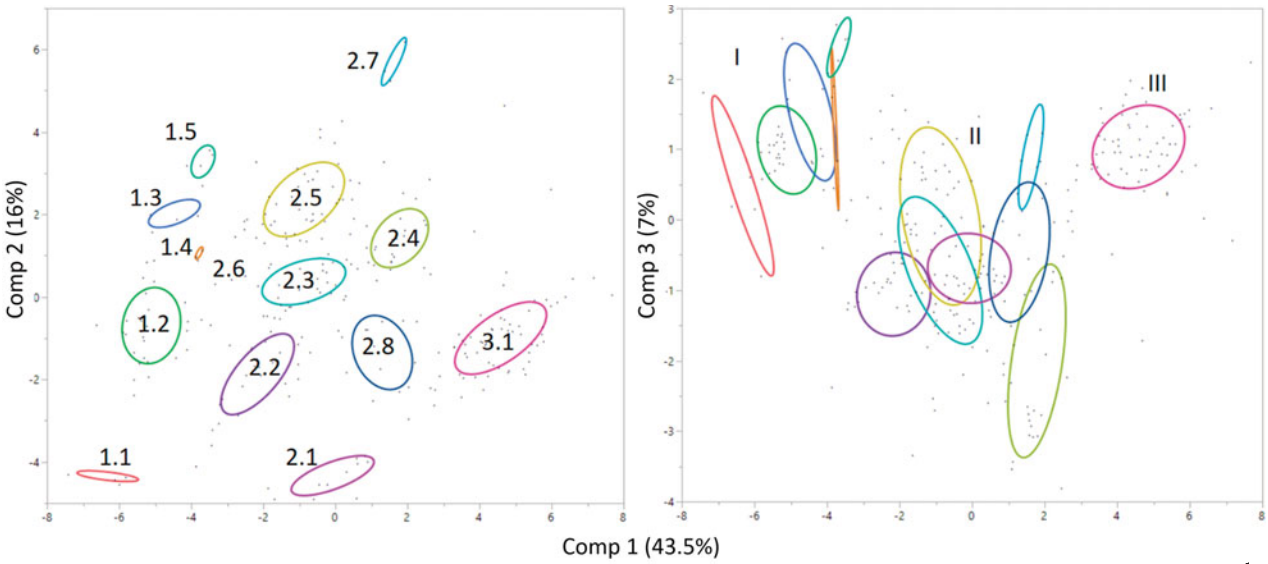


a. b.

Fig. 10. Scatterplots of NAA dataset for Alişar ceramics and sediments (larger black circles): a. Principal Components 1 X 3 with macrogroups I–III identified; b. biplot of chromium (Cr) vs. thorium (Th) confirming macrogroup membership.



a. b.

Fig. 11. Compositional structure of Principal Components Analysis of NAA dataset for Alişar ceramics: a. clusters and IDs for Components 1 x 2; b. clusters identified by macrogroup membership for Components 1 x 3.

Macrogroup I (n=49) comprised five clusters and one singleton, ca 17% of the total assemblage. Macrogroup II (n=172) with eight clusters and one singleton, accounts for the majority (60%) of the sample. Macrogroup II partly overlaps sediment compositions in the previous analysis and has the greatest number (4) of large clusters (>20 members) that are compositionally relatively close. Macrogroup III (n=66) consists of four 'clusters', three of which are singletons, comprising 22% of the assemblage. For both macrogroups I and III, a single cluster dominates the macrogroup (that is, clusters 1.2 and 3.1). There are a total of six singletons (see, e.g., table 4). With ten clusters of ≥5 sherds, this tableware assemblage is relatively compositionally diverse.

Identifying local production

To identify local production, we compare the compositional profiles of the ceramics and the sediment samples from the immediate (<7km radius) catchment of Alişar. Of the different geochemical/provenance regimes defining

	Macro Grp 1 (n=48)		1.1 (n=4)		1.2 (n=31)		1.3 (n=5)		1.4 (n=3)		1.5 (n=5)	
	Avg.	CV	Avg.	CV	Avg.	CV	Avg.	CV	Avg.	CV	Avg.	CV
As	19.98	43.65	17.50	66.88	22.58	29.15	12.80	37.22	25.67	63.34	9.60	56.38
Ba	303.33	43.37	142.50	84.28	302.26	41.76	314.00	32.68	470.00	24.54	328.00	27.73
Ca%	8.77	34.31	7.45	70.86	10.26	15.15	7.36	28.59	6.00	29.63	3.66	33.27
Ce	43.71	20.63	26.50	8.98	42.10	13.61	48.80	12.58	50.00	6.93	58.60	4.11
Co	33.92	21.37	26.50	44.91	32.48	16.19	38.20	20.14	34.67	19.21	44.00	2.27
Cr	498.56	40.30	443.25	56.81	557.48	34.59	416.80	53.13	268.33	39.19	397.40	12.16
Cs	4.44	65.69	3.65	41.03	4.07	34.86	3.38	23.15	9.70	109.96	5.20	18.40
Eu	1.07	22.19	0.60	13.34	1.02	11.77	1.24	9.19	1.33	8.66	1.46	7.81
Fe%	5.15	22.42	3.21	26.18	4.81	12.24	6.45	6.96	5.87	13.36	7.10	4.94
Hf	3.15	23.48	1.75	11.90	3.01	14.24	3.74	13.32	3.40	7.78	4.42	7.74
K%	2.02	26.73	1.68	41.18	2.00	28.02	2.04	14.12	2.50	14.42	2.16	23.74
La	22.38	18.74	13.78	15.88	21.69	11.92	25.00	9.00	26.40	5.66	28.44	5.55
Lu	0.29	19.83	0.16	10.21	0.28	9.66	0.36	7.23	0.32	3.13	0.37	4.47
Na%	0.89	36.88	0.31	27.75	0.84	21.28	1.22	35.50	1.20	50.98	1.10	14.37
Nd	23.69	21.98	13.75	28.09	22.84	13.94	27.20	6.04	27.33	13.85	31.20	14.76
Rb	63.75	33.53	45.50	16.98	58.03	17.93	63.40	21.87	99.00	54.61	93.00	17.64
Sb	1.01	96.25	2.40	139.73	0.95	23.47	0.64	23.70	1.03	20.15	0.68	28.29
Sc	18.55	19.51	14.20	30.47	17.45	14.22	22.86	8.41	20.20	15.56	23.52	3.59
Sm	4.11	20.99	2.25	2.70	3.93	11.14	4.98	7.09	4.88	6.93	5.37	2.85
Ta	0.77	66.88	0.30	118.63	0.67	68.45	1.02	20.09	0.90	94.93	1.44	20.01
Tb	0.54	63.48	0.00	0.00	0.52	58.15	0.80	25.00	0.43	87.37	0.88	21.86
Th	6.39	18.51	4.35	36.32	6.34	15.12	6.56	9.74	7.53	9.60	7.48	7.53
U	1.85	36.87	1.70	24.96	1.86	41.17	1.60	22.10	1.83	20.65	2.18	32.66
Yb	1.85	22.00	0.93	13.60	1.81	11.27	2.32	8.29	2.00	15.00	2.32	14.43
Zn	102.96	28.48	72.25	27.51	98.94	24.05	97.20	19.91	120.00	8.33	148.00	24.08

Table 3. Statistical summary of Alişar ceramic NAA clusters giving group IDs and number of samples, averages (Avg.) and coefficients of variation (CV). Elements in parts per million unless otherwise indicated. Note that none of the singleton samples are included.

clusters within each macrogroup, macrogroup I has only one local sediment match (fig. 10). As macrogroup II is compositionally closest to the majority of sediment samples and is the largest overall group, it emerges as the best candidate for local production. In contrast, macrogroup III (cluster 3.1) is both the most elementally coherent (that is, lack of internal differentiation) and compositionally distinct (e.g., elevated thorium, rubidium – see below fig. 13) from the other macrogroup and local sediment compositions. Note that sediments are rarely the same as the clay used to produce pottery, so we rely on the combined trajectory and abundance of ceramic and sediment samples to identify local geochemical matches. This offset is apparent for macrogroup II ceramics and adjacent sediments, just as the single sediment sample match for macrogroup I is not convincing.

A PCA of the combined Alişar, Çadır, Kerkenes and Kaman ceramic NAA dataset produced an overlapping set of points on the first vs. second components that effectively obscured any distinctions between macrogroups and clusters in the individual sites. However, rather than shared origins, this suggests somewhat generic/redundant geochemical similarities. Çadır and Alişar appear to share several clusters/sources equally (clusters 2.4–2.5), with other clusters more dominant at each site (e.g., 2.6 at Çadır; fig. 12). In both assemblages, cluster 3.1 remains distinctive.

Comparison with the full AIA ceramic dataset (n=~6,400) collected from 17 Anatolian sites during the course of this project confirms the compositional distinctiveness of cluster 3.1. In Factor and F-statistic analyses, elements Rb and Hf clearly distinguish this cluster (fig. 13). To evaluate potential sources for cluster 3.1 we also included sediments in the larger region. None of our sediment samples match this cluster (fig. 13). Ceramic matches with cluster 3.1 were identified at Çadır (n=17), Kaman (n=2, a geometric hatched triangle and a fragment of Silhouette ware) and, more distantly, at Gordion (n=3 bichrome decorated sherds, group M; Kealhofer et al. 2022). In terms of percentages of cluster 3.1, the Alişar sample accounted for the largest concentration of the three local sites studied here (21% of sampled sherds; Çadır 7% and Kaman 0.5%).

	Macro Grp 2 (n=173)		2.1 (n=11)		2.2 (n=28)		2.3 (n=36)		2.4 (n=25)		2.5 (n=48)	
	Avg.	CV	Avg.	CV	Avg.	CV	Avg.	CV	Avg.	CV	Avg.	CV
As	33.38	75.77	15.18	86.33	22.46	47.84	27.61	55.13	66.04	56.91	28.04	65.21
Ba	657.17	37.45	861.82	24.05	524.29	28.47	676.39	37.24	846.40	16.65	555.00	41.24
Ca%	7.21	48.69	7.35	49.38	11.96	29.86	7.34	37.77	5.70	23.67	5.20	40.56
Ce	80.15	20.46	74.45	10.31	61.93	20.15	77.86	14.03	92.32	14.98	79.44	12.42
Co	15.94	48.54	6.55	49.91	12.89	15.84	15.67	32.80	11.52	49.30	22.96	27.94
Cr	130.51	73.87	14.64	91.93	107.25	29.76	132.19	64.45	75.68	38.40	200.71	48.23
Cs	9.44	88.85	10.31	107.01	7.78	43.31	7.66	54.42	9.68	80.66	6.09	36.04
Eu	1.27	21.82	0.90	11.54	0.97	14.44	1.29	13.26	1.27	17.21	1.45	13.48
Fe%	3.77	25.35	2.24	11.23	3.21	9.49	3.74	16.78	3.35	14.19	4.74	14.15
Hf	5.47	22.99	5.27	19.27	4.29	23.22	5.33	14.48	6.89	14.06	5.42	23.36
K%	3.11	28.62	4.77	21.37	2.62	19.81	2.99	15.99	3.60	15.18	2.70	25.57
La	44.31	23.49	44.82	13.17	33.79	20.81	42.32	16.78	50.44	16.99	42.71	12.58
Lu	0.39	20.78	0.27	7.42	0.32	9.86	0.38	13.34	0.48	14.02	0.41	15.02
Na%	0.84	39.82	0.62	48.59	0.64	44.50	0.93	36.11	0.89	22.88	0.97	37.20
Nd	34.76	18.85	26.73	15.62	29.14	14.09	33.39	13.66	39.24	15.10	36.52	10.95
Rb	134.90	50.76	288.18	23.93	97.86	19.17	116.56	16.90	148.08	15.33	102.08	20.57
Sb	4.81	118.69	1.19	32.18	2.88	107.52	4.45	87.17	11.00	44.92	4.93	155.46
Sc	13.10	33.13	4.19	49.27	11.13	13.66	13.66	14.11	12.03	15.88	17.38	13.80
Sm	5.84	21.20	3.48	14.11	4.67	12.86	5.65	8.88	6.67	9.42	6.47	10.56
Ta	1.17	38.80	1.17	21.94	0.80	53.68	1.07	36.47	1.45	33.31	1.21	33.75
Tb	0.72	46.84	0.05	331.66	0.56	52.13	0.68	41.30	0.88	25.83	0.91	23.33
Th	17.17	33.89	21.15	17.50	13.31	29.66	15.83	23.53	19.46	24.17	14.70	22.93
U	3.95	38.71	6.14	18.28	2.81	31.42	3.75	26.86	4.45	27.52	3.30	25.32
Yb	2.29	25.32	1.38	16.12	1.89	17.95	2.34	15.72	2.77	18.79	2.52	15.63
Zn	107.38	52.67	72.91	44.39	89.75	25.24	99.36	22.92	101.88	26.58	141.58	64.01

	2.6 (n=3)		2.7 (n=3)		2.8 (n=16)		3.1 (n=62)	
	Avg.	CV	Avg.	CV	Avg.	CV	Avg.	CV
As	31.67	105.13	18.33	39.46	41.25	45.11	54.66	33.87
Ba	396.67	17.16	606.67	19.32	775.63	37.10	643.87	26.22
Ca%	8.93	11.27	4.10	66.39	7.51	44.18	5.02	43.04
Ce	57.33	4.39	105.67	3.82	98.88	10.54	128.00	11.44
Co	22.67	22.64	29.33	10.96	9.56	20.19	7.82	15.09
Cr	230.00	33.15	301.00	36.86	60.94	75.72	29.42	25.74
Cs	5.07	41.88	6.33	16.88	25.78	51.41	55.62	24.95
Eu	1.17	4.95	2.13	2.71	1.20	10.09	1.27	11.52
Fe%	5.03	9.29	5.18	10.83	3.04	13.71	2.86	11.16
Hf	3.77	13.10	5.87	5.48	5.90	11.46	7.08	14.09
K%	2.27	10.19	2.57	31.49	3.90	23.22	6.19	15.66
La	29.80	4.61	70.40	4.41	56.55	12.49	73.37	11.21
Lu	0.36	5.73	0.53	16.37	0.35	9.11	0.44	10.05
Na%	0.71	67.00	0.87	8.05	0.72	30.38	0.77	18.53
Nd	27.67	12.69	53.33	6.58	37.44	11.82	42.90	11.81
Rb	81.00	39.25	115.67	14.63	227.50	49.09	485.97	21.49
Sb	1.00	45.83	3.43	127.80	2.48	62.55	3.76	62.68
Sc	18.17	5.94	18.20	5.94	8.15	25.15	5.42	12.61
Sm	5.16	5.72	9.70	6.68	5.81	12.81	6.21	10.78
Ta	1.27	24.12	1.53	19.92	1.30	31.78	2.26	18.44
Tb	0.70	14.29	1.20	8.33	0.56	42.02	0.66	32.55
Th	10.27	23.14	25.00	24.37	26.81	19.37	45.27	14.06
U	2.20	24.05	4.63	25.93	5.76	32.18	5.05	22.22
Yb	2.50	10.58	3.27	16.86	1.78	24.53	2.26	23.73
Zn	90.67	28.21	128.33	50.25	86.75	17.88	107.68	16.29

Table 3 continued. Statistical summary of Alişar ceramic NAA clusters giving group IDs and number of samples, averages (Avg.) and coefficients of variation (CV). Elements in parts per million unless otherwise indicated. Note that none of the singleton samples are included.

.	1.2	1.3	1.5	1.1	1.4	1.6	2.5	2.3	2.2	2.4	2.8	2.1	2.6	2.7	2.61	3.1	3.11	3.12	3.13	outlier	Total	%	# clusters
jar/jug	9	1	0	0	0	0	21	10	10	10	5	4	0	2	0	22	0	0	1	0	95	33	11
jug	6	2	0	1	0	1	8	13	8	0	2	4	0	0	0	17	0	1	0	0	63	22	11
bowl	4	0	4	0	0	0	4	2	2	8	7	0	1	0	0	4	0	0	0	0	36	13	9
juglet	9	1	1	2	2	0	3	6	2	3	1	2	1	0	0	2	1	0	0	0	36	13	14
jug/crater	2	1	0	0	0	0	2	2	4	3	0	0	0	0	0	9	0	0	0	0	23	8	7
crater	0	0	0	0	0	0	6	2	1	2	1	1	1	0	0	8	0	0	0	0	22	8	8
cup	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	3	1	3
bowl - Greek	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3	1	3
bottle	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	
platter/plate	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	
crater/jug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	
juglet/pot	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	
Total	31	5	5	4	3	1	48	36	28	26	16	11	3	3	1	62	1	1	1	1	287		
%	11	2	2	1	1	0	17	13	10	9	6	4	1	1	0	22	0	0	0	0			
# of forms	6	4	2	3	2	1	10	7	7	5	5	4	3	2	1	6	1	1	1				

Table 4. Alişar vessel forms by NAA cluster (forms and NAA macrogroups sorted by abundance). Percentages of each form (right) and cluster (bottom). Number of clusters per form (far right column, >1) and number of forms per NAA cluster (bottom row, >1).

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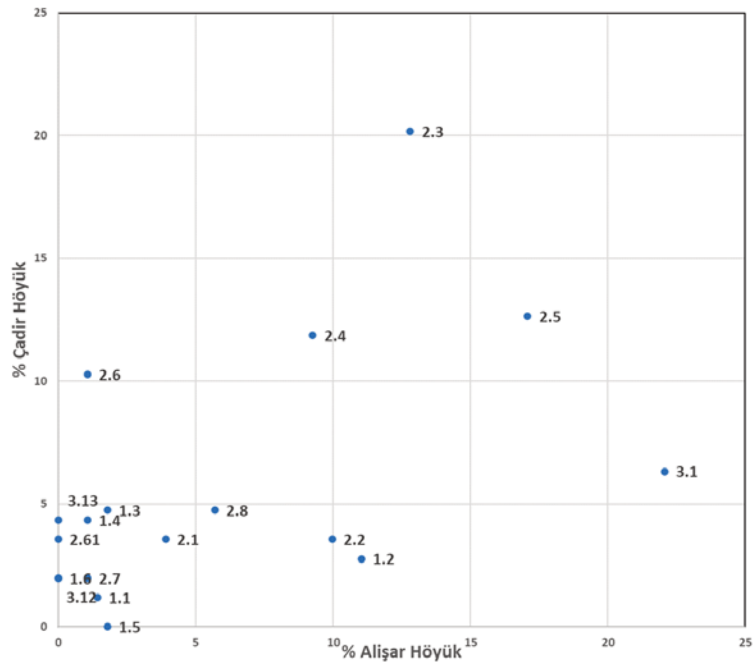

Fig. 12. Percentage of sherds from Çadır and Alişar in each cluster. Note cluster 2.3 is most common at Çadır, while cluster 3.1 is most common at Alişar. Clusters 2.4–2.5 are similar at both sites. Clusters with less than 2% at both sites removed (Alişar clusters used to predict Çadır cluster ID).

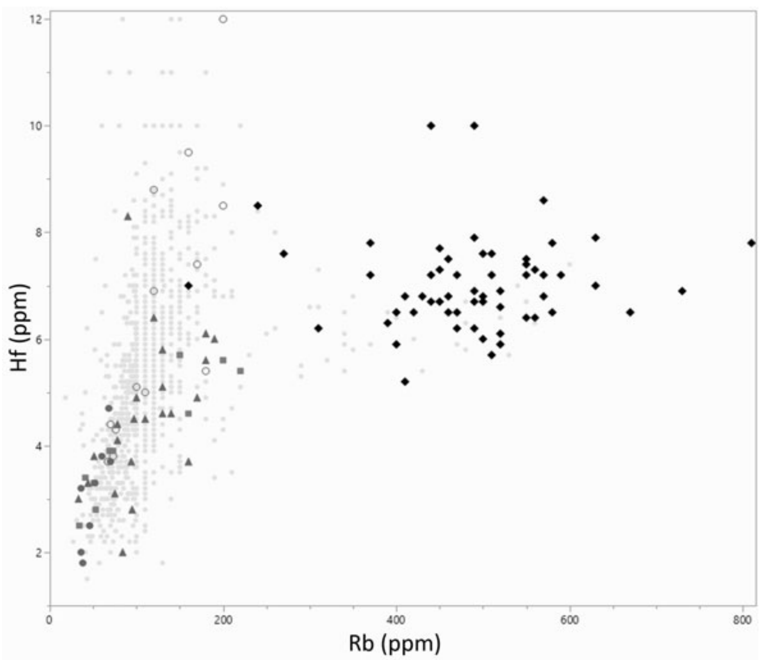

Fig. 13. The compositionally exotic nature of Alişar cluster 3.1 (solid diamonds) is demonstrated in this graph through a comparison of Rb/Hf (identified as the best discriminators of Alişar cluster 3.1) with sediments (all symbols) and ceramics (grey points) from Alişar, Çadır, Kaman and Kerkenes. Sediments include Alişar (n=9) solid circles; Çadır (n=12) solid squares; Kaman (n=28) solid triangles; Kerkenes (n=13) open circles. Note ceramic samples that overlap Alişar 3.1 are from Çadır (n=17) and Kaman (n=2).

Two circumstantial considerations point to a source for 3.1 in the vicinity of Alişar. First, 3.1 ceramics are largely confined to Alişar and nearby Çadır (the lower percentage of matches for cluster 3.1 at Çadır suggests this is an unlikely source). The absence of cluster 3.1 from our ca late seventh-century Kerkenes sample is potentially chronologically significant. Second, while our sediment sampling regime did not include a sample that matched cluster 3.1, we subsequently identified a nearby, highly localised, hydrothermal geological precinct that could prove to be the source of this cluster. As one of the few clusters which is found at multiple sites in the AIA dataset, cluster 3.1 supplied both local consumers and long-distance exchange networks, and should be a productive candidate for future provenance work in central Anatolia.

Compositional groups, forms and decoration

In this section, we discuss ceramic attributes in relation to compositional macrogroups and their clusters, focusing on forms and general decorative types. Clusters potentially represent different sources or different workshops. A large number of clusters therefore suggests that

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ceramics from a wide range of sources and/or workshops were consumed or used at Alişar. As noted above, the forms identified in the sherd assemblage were limited to relatively generic types. Given this ambiguity, there is undoubtedly some overlap in form/cluster relationships. Despite evidence for a clear sample-size effect, where the number of forms per NAA cluster correlates with the number of sherds per form (e.g., the relationship between number of NAA groups and number of form samples in fig. 14), clear patterns in distribution across the clusters are nonetheless also evident (fig. 15; table 4). Jugs and craters dominate cluster 3.1. The cluster distribution across the jar/jug category is similar to that for jugs, suggesting they likely include some of the same forms. Juglets, on the other hand, dominate clusters 1.2 and 2.3. Both jugs and juglets dominate clusters from beyond the immediate catchment (macrogroups I and III) but with different source patterning. Bowls include some potentially exotic sources, but the majority occur in local clusters 2.4 and 2.8.

Comparison of cluster (source) diversity across forms, in relation to sample size, shows that jar/jug forms have the lowest cluster diversity, while juglets show the greatest diversity. For other forms, a power relationship is evident between sample size and number of clusters (fig. 14). This suggests that we are approaching the potential number of sources or workshops (clusters) present in a larger assemblage.

Turning to the cluster distribution across general decorative types, cluster 3.1 is dominated by Brown on Ground (BOG), Brown on White (BOW) and Black polished (BP) (table 5). Bichrome decoration, on the other hand, is most often local (macrogroup II), but differentially distributed across compositional clusters within this macrogroup (fig. 16). For example, Bichrome decoration on white (BiOW) is most commonly cluster 2.5. Brown on Red (BOR) wares, while also more common in cluster 3.1, are more evenly distributed across a range of local sources.

Source diversity among decorative types is greatest for Brown on Ground, with Brown on White showing less diversity (fig. 17). As sample sizes are large for these two styles, this pattern is likely to be meaningful. BOG also appears to be derived from multiple sources (within macrogroup III), suggesting that this style is more widely exchanged across the region. In general, there appears to be a large number of sources relative to sample size (e.g., Black polished n=14, with six clusters), suggesting a diverse interaction sphere.

In terms of the stylistic diversity present in each source/NAA cluster, the number of styles included in macrogroup II shows a linear relationship with sample size of compositional cluster (fig. 18a). Local cluster 2.5 has slightly greater stylistic and formal diversity than would be predicted compared to other local clusters (fig. 18a–b). Cluster 3.1, on the other hand, shows a relatively limited number of forms and styles (fig. 18a–b), suggesting a more focused/preferred range of vessel forms from this source (either limited production or limited exchange).

One aspect of the assemblage is especially surprising: the decorative regimes (e.g., BOW, BOG, BiOW) are common to all NAA macrogroups (including macrogroup III), although specific clusters have varying frequencies of these decorative regimes. While specific 'hands' or stylistic elements may be associated with sites or areas, the general class of decoration was produced widely across the region.

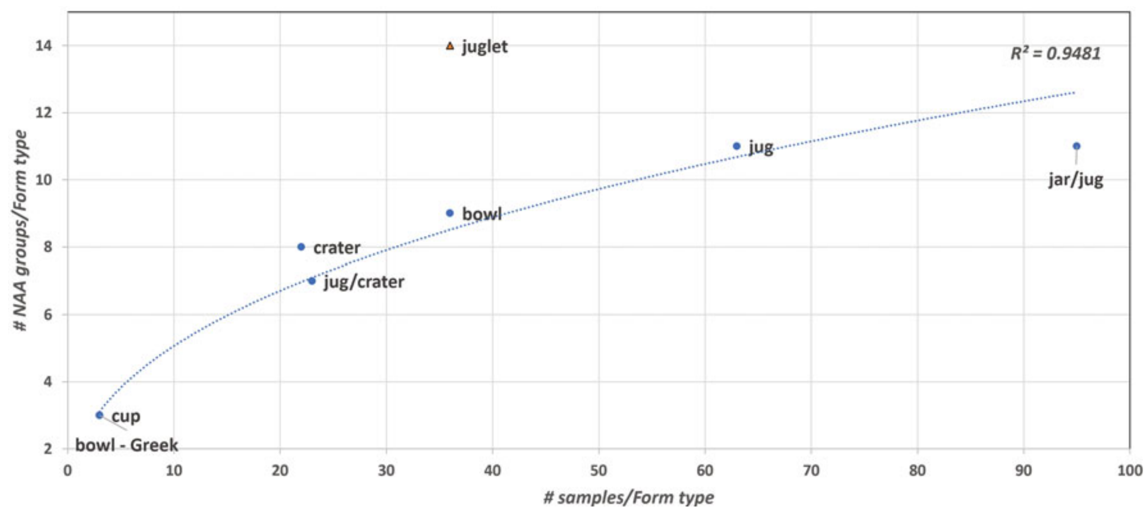

Fig. 14. Comparison of number of NAA clusters and sample size of forms for Alişar samples showing overall strong power relationship. An exception is the form type 'juglets' with a higher than expected number of NAA clusters represented for its sample size.

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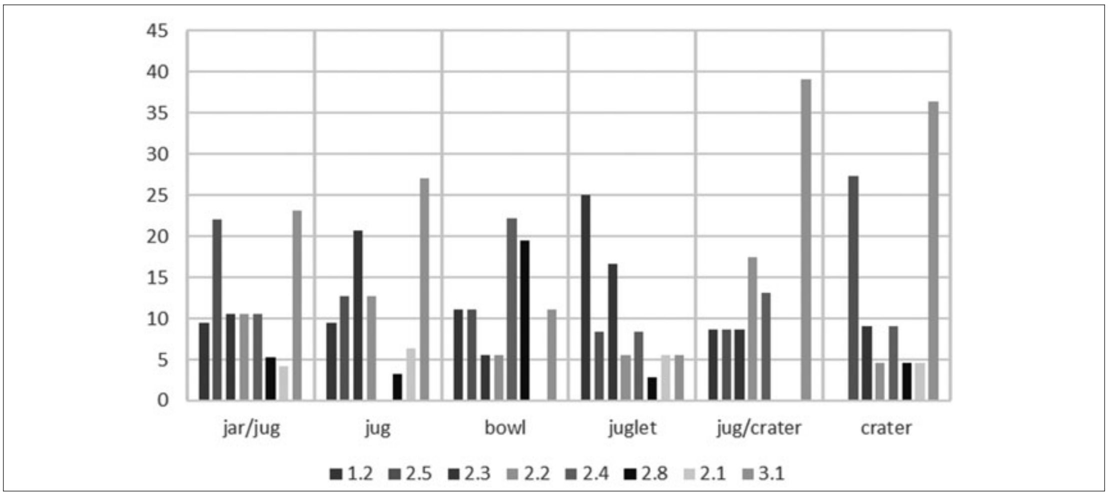

Fig. 15. Most common ceramic forms in Alişar sample: percentage of NAA clusters per common form.

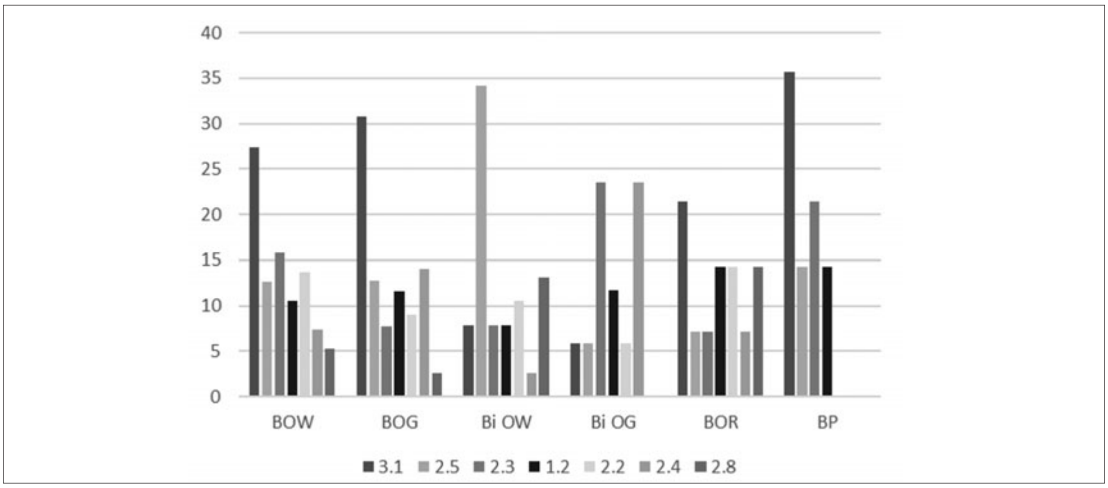

Fig. 16. Most common ceramic styles/decoration in Alişar sample: percentage of NAA clusters per common style.

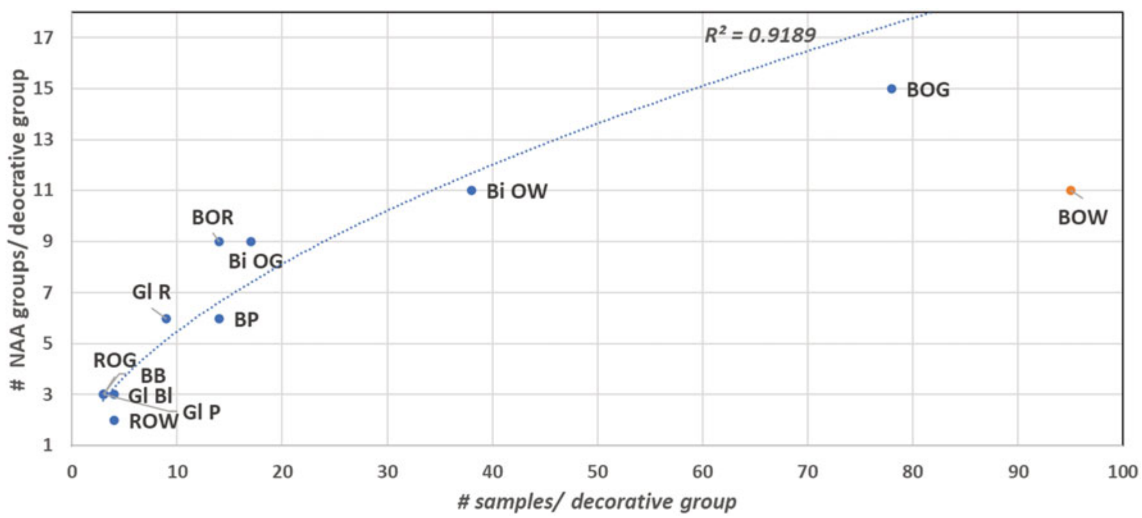

Fig. 17. Comparison of number of NAA clusters and sample size of stylistic/decorative group for Alişar samples showing overall strong power relationship. Brown on Ground (BOG) has the greatest NAA group diversity and Brown on White (BOW) lower NAA diversity than expected given its position as the decorative group with the largest sample size.

	3.1	2.5	2.3	1.2	2.2	2.4	2.8	2.1	1.3	1.5	1.1	1.4	2.6	2.7	1.6	2.61	3.11	3.12	3.13	outlier	Total	%	# clusters
BOW	26	12	15	10	13	7	5	4	1	0	0	0	1	1	0	0	0	0	0	0	95	33	11
BOG	24	10	6	9	7	11	2	1	2	0	0	1	1	1	0	1	1	1	0	0	78	27	15
Bi OW	3	13	3	3	4	1	5	3	0	1	1	0	0	1	0	0	0	0	0	0	38	13	11
Bi OG	1	1	4	2	1	4	0	2	0	0	1	0	0	0	0	0	0	0	1	0	17	6	9
BOR	3	1	1	2	2	1	2	0	1	0	0	0	1	0	0	0	0	0	0	0	14	5	9
BP	5	2	3	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	14	5	6
Gl R	0	2	1	1	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	1	9	3	6
Gl Bl	0	2	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4	1	3
ROW	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	2
BB	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	1	3
Gl P	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	3	1	3
ROG	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	1	3
Bi OWR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	
Bl OR	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
Gl Bi	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
R	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
RW	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
Total	62	48	36	31	28	26	16	11	5	5	4	3	3	3	1	1	1	1	1	1	287	100	
%	22	17	13	11	10	9	6	4	2	2	1	1	1	1	0	0	0	0	0	0	100		
# styles	6	11	10	9	6	7	6	5	4	3	4	3	3	3	1	1	1	1	1	1			

Table 5. Alişar decorative styles (left column) by NAA cluster (top row) sorted by abundance. Percentages per style (right column) and percentages of styles per NAA cluster (bottom row). Number of clusters per style far right column (> 1), number of styles per cluster bottom row (> 1).

Bi OW: Bichrome on White; BOR: Brown on Red; BP: Black polished; Gl R: Red glazed; Gl B: Black glazed; ROW: Red on White; BB: Black burnished; Gl P: Polychrome glazed; ROG: Red on Ground; Bi OWR: Bichrome on White and Red; Bl OR Black on Red; Gl Bi: Bichrome glazed; R: Red slipped; RW: Red and White.

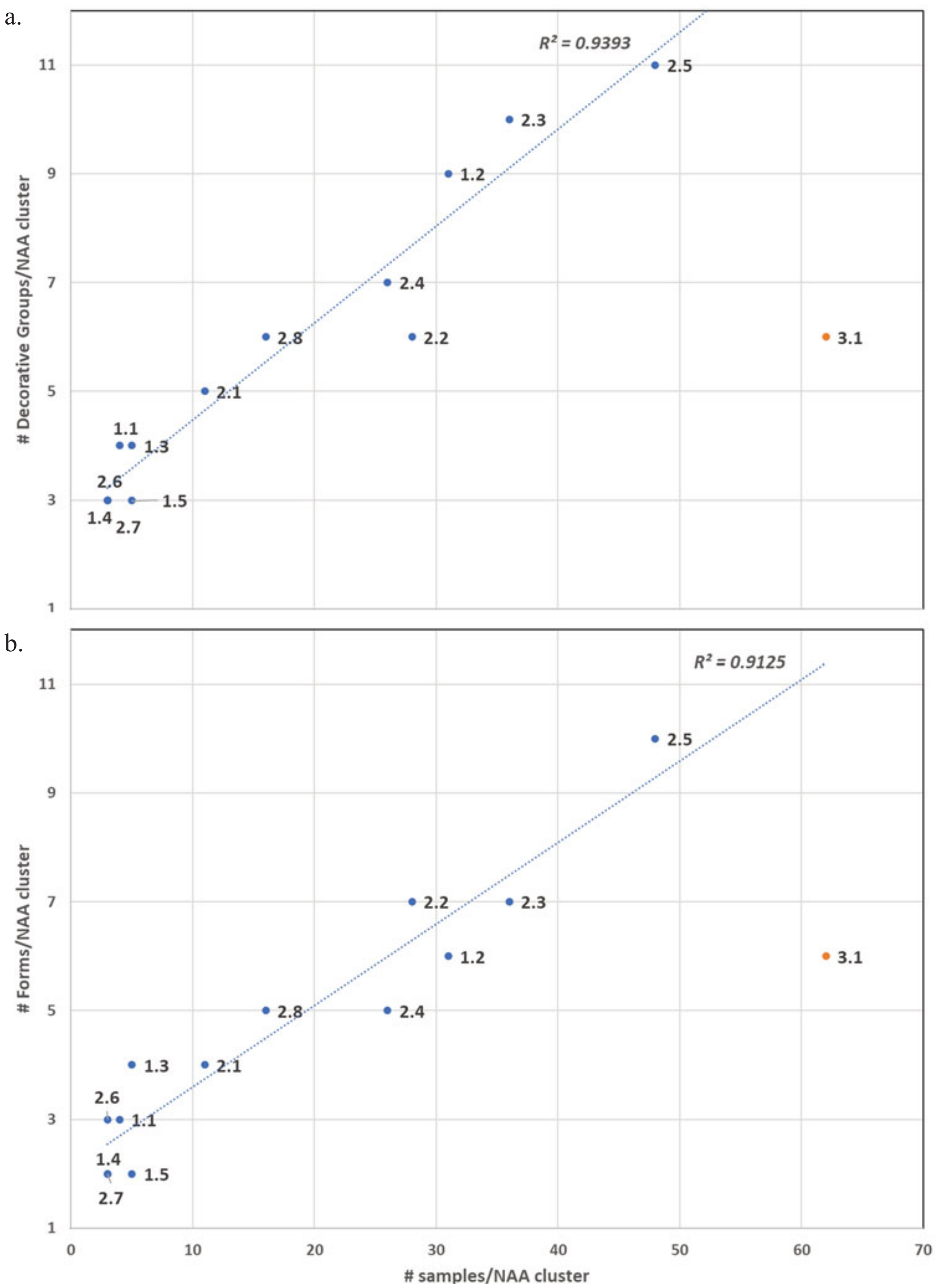

Fig. 18. Comparison of decorative style (a) and form diversity (b) relative to sample size for Alişar samples showing overall strong linear relationships. The exception, cluster 3.1 (removed from the R2 equation), is an outlier due to its more limited (specialised) range of decorative and form types.

This suggests the operation of a regional 'canon' or koine, broadly identifiable but also highly individualised in execution of both stylistic elements and formal dimensions (fig. 7) (e.g., von der Osten 1937: Plate VIII).

Although our sample of Silhouette ware is small (n=10), this type is distributed across two macrogroups and four compositional clusters. In local cluster 2.4 (Silhouette n=4), several of the designs look like the same hand or workshop although they include BOW, BOG and BOR styles. Two of the three Silhouette samples in cluster 2.5 also look to be the same hand and/or workshop. The third, in cluster 2.61, looks like a different hand or is in a distinct workshop style. All three cluster 3.1 Silhouette samples are BOW, but stylistically each appears to represent a different hand. Overall, the compositional and stylistic diversity of the general

Silhouette style suggests it was reproduced/emulated at multiple locations, and likely by more than one workshop at some settlements (including Alişar) (fig. 19).

When Alişar ceramic compositions were compared with those from nearby sites, the close relationships between individual sites and sources in the region became apparent. Despite the biased sample, the distribution across clusters suggests some site-specific sources (e.g., 2.6/2.61 for Çadır; fig. 12). Alişar and Çadır are relatively geographically close (ca 13km). But based on ethnographic data for the movement of clay by potters (ca 85% quarry clay 7km or less at inland sites [Arnold 1985; Rice 2015: 130; see also Michelaki et al. 2012; Neyt et al. 2012]), their inter-site distance is greater than this expected range for the acquisition of clays. Other clusters (2.3, 2.4 and 2.5), common to both Alişar and Çadır, may represent clays available to potters at both. The distribution of other production sources suggests close interaction between many sites in the local region during the Iron Age, with – perhaps more significantly – less evidence for interactions further afield. Although limited long-distance exchange would not be unexpected for ceramics in this period, other contemporary sites show surprising evidence of more distant exchanges (e.g., Gordion; Kealhofer et al. 2022). The main exception for the Alişar assemblage is cluster 3.1 as the only source that specifically matches ceramics at central Anatolian sites (Gordion, Alişar and Kaman), highlighting the likely importance of this ceramic group in local, regional and long-distance exchange.

Discussion

Returning to questions about the contribution of Alişar ceramics to understanding regional political and economic organisation, we address three issues: first, the type of interaction sphere in which Alişar was embedded; second, the nature of the interactions among groups within this sphere; and third, whether this interaction sphere reveals a regional trajectory of change. We conclude with an assessment of the contribution that our analysis of Alişar ceramics can make to understanding societal transformation and re-emergent polities in Iron Age Anatolia. While our data provide ample scope to discuss interaction and the nature of participating groups, it can only be circumstantially linked to Tabal. But if, as we have argued, Alişar was within the territory of Tabal, then the conclusions we draw provide new insight into the organisation and developmental trajectory of this so far ill-defined polity.

Type of interaction sphere

Alişar's dense interaction sphere is evident in the diversity of its ceramic assemblage. Two distinct types of diversity are present. First, there are the ways in which its distinctive regional stylistic regime or 'canon' (e.g., BOG/BOW) is executed. Second, there is internal diversity in the range of production sources identified in the geochemistry, which implies multiple workshops producing similar styles. Together, this variability documents the expression of local identities and the importance of intra-regional

Fig. 19. Alişar Silhouette ware samples (AIA project photographs). Several different artists appear to have painted the pots represented here. For example, note the difference in the legs of 5445, 5465, 5466 and 5470. 1. AIA 5453, 2. AIA 5466, 3. AIA 5444, 4. AIA 5445, 5. AIA 5419, 6. AIA 5464, 7. AIA 5454, 8. AIA 5470, 9. AIA 5465, 10. AIA 5605.

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group interaction through a shared ceramic repertoire. Shared decorative schemes and vessel forms, with highly individualised expression, signify a densely connected and competitive field of social groups across the region. Specifically, even the small sample of Alişar IV/Silhouette styles includes a relatively diverse range of sources and associated 'hands', which argues for production across several workshops and sites (and this also true for Black polished wares). Because the diversity in local styles is also well represented across multiple sources, both exchange and emulation suggest a closely integrated interaction sphere. D'Alfonso and colleagues (2022) identified a shared community of practice and interaction sphere for ceramics in south Cappadocia (e.g., Kınık, Ovaoren and Porsuk) at this time. The combined sphere, from south Cappadocia to the Alişar region, suggests the larger regional scale within which interaction occurred.

The stylistic diversity between compositional clusters or sources, within what appears to be a limited range of quality differences, also suggests the operation of a more heterarchical, rather than hierarchical, politico-economic organisation. No forms or styles appear to be clear markers of status or hierarchy. Instead, variations in decoration and shape within formal types (such as juglets) display unique identities within a shared community of practices. As this variation does not map onto specific sources, it highlights the internal complexity of production and group identity within sites and/or source use. The lack of uniformity in styles and forms also strongly argues for the elaboration of practices which value the display of social identities over more efficient (higher-output) production. While ceramics were unlikely to be the only or even the main mode for displaying status, their elaboration and specialisation suggest they were an embedded part of such social practices.

Nature of interactions

Beyond identifying an interaction sphere, we can see the importance of social practices and group interactions through the elaboration of identity markers. The presence of highly decorated tablewares (craters, jugs and juglets), as well as the consumption of drink that these forms imply, highlights the role of consumption *contexts* for the display and enactment of identity. Despite the challenge of identifying archaeological contexts in this assemblage, the diverse and unique combinations of decorative elements (e.g., 'rays') on craters, likely used to serve beverages (arguably wine and/or beer), are often closely linked to identity and group consolidation (Dietler 1990; Dietler, Hayden 2010). There is little ceramic evidence for comparable elaboration of food-serving vessels. Similarly, the distribution of multiple sources across each form suggests the material enactment of multiple types of identity in their use (Kealhofer et al. 2010; Kealhofer et al. 2022). Lack of contextual information makes it difficult to know whether these displays of identity and consumption reflect the practices of private households or more public contexts. However, with a florescence of decoration and individualised variability across forms (e.g., craters and juglets), the Alişar IV assemblage stands in striking contrast to the predominantly plain ceramics of the Hittite Late Bronze Age.

At another scale, comparison of the NAA results for the ceramic sample from Alişar with those from other sites in central Anatolia, particularly Çadır, highlights similarity in production and consumption across the region. At both Alişar and Çadır, the styles and sources suggest a similar and overlapping pattern of intra-regional interaction and exchange. Consumption patterns show similarities as well, with a pattern of greater diversity in jugs than bowls at both sites (Kealhofer et al. 2010: 78). This similarity suggests a larger and more closely knit community of practices linking these settlements.

That the patterning we see in this region may represent a coherent cultural canon – possibly instigated and maintained through affiliation with the polity of Tabal – is supported by the contrast with Phrygian Gordion in west central Anatolia, ca 300km to the west. At Gordion, not only is the urban structure entirely different (d'Alfonso 2020; Voigt 2013), the contemporary (Early Phrygian) exchange and interaction sphere appears to have been much larger, encompassing parts of western as well as central Anatolia (Genz 2011; Kealhofer et al. 2010; von der Osten 1937). Groups within these two entities clearly interacted and shared aspects of identity, as seen in both emulation and exchange of the small portion of the stylistic Dark-Painted Geometric-Monochrome Ware repertoire of decorated buff wares found in Middle Iron Age (Early Phrygian–Middle Phrygian) Gordion, as well as the Black polished wares found at Alişar and nearby sites (Kealhofer et al. 2022; Sams 1994). These similarities in the individualised elaboration of material culture in relation to drinking suggest a shared socio-political ideology across central Anatolia.

Trajectories within Tabal?

Sites within the region around Alişar show some similarities in trajectories of settlement size, organisation and exchange patterns. While the archaeological record of Boğazköy, with better chronological control and evidence for occupation continuity from the Early Iron Age to the Late Iron Age, is quite different from Alişar, parallel trends are evident (Genz 2000; 2011; Seeher 1998; 2010). During the Middle Iron Age and Late Iron Age at Boğazköy, as at Çadır, ceramic source diversity shifted from largely local to a mix of local and regional imports by the sixth century BCE (Bossert 2000; Kealhofer et al. 2009). People at

Alişar, like Çadır and Boğazköy, showed a preference for exchanging regionally produced tablewares, while storage or transport vessels continued to be locally produced (Genz 2004; 2006; Kealhofer et al. 2009; Kealhofer et al. 2010). The settlement area and complexity of Boğazköy increased during the MIA (post-tenth century BCE), as it did during the Middle Iron Age at Alişar. Trends for this period at Çadır remain unclear (Genz 2011; Ross, McMahon et al. 2019; von der Osten 1937). A feature of all of these Middle Iron Age economies is their largely inward focus and engagement in exchanges tied to the development and maintenance of groups within the region. All three sites share a comparable stylistic repertoire.

In sum, the data reveal the operation of a dense intra-regional interaction sphere in the Middle Iron Age (?ca ninth–early sixth century BCE) across the central Anatolian plateau that extends south and west from inside the bend of the Kızılırmak. This suggests interaction not merely as shared ideas and styles, or competitive emulation, but also as extensive local movement and exchange of decorated serving wares, elaborating the consumption of – it seems – wine or beer. While general styles such as Dark-Painted Geometric-Monochrome Ware are present across a swath of central Anatolia (d'Alfonso et al. 2022), the pattern of production and exchange points to more intensive interaction within a smaller region. This potentially reflects a competitive field of centres joined by a common cultural koine or canon (e.g., Lucero 1999). Thus, despite the larger interaction sphere suggested by shared stylistic elements, communities more specific to this part of central Anatolia appear to have shared a strong provincial identity. That groups within this zone expanded and became more competitive during the Middle Iron Age is hinted at in several ways: the development of fortified lower towns (Alişar and Boğazköy), increased size of settlements (all three sites? [Alişar, Boğazköy and Çadır]), and increasing ceramic source diversity (Boğazköy, Çadır). Unlike Assyrian incursions into this region, the expansion of extra-regional polities such as Lydia and the Achaemenids in the late seventh–early sixth century BCE and their encroachment onto Tabal's territory appear to have checked this growth. The data we present support a model of the political organisation of Tabal as a confederation of intensely interacting groups of localised economies throughout most of the Middle Iron Age rather than a larger-scale integrated regional polity.

Ceramics and the re-emergence of polity

If we return to the larger issue of the re-emergence of complex polities after the collapse of large-scale Late Bronze Age 'empires' in southwest Asia, several things are strikingly different in the polities of the Iron Age. First, local identities and *intra*-regional interaction emerge and dominate the Middle Iron Age polities across central Anatolia. Under Hittite hegemony, pottery was not used to negotiate local group identities. In fact, some argue it was meant to erase these (Gates 2001). Hittite pottery was also rarely exchanged (e.g., Glatz 2016; Henrickson 1995). In contrast, during the Middle Iron Age, ceramics became part of defining identities and were embedded in regional exchange spheres. Second, these new strategies signal real differences not only in the scale of Middle Iron Age societies, but also in the social strategies used by elites to negotiate power. In a broader sense, the re-formation of complex societies after the collapse of Late Bronze Age 'empire' in central Anatolia involved new political strategies and identities that stand in stark contrast to the hegemonic practices of the Hittites. While Phrygia and groups in Tabal developed very different strategies, in each area groups generated highly localised and visually distinctive elite consumption patterns, reflecting more factionalised and less hierarchical political practices than during the Late Bronze Age.

The archaeological evidence from urban structure and organisation as well as ceramics provides tantalising evidence about the nature of the communities within Tabal. A broader study of contextualised common ware pottery from Alişar and other sites in central Anatolia should further elucidate the nature of the economy of this polity.

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