

# The End of the Kura-Araxes Culture as Seen from Nadir Tepesi in Iranian Azerbaijan

KARIM ALIZADEH, SEPIDEH MAZIAR, AND  
M. ROUHOLLAH MOHAMMADI

*Open Access on AJA Online*

By the late fourth to early third millennium B.C.E., Kura-Araxes (Early Transcaucasian) material culture spread from the southern Caucasus throughout much of southwest Asia. The Kura-Araxes settlements declined and ultimately disappeared in almost all the regions in southwest Asia around the middle of the third millennium B.C.E. The transition to the “post-Kura-Araxes” time in the southern Caucasus is one of the most tantalizing subjects in the archaeology of the region. Despite current knowledge on the origins and spread of the Kura-Araxes culture, little is known about the end of this cultural horizon. In this field report, we argue that the Kura-Araxes culture in the western Caspian littoral plain ended abruptly and possibly violently. To demonstrate this, we review the current hypotheses about the end of the Kura-Araxes culture and use results from excavations at Nadir Tepesi in Iranian Azerbaijan.<sup>1</sup>

## INTRODUCTION

By the late fourth to early third millennium B.C.E., Kura-Araxes material culture spread from the southern Caucasus throughout much of southwest Asia. In Iran, scholars have documented this material as far south as northwestern Iran,<sup>2</sup> the central Zagros, at least as far as Kangavar Valley near Kermanshah,<sup>3</sup> in northern areas of the central plateau,<sup>4</sup> and along the Caspian shore in northern Iran.<sup>5</sup> The Kura-Araxes also spread to eastern Anatolia and farther west into

---

<sup>1</sup> We would like to gratefully acknowledge the support of Hassan Fazeli Nashli, former director of the Iranian Center for Archaeological Research; Massoud Alaviyan-e Sadr, former director of the Iranian Cultural Heritage and Tourism Organization in Ardabil; M. Mohammadzadeh, former deputy governor of Parsabad; Hassan Yousefi; and our team members Hamed Eghbal and Leila Hajavi. Without their assistance and support, this research would not have been possible. The ideas in this report were first presented by Alizadeh in December 2015 at the international conference “Caspian Sea Shores: Contacts, Spaces and Territories along the Caspian Sea during the Bronze and Iron Ages” in Paris. We have benefited from the insights and comments of scholars at the conference, including the late Antonio Sagona, as well as Catharine Marro and Stephan Kroll. We are also grateful to the three anonymous reviewers for the *AJA*. Comments and corrections by Karen Rubinson to improve the text are appreciated. Thanks to Kerry Hoerth for editing the first draft. Of course, the authors are solely responsible for any shortcomings. Figures are our own unless otherwise noted.

<sup>2</sup> Burney 1961, 1962, 1964, 1972, 1975.

<sup>3</sup> Young 2004.

<sup>4</sup> Fazeli Nashli and Ajerloo 2004; Azarnoush and Helwing 2005, 208, fig. 28; Fazeli Nashli et al. 2013.

<sup>5</sup> Fahimi 2005.

the Levant, and perhaps even to Cyprus.<sup>6</sup> This unprecedented distribution of an archaeological tradition across a vast region raises important questions regarding the dispersal mechanisms of its material culture.<sup>7</sup>

The Kura-Araxes settlements declined and ultimately disappeared in almost all regions of southwest Asia around the middle of the third millennium B.C.E.<sup>8</sup> There are two predominant theories explaining the end of the Kura-Araxes culture. The first highlights the role of environmental factors in the abandonment of the Kura-Araxes settlements. It is argued that aridification and deforestation led to the undermining of dry farming and ultimately to the abandonment of the settlements. However, results from a recent paleoenvironmental study do not support this theory but rather indicate that the climate of the region between 4000 and 2000 B.C.E. was relatively stable.<sup>9</sup>

The second theory stresses the role of migration and the arrival of new groups of people into the region. Following the decline of the relatively dense distribution of the Kura-Araxes settlements, some striking transformations are reflected in material culture. These include a large reduction in the number of settlements, an increase in burial sites, the appearance of collective burials and impressive royal kurgans, increased mobility, and changes in ceramic traditions (i.e., the appearance of Martkopi-Bedeni ceramics). In addition, there was a clear increase in metalwork, especially in the gold and silver attested mostly in rich burials.<sup>10</sup> To some scholars, all these transformations suggest the arrival of new groups of people with a new lifestyle based on transhumant pastoralism.<sup>11</sup> However, there is scarce evidence of permanent settlements in some areas, which points to animal husbandry as well as cultivation and viticulture.<sup>12</sup>

Although there seems to be a timid consensus on the influx of new groups of people into the region coeval with the collapse of the Kura-Araxes culture, the

mechanisms involved in this radical transformation are debated. We do not yet know how and why this transformation happened and what mechanisms were involved in the process. The end of the Kura-Araxes in the various areas and sites of the southern Caucasus, eastern Anatolia, and Iran appears to have happened with varying material evidence, and scholars have set forth a variety of explanations. Results from the excavations at Sos Höyük in eastern Anatolia suggest that the sequence of Kura-Araxes traditions continued into the second millennium B.C.E., along with Martkopi and Bedeni ceramics.<sup>13</sup> Similar continuity of Kura-Araxes materials is also seen at Martkopi sites in Georgia.<sup>14</sup> However, at Gegharot in Armenia, the Kura-Araxes village was rapidly abandoned “with complete domestic assemblages left in place on the floors in most areas,”<sup>15</sup> and there was no sign of any subsequent continuity of Kura-Araxes traditions or coexistence with newcomers.<sup>16</sup> Again, at some other sites in the area, a gradual change from late Kura-Araxes to post-Kura-Araxes (Martkopi-Bedeni) is reported.<sup>17</sup> Considering the continuity of some ceramic elements of the Kura-Araxes traditions in the Middle Bronze Age at a few sites, some scholars have hypothesized that the newcomers coexisted with Kura-Araxes communities for a while.<sup>18</sup> However, scholars such as Rova argue that the evidence supporting the notion of coexistence is quite weak, and the data at our current disposal are insufficient to compare new cultural traditions with the previous Kura-Araxes.<sup>19</sup>

Results from our own investigations in areas of northwestern Iran have in fact provided evidence of two Kura-Araxes endings: one from Köhne Shahar,<sup>20</sup> the other from Nadir Tepesi. In this report, we present the Nadir Tepesi evidence.

Nadir Tepesi is a multiperiod mounded site in the western corner of the Mughan Steppe, where excavations were conducted in the summer of 2006. We present some of the results from our excavations at Nadir

<sup>6</sup> Webb and Frankel 1999; Frankel 2000; Frankel and Webb 2000; Kohl 2009.

<sup>7</sup> Sagona 1984; Rothman 2003, 2005, 2015; Batiuk and Rothman 2007; Palumbi 2008, 2016; Batiuk 2013.

<sup>8</sup> Sagona 2011, 694–95; Palumbi and Chataigner 2014, 257.

<sup>9</sup> Connor and Sagona 2007; see also Smith 2015, 131.

<sup>10</sup> Edens 1995, 55; Kohl 2001, 323; Smith 2005, 260; 2015, 130–31; Lyonnet 2014, 128.

<sup>11</sup> Kohl 1992, 228–29; Kushnareva 1997, 193–94; Rothman 2005, 55; Kohl and Lyonnet 2008, 30–1; Piro 2009.

<sup>12</sup> Kushnareva 1959, 415; Smith 2012, 679.

<sup>13</sup> Sagona 2004, 479.

<sup>14</sup> Rova 2014.

<sup>15</sup> Badalyan et al. 2008, 57.

<sup>16</sup> Badalyan et al. 2008, 57–8.

<sup>17</sup> Smith 2012, 680.

<sup>18</sup> Puturidze 2003, 114; Lyonnet 2014, 128; Palumbi and Chataigner 2014, 257–58.

<sup>19</sup> Rova 2014, 64–5.

<sup>20</sup> Alizadeh et al. (forthcoming).

Tepesi focusing on the Kura-Araxes components, especially evidence related to the end of the Kura-Araxes occupation at the site.

#### THE MUGHAN STEPPE ARCHAEOLOGICAL PROJECT AND NADIR TEPESE

The Mughan area is a geographically diverse region in the northwestern corner of the Islamic Republic of Iran (fig. 1), defined at the north by the Araxes River and including the broad plain to its south as well as the foothills east of the Qara Su River leading up to Mount Sabalan in the Ardabil region.<sup>21</sup> The plain was formed by fluvio-lacustrine sediments during the last glacial maximum, when the Caspian Sea extended inland to the southwest. Today, the Araxes River flows in a meandering channel in a broad but incised floodplain. Rainfall averages almost 300 mm per year, with mild winters and dry summers.<sup>22</sup> Since the closure of the Russian-Iranian frontier in 1884, the southwestern third of the plain falls within Iran and the northeastern two-thirds are within the Republic of Azerbaijan.<sup>23</sup>

The climate and geomorphology of the plain is within the bounds of generally reliable rain-fed cereal cultivation, but Mughan has traditionally been given over to pasture. Mughan and adjacent areas were the favorite winter grazing lands of the Mongols,<sup>24</sup> and later, Timur also wintered in the area. Beginning in the early 18th century C.E., it hosted the winter camps of the Shahsevan tribal confederacy, which migrated annually between pastures in Mughan and on the slopes of Mount Sabalan.<sup>25</sup> In the mid 20th century, however, this long-term economic mode began to shift. The best of the former Shahsevan grazing grounds in the Mughan Steppe came under irrigated agriculture beginning in the mid 20th century.<sup>26</sup>

The Mughan Steppe Archaeological Project, a multicomponent project under the direction of Alizadeh, began in 2004 with soundings at Ultan Qalası, a 70 ha city of the Late Sassanian and Early Islamic periods, with a fortified inner city, located on the south bank of the Araxes River (fig. 2).<sup>27</sup> Three seasons of excavations at Ultan Qalası, an initial survey in the steppe in 2005, and one season of stratigraphic excavation at Nadir

Tepesi have improved our knowledge of the ancient landscape of the area. The Mughan Steppe Archaeological Project was entirely supported by the Iranian Center for Archaeological Research. The 2005 survey was conducted intensively in the western part of the steppe around Aslandüz and elsewhere via extensive reconnaissance methods. We targeted several discrete zones in which we carried out more detailed observations, including the walking of transects (see fig. 2).<sup>28</sup> Our main aim in the first season of survey was to characterize the general nature and condition of archaeological remains on the steppe. Sites and landscape features identified from CORONA satellite photographs and aerial images were then visited on the ground.

At present, the earliest occupation of the steppe is poorly understood. The open-air site MS-030, near Babaxan Qishlaqi village in the foothills between the uplands and the steppe, has been tentatively identified as Upper Paleolithic in date and may represent the earliest known archaeological evidence for human activities in this region.<sup>29</sup> Targeted excavations are needed to confirm this date. Few small sites along the Qara Su River, close to its juncture with the Araxes River and not far from Aslandüz town, are characterized by ceramics with chaff tempers and coarse surfaces. The presence of such material might indicate the existence of pre–Early Bronze Age settlements at these areas. A small site known as Iydir Tepesi, next to Iydir village on the west bank of the Qara Su, was excavated in the early 2000s by a team from the Iranian Cultural Heritage Organization of Ardabil, and, based on their ceramic analysis, Hessari and Akbari suggest the site can be dated to the Late Neolithic through Chalcolithic periods.<sup>30</sup> Comparable sherds were also recovered from the excavation of Köhne Pasgah Tepesi,<sup>31</sup> and from intensive survey along the Araxes River basin.<sup>32</sup>

Several mounds show the distinct ceramics of the Early Bronze Age Kura-Araxes culture. Most are clustered along the edge of the Araxes River terrace. Early Bronze Age settlements in the area are exemplified by

<sup>21</sup> Schweizer 1970; Minorsky 1993.

<sup>22</sup> Schweizer 1970, 86–92.

<sup>23</sup> Tapper 1983.

<sup>24</sup> Smith 1999.

<sup>25</sup> Tapper 1979, 1997.

<sup>26</sup> Schweizer 1974; Tapper 1997, 309.

<sup>27</sup> Alizadeh 2007a, 2011.

<sup>28</sup> Alizadeh and Ur 2006, 2007.

<sup>29</sup> Thanks to Fereidoun Biglari, who helped us understand the relative chronology of Upper Paleolithic stone tools collected from this site. Sites identified during the surveys were each given a unique identification number preceded by MS (for Mughan Steppe).

<sup>30</sup> Hessari and Akbari 2006.

<sup>31</sup> Maziar 2010.

<sup>32</sup> Maziar 2015; Maziar and Zalaghi (forthcoming).

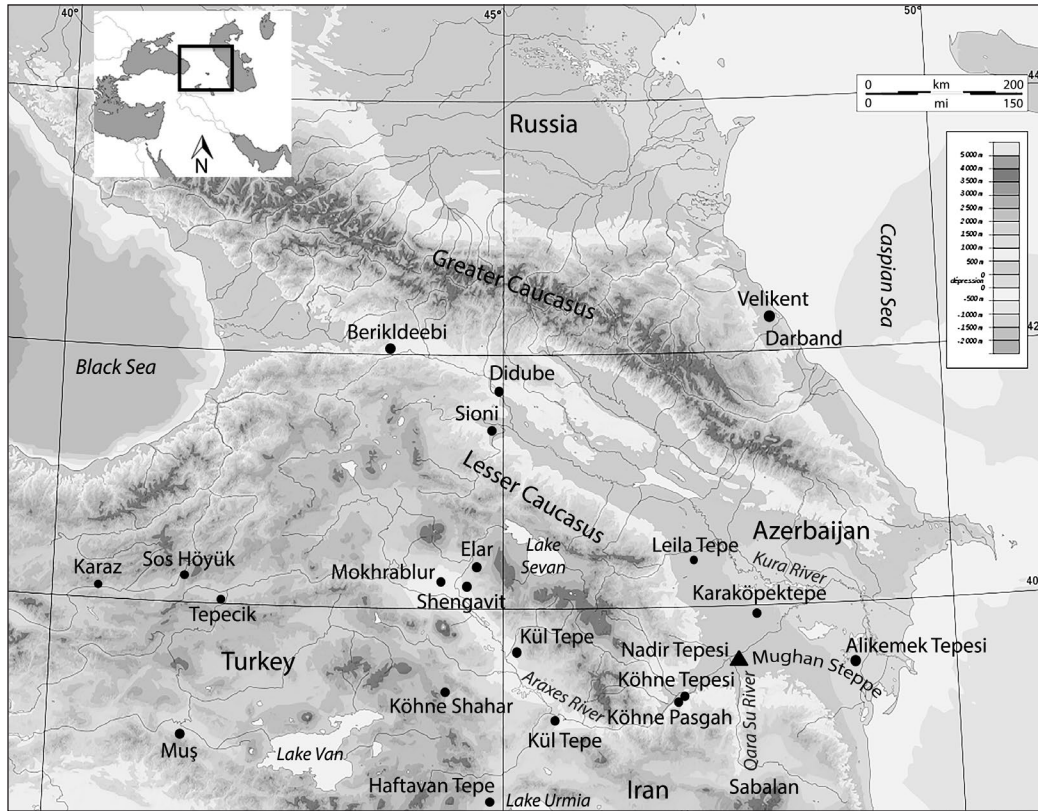


FIG. 1. Major Kura-Araxes sites in the Caucasus region and location of Nadir Tepesi (modified from Bourrichon/Wikimedia Commons/CC BY-SA 3.0/GFDL).

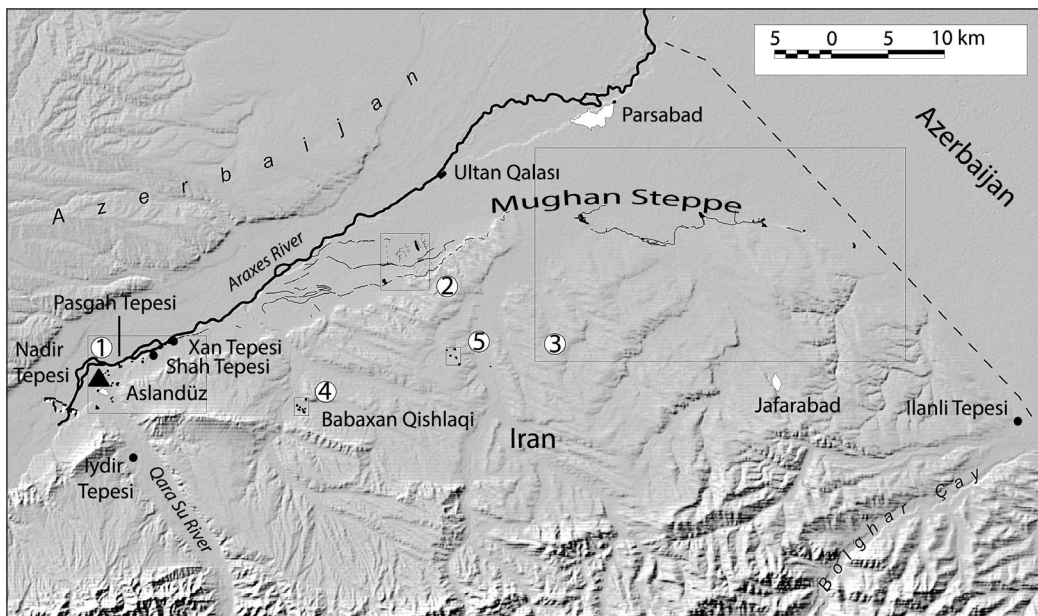


FIG. 2. Five targeted discrete zones for intensive surveys and some of the archaeological sites in Mughan Steppe (modified from Alizadeh and Ur 2006).

several multiperiod hill sites, including Nadir Tepesi (MS-042) and Xan Tepesi (MS-011), which lie along the south bank of the Araxes River, and Ilanli Tepesi, which is situated on the bank of the Bolghar River in the eastern part of the steppe. Typical Kura-Araxes ceramics, including black and gray burnished wares, were collected at these sites during our survey.

Ceramics similar to those of the Chalcolithic, Middle and Late Bronze Ages, Iron Age, Achaemenid, and Parthian periods can be found on some Kura-Araxes sites and a few others such as Shah Tepesi and Pasgah Tepesi near the south bank of the Araxes River. Large Sassanian settlement complexes along ancient irrigation canals were easily recognized through CORONA images.<sup>33</sup> Surprisingly, no earlier sites were found along canals, even during the intensive part of our survey around Aslandüz.

To better understand the evolution of settlements and societies of the region, it was important to understand a complete ceramic sequence and a typology of diagnostic types from all periods. Thus, there was a need for a controlled excavation at one of the deeply stratified multiperiod sites. Surveys at Nadir Tepesi in the western corner of the Mughan Steppe had already demonstrated a long span of occupation at the site from the Early Bronze Age through the 20th century C.E.<sup>34</sup> Excavations at this multiperiod site offered the possibility of unearthing well-stratified deposits covering large spans of the prehistoric through Medieval and modern periods in the region.

#### EXCAVATIONS AT NADIR TEPESI

Nadir Tepesi is located at the confluence of two rivers, the Araxes and the Qara Su, on the outskirts of the town of Aslandüz (fig. 3). It is a flat-topped, multiperiod mound located in the westernmost part of the steppe. The site is situated at N39°26'68" E47°23'95". The top of the mound is approximately 187 masl as determined with a handheld Garmin GPS 12 Personal Navigator. It covers about 5 ha and rises more than 25 m above the surrounding plain. Regional surveys indicate that Nadir Tepesi is the highest mound in the western part of the Mughan Steppe. There are ruins of an early 20th-century army station on top, along with a modern army station on the northern edge of the mound. The building of a road to the modern army station has dam-

aged its western and southern slopes. Other than that, the location of the mound in the compound of an army station has probably kept it relatively intact. The army commander was kind enough to let us excavate the site, both inside and outside the army fences.

Nadir Tepesi first became subject to intensive surface collection for the study of its Partho-Sassanian occupations.<sup>35</sup> Our excavations were carried out at the site in summer 2006.<sup>36</sup> The initial aim was to expose a stratigraphically defined sequence of occupations at the site and provide a preliminary insight into the ceramic sequence and the occupational history of the Mughan Steppe. To this end, we opened three test trenches named A, B, and C (TTA, TTB, and TTC) (fig. 4). TTA was opened on the northwestern edge of the site and sampled the highest and latest deposits on the mound. TTB on the southwestern edge of the site sampled the earliest deposits, and TTC, also on the southwestern edge and just above TTB, sampled the deposits between TTA and TTB, which were excavated to a gravel bed. The soundings initially were 2 x 2 m in size, but as the excavation continued down we expanded the trenches to 2 x 3 m or more, especially in TTA. A brief description of results from excavations in each of these trenches is presented below.

#### *Test Trench A (TTA)*

Results from stratigraphy and <sup>14</sup>C dating in TTA demonstrated evidence of occupation at the site from the Iron Age through the early 20th century. At least four prominent architectural phases were recognized in the stratigraphy of TTA: (1) a mudbrick structure from the Iron Age, probably dating to the eighth century B.C.E.;<sup>37</sup> (2) a Sassanian fort; (3) a medieval fort possibly from the Seljuk era; and (4) a Pahlavi-period army station on the top of the mound.<sup>38</sup> Archaeological deposits between each of these architectural phases did

<sup>35</sup> Mohammadi 2004.

<sup>36</sup> Alizadeh 2007b.

<sup>37</sup> Traditionally, the Iron Age in Iran is considered to have started ca. the mid second millennium B.C.E. and ended ca. 550 B.C.E. (Iron Age [IA] I: ca. 1500–1200 B.C.E.; IA II: ca. 1200–800 B.C.E.; IA III: ca. 800–550 B.C.E.). Some archaeologists add IA IV: Achaemenid period. This periodization is different from the rest of the Near East and the Caucasus. There have been some suggestions for abandoning the traditional chronology of the Iron Age and using a new chronology in which the Iron Age starts ca. 1300–1200 B.C.E. (see Azarnoush and Helwing 2005; Haerincx and Overlaet 2010).

<sup>38</sup> Alizadeh 2007b.

<sup>33</sup> Alizadeh and Ur 2007; Ur and Alizadeh 2013.

<sup>34</sup> Mohammadi 2004.



FIG. 3. View of Nadir Tepesi from the south.

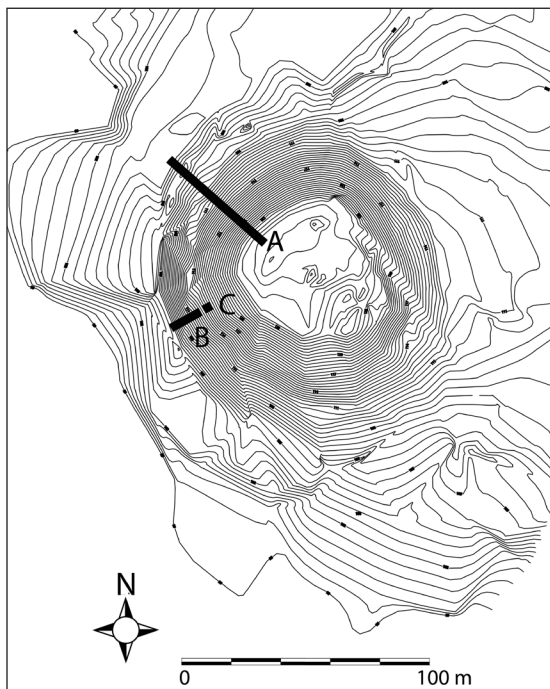


FIG. 4. Topographic map of Nadir Tepesi with the locations of excavation trenches (courtesy Iranian Cultural Heritage, Handicrafts, and Tourism Organization, Ardabil).

not provide evidence of residential features. However, the sequence of ceramics suggests that the site was occupied or continuously used through the early modern era and into the 20th century. We detected no evidence of a gap or hiatus in the occupational sequence.

These architectural phases, except the remains of the Pahlavi-period army station, were massive mudbrick structures with protruding towerlike features. This evidence suggests that the high elevation of the site above the surrounding plain made it an ideal location for fortifications in many different periods. The Iron Age mudbrick structure was such a large architectural feature that its remnants were visible over almost all the surface of the mound. Despite evidence of continuous occupation of the site from the Iron Age through the modern era, the occupation of the site earlier than the Iron Age became enigmatic in TTA. Below the Iron Age mudbrick structure was a thick deposit composed of ashes, fragments of mudbricks, bones, and sometimes ceramics, without any clearly associated residential structures. Thus, the nature of the occupational layers below the Iron Age remained unclear, and it was necessary to open another test trench targeting the earliest occupations at the site.

#### *Test Trench B (TTB)*

By opening another test trench, TTB, on the southwestern edge of the site, we targeted occupations earlier than the Iron Age structure documented in TTA. Stratigraphy in TTB revealed evidence for the occupation of the site from the Kura-Araxes and post-Kura-Araxes times (fig. 5). More than 6 m of Kura-Araxes deposits were exposed at the bottom of the trench and, above the Kura-Araxes levels, 2.5 m of archaeological deposits of unknown character. Stratigraphy in TTB

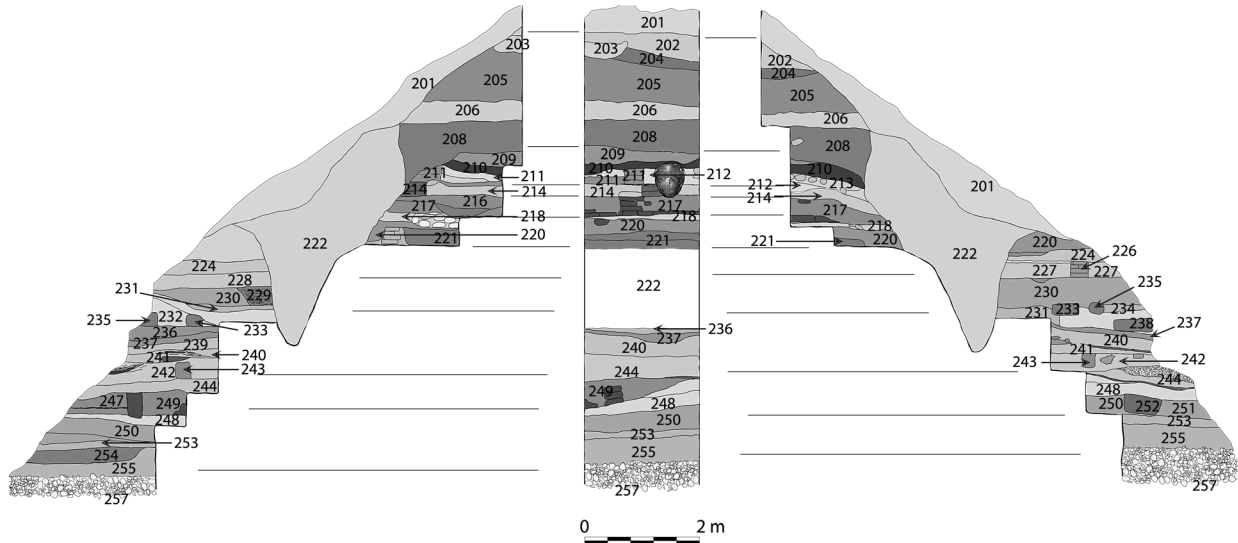


FIG. 5. Stratigraphy in test trench B at Nadir Tepesi, showing locus numbers.

showed that the first occupation at the site was formed on a thick gravel bed.

Continuous Kura-Araxes occupation of the site is attested by the recovery of characteristic Kura-Araxes ceramics (fig. 6), circular mudbrick buildings followed by angular buildings, and typical Kura-Araxes objects such as andirons (see fig. 6d). In the earlier occupational layers, we observed relatively insubstantial circular mudbrick buildings. In the later layers, angular buildings became common and appear more robust. The appearance of large jars within angular mudbrick buildings (loci [L]211 and 212) may possibly suggest a permanent settlement with storage facilities. A ditch apparently from a later period (L222—perhaps a canal or a moat around one of the later forts on top of the mound) cut through the Kura-Araxes layers. Aside from architectural remains and ceramics, we also recovered animal bones, obsidian tools, and small objects such as bone tools and small wheels or spindle whorls. It should be noted that the ceramic collection from TTB was relatively small. Overall, parallels for the ceramics from TTB point to the Kura-Araxes phases II and III.

The continuous sequence of Kura-Araxes materials suddenly ended after L209. There is a sharp contrast between the material culture of the last Kura-Araxes layer (L209) and the immediately superimposed occupation. The immediate layer (L208) above the final Kura-Araxes layer (L209) was a thick deposit

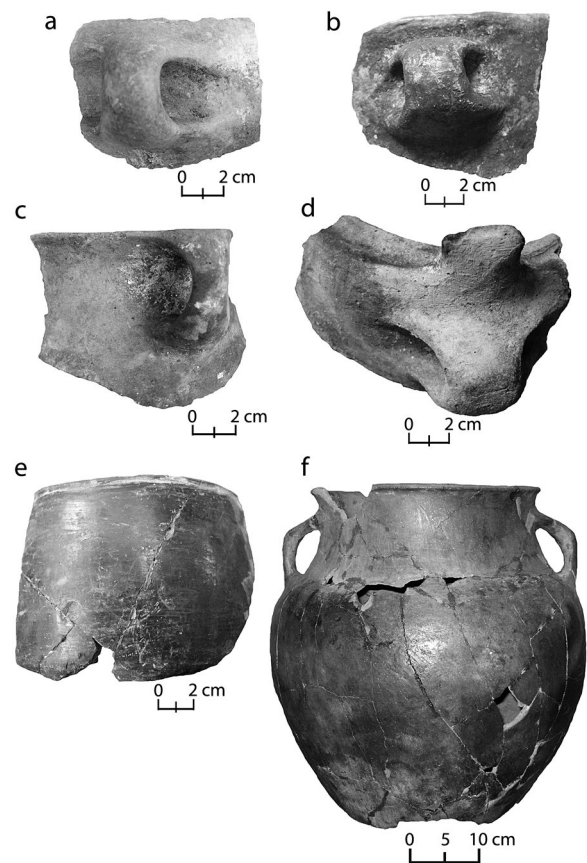


FIG. 6. A selection of Kura-Araxes ceramics from test trench B at Nadir Tepesi: a, TTB.L247; b, TTB.L244; c, TTB.L236; d, TTB.L230; e, TTB.L218; f, TTB.L212.

consisting of fragments of mudbricks, ceramics, bones, patches of ash, and charcoal. A similar composition was observed in the succeeding upper layers (L201–206). There was no evidence of architectural features or other material similar to the Kura-Araxes occupations in these layers. Ceramics from L209 suggest typical Kura-Araxes ceramics, but, interestingly, ceramics from the archaeological deposits above it, namely L208–201, revealed no Kura-Araxes ceramics. This suggests a sharp and abrupt change. In addition to the sharp contrast between the material cultures, the last Kura-Araxes occupational layer (L209) in TTB possibly represents a burned layer (fig. 7). This layer was a thick red-orange deposit with patches of ashy areas and charcoal and abundant burnt plant remains, all indicative of fire.

Although excavations in TTB provided evidence for the earliest occupations at the site, our understanding of the occupational sequence was still incomplete. The Kura-Araxes occupations ended abruptly, and the succeeding deposits (L208–202) did not provide the same clear evidence for residential buildings or other architectural features. The accumulated deposit (L202–208) above the last Kura-Araxes layer was anthropogenic but did not represent a typical occupational sequence like the Kura-Araxes strata. This 2.5 m thick deposit provided no remains similar to the Kura-Araxes occupations but instead consisted of an amalgamation of mudbrick fragments, some ceramics, patches of ashes, stones, and bones. Moreover, we could not detect the Iron Age mudbrick structure in TTB, although it is visible on the surface of the mound and was documented in TTA. In order to fill the gap in our understanding of the sequence, we opened another test trench targeting archaeological deposits between the last Kura-Araxes layer and the Iron Age mudbrick structure.

#### *Test Trench C (TTC)*

We opened TTC about 2 m to the northeast of TTB and inside the modern army fences on the mound. Remnants of the Iron Age mudbrick structure (discovered in TTA) were visible on the surface (L302) in the western side of the mound and guided us in opening TTC. TTC was excavated to a depth of 2.5 m to the latest Kura-Araxes occupational layer that was detected earlier in TTB (fig. 8). The last Kura-Araxes layer (L315 and 313) near the bottom of TTC revealed deposits very similar to those in TTB. Here, like L209 in TTB, there was again a thick red-orange deposit (L315) with large areas of gray ashes and charcoal and also particularly compressed ashy deposits (L313). The

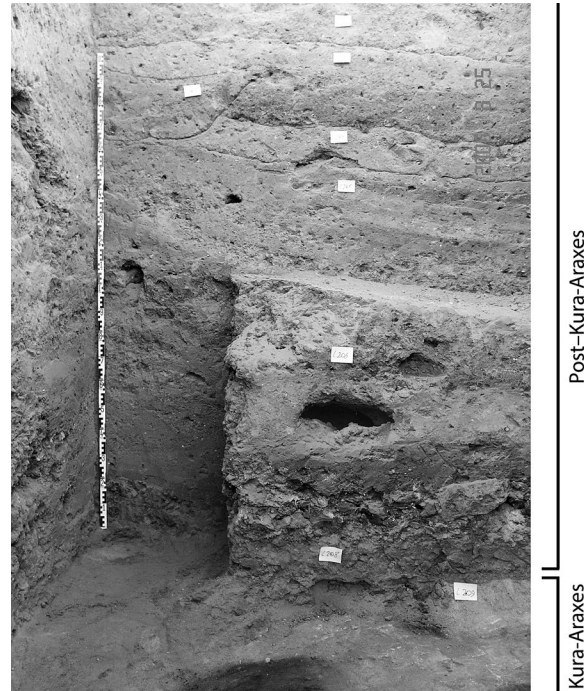


FIG. 7. Test trench B at Nadir Tepesi, showing the final Kura-Araxes layer (L209) with evidence of fire.

Kura-Araxes ceramics were documented only near the bottom of TTC in L313 and 315. The deposits immediately above them did not provide any Kura-Araxes ceramics. Here there is also a thick, 2.5 m deposit (L312 and 310–303) composed of fragments of mudbricks, unclear architectural features (L308), and a mixture of ashes, patches of charcoal, bones, stones, and ceramics; this deposit resembles L202–208 in TTB. As in the case of TTB, the nature of these anthropogenic deposits immediately above the last Kura-Araxes layer in TTC remains unclear. Future investigations at the site may provide more information about their character.

Charcoal samples were systematically collected by trowel at the time of excavation from all three trenches at Nadir Tepesi. From the total of 16 samples, nine from TTB and TTC were submitted for radiocarbon analysis (table 1). Samples of varying size were recovered from Early Bronze Age Kura-Araxes contexts in TTB and one sample from TTC. The samples were analyzed by accelerator mass spectrometer (AMS) at the Oxford Radiocarbon Accelerator Unit, University of Oxford, and were calibrated using OxCal and IntCal13.<sup>39</sup> Overall, the limited ceramic assemblages

<sup>39</sup>Bronk Ramsey 2013; Reimer et al. 2013.



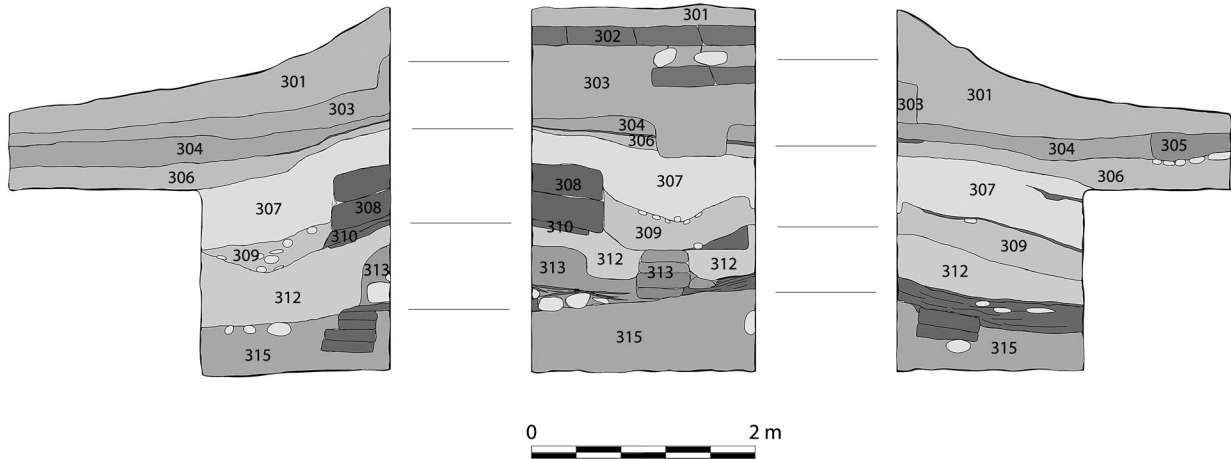


FIG. 8. Stratigraphy in test trench C at Nadir Tepesi.

TABLE 1. Radiocarbon determinations from Nadir Tepesi.

Lab No.	Context	$^{14}\text{C}$ Age (BP)	Cal. B.C.E. (95.4%)
OxA-17790	TTC. L303, charcoal	$3318 \pm 28$	1682–1519
OxA-17856	TTB. L211, charcoal	$3990 \pm 32$	2579–2462
OxA-17784	TTB. L227, charcoal	$3972 \pm 31$	2576–2350
OxA-18000	TTB. L232, charcoal	$4148 \pm 30$	2876–2626
OxA-17785	TTB. L234, charcoal	$4231 \pm 30$	2909–2701
OxA-17786	TTB. L237, charcoal	$4128 \pm 29$	2871–2581
OxA-17787	TTB. L242, charcoal	$4185 \pm 30$	2889–2669
OxA-17788	TTB. L248, charcoal	$4088 \pm 30$	2860–2498
OxA-17789	TTB. L251, charcoal	$4391 \pm 31$	3095–2916

Note: Calibrated using OxCal 4.2.4 (Bronk Ramsey 2013) and the IntCal13 atmospheric curve, with curve resolution set at 5 (Reimer et al. 2013).

and the radiocarbon dates from TTB and TTC attest to Kura-Araxes occupation phases spanning the last century of the fourth millennium through the mid third millennium B.C.E. (see table 1; fig. 9). Unfortunately, analysis of one sample from the first layer above the Kura-Araxes layer (L312) failed due to insufficient organic material for AMS dating, and we could not obtain a clear date for it. However, one of the samples for  $^{14}\text{C}$  dating from L303, near the top of the deposit and below the Iron Age structure, points to the middle of the second millennium B.C.E. Despite the lack of a clear date from the first layer above the Kura-Araxes strata, the radiocarbon determination from L211 (OxA-17856), one of the last Kura-Araxes layers, sug-

gests that the site was possibly abandoned by the Kura-Araxes community around the mid third millennium B.C.E. or slightly thereafter. We suggest that the 2.5 m archaeological deposit above the Kura-Araxes strata represents occupations from the mid third to the second half of the second millennium B.C.E. (i.e., late Early Bronze Age to Early Iron Age).

#### THE END OF THE KURA-ARAXES OCCUPATION AT NADIR TEPE SI

We postulate that around the mid third millennium B.C.E. Nadir Tepesi was abandoned by the Kura-Araxes community. The end of the Kura-Araxes occupation in TTB and TTC is marked by a characteristic red-orange

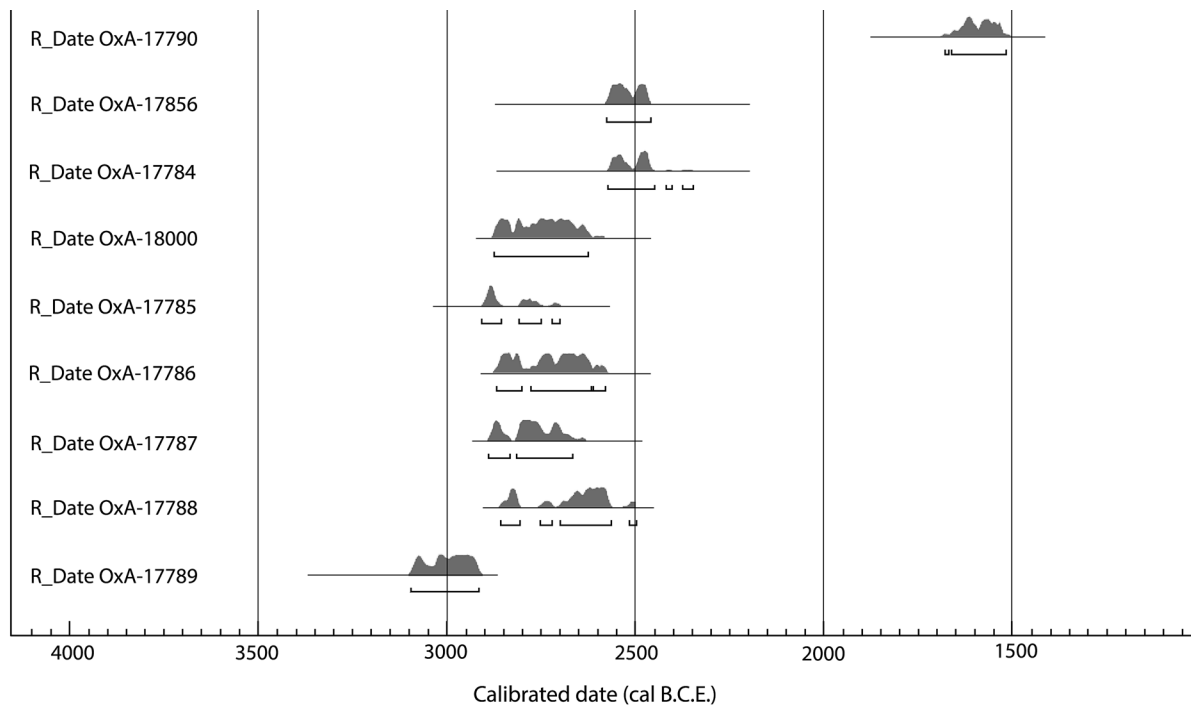


FIG. 9. Radiocarbon determinations from test trenches B and C, calibrated using OxCal 4.2.4 (Bronk Ramsey 2013) and the IntCal13 atmosphere curve, with curve resolution set at 5 (Reimer et al. 2013).

deposit that suggests a large-scale fire. It is unknown whether the destruction covers the whole settlement or is limited to its southwestern portion. However, it is hard to imagine that the fire was accidental since it represents the end of the Kura-Araxes occupation and an abrupt change in the cultural sequence at the site. The last Kura-Araxes occupational layer was immediately followed by a completely different archaeological repertoire. The thick destruction level followed immediately by a decisive break in the material culture suggests a violent end to the Kura-Araxes community at the site.

The ceramic collection recovered from the deposits above the last Kura-Araxes layer was scanty, but it does not show any considerable sign of continuity with Kura-Araxes traditions. A selection of the post-Kura-Araxes ceramics from TTA and TTC are shown in figures 10 and 11. Parallels found for these ceramics point to early Middle Bronze Age traditions in the southern Caucasus and eastern Anatolia.<sup>40</sup> There were a few painted, handmade, and well-fired ceramics with

orange to brown paste, and their inclusions generally in the clay paste consisted of fine sand particles. The decoration is always reserved for the exterior of vessels, and the paint color varies from brown to black. The decorative motifs are exclusively geometric, with an emphasis on the use of horizontal lines (see fig. 10c). However, the majority of the ceramics were mostly gray or black, often a lustrous burnished black with grooves, incisions, impressed designs, and very fine engraved lines. These ceramics are reminiscent of Martkopi pottery in the southern Caucasus.<sup>41</sup> In terms of design, some pieces (see fig. 11g, h) might be comparable to Middle Bronze and Late Bronze Age pottery in eastern Anatolia<sup>42</sup> and Bedeni pottery from Zhinvali and Abanoshevi in Georgia.<sup>43</sup> Other pieces (see figs. 10e, 11f–h) might be comparable to ceramics from Sajoge in Georgia.<sup>44</sup>

<sup>41</sup> Miron and Orthmann 1995.

<sup>42</sup> Özfirat 2008, 117, fig. 6; 2009, 243, fig. 20.

<sup>43</sup> Gogochuri 2008, figs. 8:2, 19:1, 19:2, 19:4, 20:5.

<sup>44</sup> Abramishvili and Orthmann 2008, 283, 286, figs. 5:1–5; 8:3, 4, 6.

<sup>40</sup> Abramishvili and Orthmann 2008; Gogochuri 2008; Özfirat 2008, 2009.

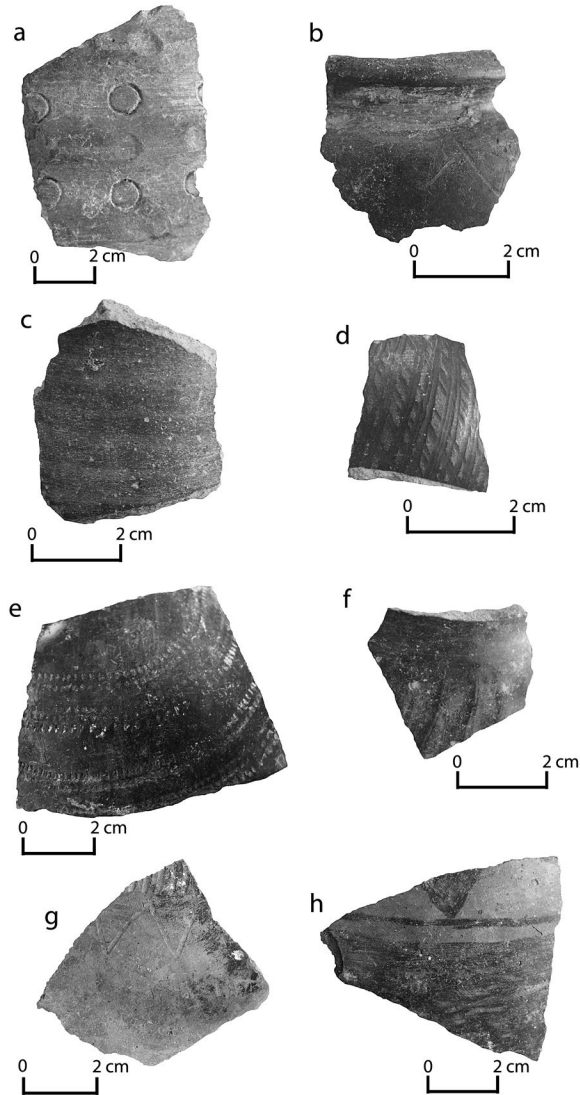


FIG. 10. Ceramics from layers following the end of the Kura-Araxes culture at Nadir Tepesi: *a*, TTA.L78; *b*, TTA.L78; *c*, TTA.L79; *d*, TTA.L90; *e*, TTA.L96; *f*, TTA.L99; *g*, TTC.L312; *h*, TTC.L312.

We do not yet have enough information to make inferences about the nature of the occupational deposits following the last Kura-Araxes layer. We did not find evidence for built structures in these layers, and the pottery does not help us understand the ceramic sequence after the Kura-Araxes period. The parallels for these ceramics suggest a mixture of both Middle and Late Bronze Age pottery traditions. The sharp contrast between the Kura-Araxes and the post-Kura-Araxes cultural material, especially the lack of evidence for settlement in the post-Kura-Araxes deposits, may invoke

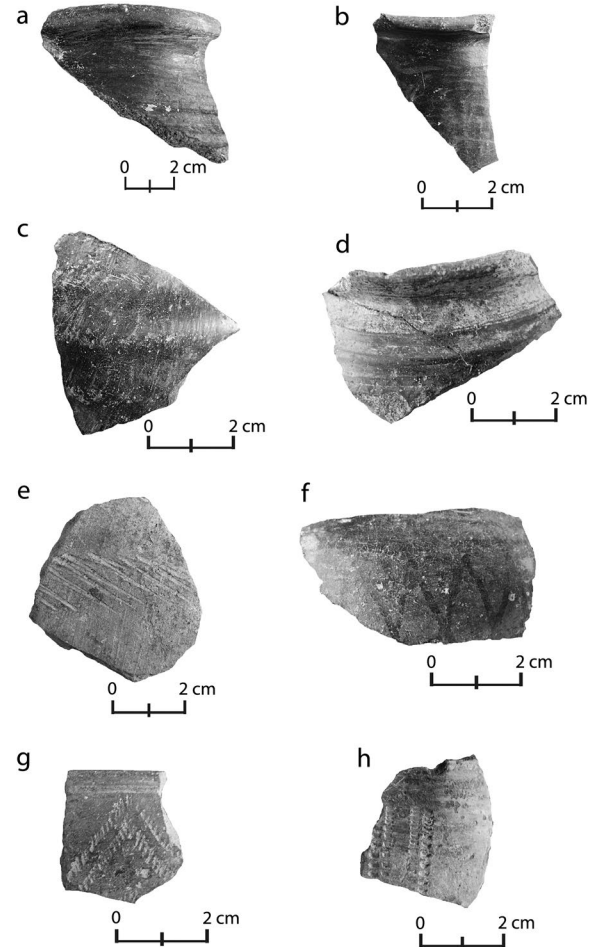


FIG. 11. Ceramics from layers following the end of the Kura-Araxes culture at Nadir Tepesi: *a*, TTC.L312; *b*, TTC.L310; *c*, TTC.L309; *d*, TTA.L92; *e*, TTA.L94; *f*, TTA.L92; *g*, TTA.L78; *h*, TTA.L78.

speculation about the appearance of pastoral nomads following the last Kura-Araxes occupation. However, a secure understanding of the post-Kura-Araxes deposits must await further investigation.

#### DISCUSSION AND CONCLUSION

The test trenches at Nadir Tepesi suggest that the Kura-Araxes occupation ended abruptly in the mid third millennium B.C.E. and that the site was then occupied or visited by a new group of people with new cultural traditions. Evidence for a significant destruction followed by the sharp discontinuity in the material culture could represent a violent termination of the Kura-Araxes occupation at Nadir Tepesi. This possibility provides one hypothesis for the end of the Kura-Araxes culture elsewhere as well in the Mughan Steppe.

It appears that there is no subsequent substantial built settlement until possibly the Late Iron Age in the region. Our intensive and extensive surveys on the Mughan Steppe did not provide evidence for settlements until long after the Kura-Araxes time. For whatever reason, settlements on the Mughan Steppe seem to have reappeared only in the Iron Age and remained sparse until the Sassanian period in late antiquity.<sup>45</sup> Although some ceramics with parallels in the Middle and Late Bronze Age and the Iron Age were found at a few sites, they do not seem to represent settlements. Indeed, except for the sites that may possibly contain burials, we do not know much about the Middle and Late Bronze Ages through the Iron Age in the Mughan Steppe. Similarly, archaeological investigations in the southern Caucasus do not provide information on settlements in the Middle Bronze Age.<sup>46</sup>

From a broad perspective, the abrupt and possibly violent end to the Kura-Araxes occupation at Nadir Tepesi, together with the sudden disappearance of the Kura-Araxes settlements and the scarcity of post-Kura-Araxes sites in the Mughan Steppe,<sup>47</sup> may indicate that these changes were part of a larger phenomenon. This evidence could suggest a major sociocultural and demographic transformation at a regional level, at least in the western Caspian littoral plain, in the middle of the third millennium B.C.E. Other archaeological investigations in the southern Caucasus portray a similar picture, that of newcomers with a significantly different lifestyle and means of subsistence possibly associated with a mobile economy. Except in some elements of the ceramic traditions, evidence of continuity of Kura-Araxes traditions and their coexistence with newcomers is scarce and uncertain.<sup>48</sup>

As new research usually raises new questions more than it provides answers, results from excavations at Nadir Tepesi and the Mughan Steppe also lead us to some stimulating questions rather than clear answers. One may wonder what happened to the people with the Kura-Araxes culture at Nadir Tepesi and elsewhere in the Mughan Steppe. Where did the Kura-Araxes communities go? Who were the newcomers? Where did they come from? Were they culturally and ethnically a unified group of people? What was the scale of immigration compared with emigration in the region?

<sup>45</sup> Alizadeh and Ur 2007.

<sup>46</sup> Smith et al. 2009, 55.

<sup>47</sup> Alizadeh and Ur 2006, 2007; Ur and Alizadeh 2013.

<sup>48</sup> See Kohl 2001, 322–23; Smith 2005, 260–64.

Does the abrupt change in material culture imply a sudden influx of newcomers rather than the gradual immigration of groups of people?

Tracing population movement and identifying evidence of migration are major methodological challenges for archaeologists.<sup>49</sup> On one hand, Puturidze argues that there is no evidence supporting the notion of a migration of people into the southern Caucasus.<sup>50</sup> Rather, she associates all the changes in the post-Kura-Araxes period with influences from Near Eastern societies as a result of developing interactions by the end of the third millennium B.C.E. On the other hand, Kohl hypothesizes the possibility of a “push-pull process”<sup>51</sup> in which new groups of people with wheeled carts and oxen-pulled wagons gradually moved from the steppes of the north into the southern Caucasus, and the Kura-Araxes communities subsequently moved farther south.<sup>52</sup>

Kohl also reminds us of the evidence of increased militarism from the Early to the Late Bronze Age that is reflected in more fortified sites, new weaponry, and an iconography of war as seen on the Karashamb Cup.<sup>53</sup> The appearance of defensive mechanisms such as fortification walls, which can be seen at Köhne Shahar, a Kura-Araxes settlement near Chaldran in Iranian Azerbaijan, further emphasizes the increase of intergroup conflicts and militarism during the Early Bronze Age, before the Kura-Araxes culture came to an end.<sup>54</sup> Kohl argues that, while the number of Kura-Araxes settlements decreased in the southern Caucasus, archaeological research indicates that the Kura-Araxes culture spread to western Iran in the Zagros region and to the Levant.<sup>55</sup> In Kohl’s view, as new groups of people moved in, the Kura-Araxes communities abandoned the southern Caucasus and moved farther south, where some of them already resided. Although some scholars suggest the possible movement of new groups of people from the northern steppes to the southern Caucasus,<sup>56</sup> others associate the cultures of the post-Kura-Araxes period, especially the Trialeti

<sup>49</sup> See Anthony 1990, 1997.

<sup>50</sup> Puturidze 2003, 127.

<sup>51</sup> Kohl 2001, 323–24; 2009, 259–61.

<sup>52</sup> Kohl (2007, 18, 112, 121) portrays a migratory movement of new groups of people not necessarily driven by invasion but rather driven by search for better pastures for herds.

<sup>53</sup> See Smith 2001.

<sup>54</sup> Alizadeh et al. 2015.

<sup>55</sup> Kohl 2001, 323–24.

<sup>56</sup> Kohl 2001, 2009; Lyonnet 2014.

culture, with movement of people from the Near East, possibly the expansion of Hurrian tribes.<sup>57</sup>

We believe that the evidence supports a less uniform scenario. The Kura-Araxes culture may have disappeared in various ways; the transition to the post-Kura-Araxes time may not be explained by a single model. Different Kura-Araxes settlements may have ended differently. The evidence from Nadir Tepesi could support a violent end at that site, and it is possible that similar evidence will be found at other sites in the Mughan Steppe. At some sites, such as Köhne Tepesi in the Khoda Afarin Plain,<sup>58</sup> the Kura-Araxes occupation also ended abruptly but without any sign of destruction. In other regions, there may be evidence supporting the coexistence of newcomers with Kura-Araxes communities for some period.<sup>59</sup> The results from Gegharot<sup>60</sup> in Armenia and recent excavations by one of the authors of this report at Köhne Shahar, do not support any of these models. At Köhne Shahar, the Kura-Araxes culture ended around the middle of the third millennium B.C.E.<sup>61</sup> In the last phase of Kura-Araxes occupation at the site, six storage jars in one of the workshop units stood intact, five of them still carefully covered by stone slabs. The evidence from Köhne Shahar may point to a nonviolent end or a planned abandonment of the site.<sup>62</sup>

As the excavations at Nadir Tepesi and other sites show, the demise of the Kura-Araxes culture remains enigmatic. While different Kura-Araxes settlements may have ended in different ways, it is remarkable that the culture seems to have disappeared at about the same time over a very extensive area. Although the ends of Kura-Araxes settlements do not fit a uniform pattern, they apparently were part of a large-scale phenomenon.

Karim Alizadeh  
Department of Anthropology  
Harvard University  
11 Divinity Avenue  
Cambridge, Massachusetts 02138  
karim.s.alizadeh@gmail.com

<sup>57</sup> Puturidze 2003, 114.

<sup>58</sup> Zalaghi et al. (forthcoming).

<sup>59</sup> Puturidze 2003, 114; Lyonnet 2014, 128; Palumbi and Chataigner 2014, 257–58.

<sup>60</sup> Badalyan et al. 2008, 57–8.

<sup>61</sup> Excavations at Köhne Shahar were conducted under the direction of Alizadeh from 2012 to 2014.

<sup>62</sup> Alizadeh et al. (forthcoming).

Sepideh Maziar  
Institut für Archäologische Wissenschaften  
Goethe Universität  
Frankfurt am Main  
Germany  
s.maziar@stud.uni-frankfurt.de

M. Rouhollah Mohammadi  
Cultural Heritage, Handicrafts and Tourism Office  
Germi, Ardabil Province  
Iran  
mirrouhollah@gmail.com

## Works Cited

- Abramishvili, M., and W. Orthmann. 2008. "Excavations at Sajoge, 2003: Preliminary Report." In *Archaeology in Southern Caucasus: Perspectives from Georgia*, edited by A. Sagona and M. Abramishvili, 275–89. Louvain: Peeters.
- Alizadeh, K. 2007a. *Preliminary Report of Archaeological Excavations at Ultan Qalasi, Mughan Steppe-Ardabil Province, First and Second Seasons*. Tehran: Iranian Center for Archaeological Research (in Farsi with English abstract).
- . 2007b. "Excavations at Nadir Tepesi, Aslandüz, Mughan Steppe." *AR* 2:263–85 (in Farsi).
- . 2011. "Ultan Qalasi: A Fortified Site in the Sasanian Borderlands (Mughan Steppe, Iranian Azerbaijan)." *Iran* 49:55–77.
- Alizadeh, K., and J.A. Ur. 2006. "Mughan Steppe Archaeological Project, Ardabil Province (Prozheh-ye Bastanshenasiye Dasht-e Moghan, Ostan-e Ardebil)." *AR* 4:49–56 (in Farsi with English abstract).
- . 2007. "Formation and Destruction of Pastoral and Irrigation Landscape on the Mughan Steppe, North-Western Iran." *Antiquity* 81 (311):148–60.
- Alizadeh, K., H. Eghbal, and S. Samei. 2015. "Approaches to Social Complexity in Kura-Araxes Culture: A View from Köhne Shahar (Ravaz) in Chaldran, Iranian Azerbaijan." *Paléorient* 41 (1):37–54.
- Alizadeh, K., H. Eghbal, S. Samei, H. Bayazidi, P. Hoseini, and E. Kharrazi. Forthcoming. "Excavations at Köhne Shahar, a Kura-Araxes Settlement in Iranian Azerbaijan: First Preliminary Report."
- Anthony, D.W. 1990. "Migration in Archeology: The Baby and the Bathwater." *American Anthropologist* 92(4):895–914.
- . 1997. "Prehistoric Migration as Social Process." In *Migrations and Invasions in Archaeological Explanation*, edited by J. Chapman and H. Hamerow, 21–32. *BAR-IS* 664. Oxford: Archaeopress.
- Azarnoush, M., and B. Helwing. 2005. "Recent Archaeological Research in Iran: Prehistory to Iron Age." *Archäologische Mitteilungen aus Iran und Turan* 37:189–246.
- Badalyan, R., A.T. Smith, I.C. Lindsay, L. Khatchadourian, P. Avetisyan, B.H. Monahan, and R. Hovsepian. 2008. "Village, Fortress, and Town in Bronze and Iron Age Southern Caucasia: A Preliminary Report on the 2003–2006 Investigations of Project ArAGATS on the Tsaghkahovit Plain, Republic of Armenia." *Archäologische Mitteilungen aus Iran und Turan* 40:43–105.

- Batiuk, S.D. 2013. "The Fruits of Migration: Understanding the 'Longue Durée' and the Socio-Economic Relations of the Early Transcaucasian Culture." *JAnthArch* 32(4):449–77.
- Batiuk, S.D., and M.S. Rothman. 2007. "Early Transcaucasian Cultures and Their Neighbors: Unraveling Migration, Trade, and Assimilation." *Expedition* 49(1):7–17.
- Bronk Ramsey, C. 2013. *OxCal Online Radiocarbon Calibration*. Version 4.2. Oxford: Radiocarbon Accelerator Unit, University of Oxford. <http://c14.arch.ox.ac.uk/embed.php?File=oxcal.html>.
- Burney, C.A. 1961. "Excavations at Yanik Tepe, North-West Iran." *Iraq* 23(2):138–53.
- . 1962. "The Excavations at Yanik Tepe, Azerbaijan, 1961: Second Preliminary Report." *Iraq* 24(2):134–52.
- . 1964. "The Excavations at Yanik Tepe, Azerbaijan, 1962: Third Preliminary Report." *Iraq* 26(1):54–61.
- . 1972. "Excavations at Haftavān Tepe 1969: Second Preliminary Report." *Iran* 10:127–42.
- . 1975. "Excavations at Haftavān Tepe 1973: Fourth Preliminary Report." *Iran* 13:149–64.
- Connor, S., and A. Sagona. 2007. "Environment and Society in the Late Prehistory of Southern Georgia, Caucasus." In *Les cultures du Caucase (VIe–IIIe millénaires avant notre ère): Leurs relations avec le Proche-Orient*, edited by B. Lyonnet, 21–36. Paris: CNRS Éditions.
- Edens, C. 1995. "Transcaucasia at the End of the Early Bronze Age." *BASOR* 299–300:53–64.
- Fahimi, H. 2005. "Kura-Araxes Type Pottery from Gilan and the Eastern Extension of the Early Transcaucasian Culture." *Archäologische Mitteilungen aus Iran und Turan* 37:123–32.
- Fazeli Nashli, H., and B. Ajerloo. 2004. "Introduction to the Development of Kura-Araxes Culture at the End of Fourth Millennium BC." In *Proceedings of the International Symposium on Iranian Archaeology: Northwestern Region*, edited by M. Azarnoush, 181–91. Tehran: Iranian Center for Archaeological Research (in Farsi with English abstract).
- Fazeli Nashli, H., H.R. Valipour, and M.H. Azizi Kharanaghi. 2013. "The Late Chalcolithic and Early Bronze Age in the Qazvin and Tehran Plains: A Chronological Perspective." In *Ancient Iran and Its Neighbours: Local Developments and Long-Range Interactions in the 4th Millennium BC*, edited by C.A. Petrie, 107–29. Oxford: Oxbow.
- Frankel, D. 2000. "Migration and Ethnicity in Prehistoric Cyprus: Technology as Habitus." *EJA* 3(2):167–87.
- Frankel, D., and J.M. Webb. 2000. "Marki Alonia: A Prehistoric Bronze Age Settlement in Cyprus." *Antiquity* 74(286):763–64.
- Gogochuri, G. 2008. "Archaeological Sites of the Early Barrow Period in the Aragvi Gorge." In *Archaeology in Southern Caucasus: Perspectives from Georgia*, edited by A. Sagona and M. Abramishvili, 37–62. Louvain: Peeters.
- Haerincq, E., and B. Overlaet. 2010. "Bronze and Iron Age Pottery from the Ilam Graveyard (Pusht-i Kuh, Iran)." *IrAnt* 45:277–304.
- Hessari, M., and H. Akbari. 2006. "Gozaresh-e Gamanezani Tappe Idir, Aslandüz (Report on Sounding at Tepe Idir, Aslandüz)." *AR* 4:13–29 (in Persian).
- Kohl, P.L. 1992. "The Kura-Araxes 'Chiefdom/State': The Problems of Evolutionary Labels and Imperfect Analogies." In *South Asian Archaeology Studies*, edited by G.L. Possehl, 223–32. New Delhi: Oxford & IBH.
- . 2001. "Migrations and Cultural Diffusions in the Later Prehistory of the Caucasus." In *Migration und Kulturtransfer: Der Wandel vorder- und zentralasiatischer Kulturen im Umbruch vom 2. zum 1. Vorchristlichen Jahrtausend. Akten des Internationalen Kolloquiums Berlin, 23. bis 26. November 1999*, edited by R. Eichmann and H. Parzinger, 313–26. Kolloquien zur Vor- und Frühgeschichte 6. Bonn: Rudolf Habelt.
- . 2007. *The Making of Bronze Age Eurasia*. New York: Cambridge University Press.
- . 2009. "Origins, Homelands and Migrations: Situating the Kura-Araxes Early Transcaucasian 'Culture' Within the History of Bronze Age Eurasia." *TelAviv* 36(2):241–65.
- Kohl, P.L., and B. Lyonnet. 2008. "By Land and By Sea: The Circulation of Materials and Peoples, ca. 3500–1800 B.C." In *Intercultural Relations Between South and Southwest Asia: Studies in Commemoration of E.C.L. During Caspers (1934–1996)*, edited by E. Olijdam and R.H. Spoor, 29–42. *BAR-IS* 1826. Oxford: Archaeopress.
- Kushnareva, K.K. 1959. "Poselenie epokhi bronzy na kholmeye Uzerlik-tepe okolo Agdama." *Materialy Issledovaniya po Arkheologii SSSR* 67:388–430.
- . 1997. *The Southern Caucasus in Prehistory: Stages of Cultural and Socioeconomic Development from the Eighth to the Second Millennium B.C.* Translated by H.N. Michael. University Museum Monograph 99. Philadelphia: University Museum, University of Pennsylvania.
- Lyonnet, B. 2014. "The Early Bronze Age in Azerbaijan in the Light of Recent Discoveries." *Paléorient* 40(2):115–30.
- Maziar, S. 2010. "Excavations at Köhné Päsghāh Tepesi, the Araxes Valley, Northwest Iran: First Preliminary Report." *Ancient Near Eastern Studies* 47:164–92.
- . 2015. "Settlement Dynamics of the Kura-Araxes Culture: An Overview of the Late Chalcolithic and Early Bronze Age in the Khoda Afarin Plain, North-Western Iran." *Paléorient* 41(1):25–36.
- Maziar, S., and A. Zalaghi. Forthcoming. "Exploring Beyond the River and Inside the Valleys: Settlement Development and Cultural Landscape of the Araxes River Basin Through Time." *Iran*.
- Minorsky, V. 1993. "Mūkān." In *Encyclopaedia of Islam*, edited by C.E. Bosworth, E.V. Donzel, W.P. Heinrich, C. Pellat, and F.T. Dijkema, 497–500. Leiden: Brill.
- Miron, A., and W. Orthmann. 1995. *Unterwegs zum Goldenen Vlies: Archäologische Funde aus Georgien*. Saarbrücken: Museum für Vor- und Frühgeschichte Saarbrücken.
- Mohammadi, M.R. 2004. "Parthian and Sassanid Periods in Mughan Steppe: Based on Nader Tepe (Nadir Tepesi), Aslandüz." M.A. thesis, University of Tehran.
- Özfirat, A. 2008. "The Highland Plateau of Eastern Anatolia in the Second Millennium BCE: Middle/Late Bronze Ages." In *Ceramics in Transitions: Chalcolithic Through Iron Age in the Highlands of the Southern Caucasus and Anatolia*, edited by K.S. Rubinson and A. Sagona, 101–21. Leuven: Peeters.
- . 2009. "Excavation of the Bozkurt Kurgan Cemetery,

- 2007: First Preliminary Report." *Archäologische Mitteilungen aus Iran und Turan* 41:233–47.
- Palumbi, G. 2008. *The Red and Black: Social and Cultural Interaction Between the Upper Euphrates and Southern Caucasian Communities in the Fourth and Third Millennium BC*. Studi di Preistoria Orientale 2. Rome: Dipartimento di Scienze Storiche Archeologiche e Antropologiche dell'Antichità, Sapienza Università di Roma.
- . 2016. "The Early Bronze Age of the Southern Caucasus." *Oxford Handbooks Online*. doi: 10.1093/oxfordhb/9780199935413.013.14.
- Palumbi, G., and C. Chataigner. 2014. "The Kura-Araxes Culture from the Caucasus to Iran, Anatolia and the Levant: Between Unity and Diversity. A Synthesis." *Paléorient* 40(2):247–60.
- Piro, J.J. 2009. "Pastoralism in the Early Transcaucasian Culture: The Faunal Remains from Sos Höyük." Ph.D. diss., New York University.
- Puturidze, M. 2003. "Social and Economic Shifts in the South Caucasian Middle Bronze Age." In *Archaeology in the Borderlands: Investigations in Caucasia and Beyond*, edited by A.T. Smith and K.S. Rubinson, 111–27. Los Angeles: Cotsen Institute of Archaeology.
- Reimer, P.J., E. Bard, A. Bayliss, J.W. Beck, P.G. Blackwell, C.B. Ramsey, and J. van der Plicht. 2013. "IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0–50,000 Years cal BP." *Radiocarbon* 55(4):1869–87.
- Rothman, M.S. 2003. "Ripples in the Stream: Transcaucasian-Anatolian Interaction in the Murat/Euphrates Basin at the Beginning of the Third Millennium BC." In *Archaeology in the Borderlands: Investigations in Caucasia and Beyond*, edited by A.T. Smith and K.S. Rubinson, 95–110. Los Angeles: Cotsen Institute of Archaeology.
- . 2005. "Transcaucasians: Settlement, Migration, and Trade in the Kura-Araxes Periods." *Archäologische Mitteilungen aus Iran und Turan* 37:53–62.
- . 2015. "Early Bronze Age Migrants and Ethnicity in the Middle Eastern Mountain Zone." *Proceedings of the National Academy of Sciences* 112(30):9190–95.
- Rova, E. 2014. "The Kura-Araxes Culture in the Shida Kartli Region of Georgia: An Overview." *Paléorient* 40(2):47–69.
- Sagona, A. 1984. *The Caucasian Region in the Early Bronze Age*. 3 vols. BAR-IS 214. Oxford: Archaeopress.
- . 2004. "Social Boundaries and Ritual Landscapes in Late Prehistoric Trans-Caucasus and Highland Anatolia." In *A View from the Highlands: Archaeological Studies in Honour of Charles Burney*, edited by A. Sagona, 475–538. Louvain: Peeters.
- . 2011. "Anatolia and Trans-Caucasus: Themes and Variations, ca. 6400–1500 B.C.E." In *The Oxford Handbook of Ancient Anatolia (10,000–323 BCE)*, edited by S.R. Steadman and G. McMahon, 683–703. Oxford and New York: Oxford University Press.
- Schweizer, G. 1970. "Nordost-Azerbaidschan und Shah Sevan-Nomaden." In *Strukturwandlungen im nomadisch-bäuerlichen Lebensraum des Orients*, edited by E. Ehlers, F. Scholz, and G. Schweizer, 81–148. Wiesbaden: Erkundliches Wissen.
- . 1974. "The Aras-Moghan Development Project in Northwest Iran and the Problem of Nomad Settlement." *Applied Sciences and Development* 4:134–48.
- Smith, A.T. 2001. "The Limitations of Doxa: Agency and Subjectivity from an Archaeological Point of View." *Journal of Social Archaeology* 1(2):155–71.
- . 2005. "Prometheus Unbound: Southern Caucasia in Prehistory." *Journal of World Prehistory* 19:229–79.
- . 2012. "The Caucasus and the Near East." In *A Companion to the Archaeology of the Ancient Near East*, edited by D.T. Potts, 668–86. Malden, Mass.: Blackwell.
- . 2015. *The Political Machine: Assembling Sovereignty in the Bronze Age Caucasus*. Princeton: Princeton University Press.
- Smith, A.T., R.S. Badalyan, and P. Avetisyan. 2009. *The Archaeology and Geography of Ancient Transcaucasian Societies*. Vol. 1, *The Foundation of Research and the Regional Survey in the Tsaghkahovit Plain, Armenia*. Chicago: Oriental Institute of the University of Chicago.
- Smith, J.M. 1999. "Mongol Nomadism and Middle Eastern Geography: Qishlaqs and Tümens." In *The Mongol Empire and Its Legacy*, edited by R. Amitai-Preiss and D.O. Morgan, 39–56. Leiden: Brill.
- Tapper, R. 1979. *Pasture and Politics: Economics, Conflict, and Ritual Among Shahsevan Nomads of Northwestern Iran*. London and New York: Academic Press.
- . 1983. "Nomads and Commissars in the Mughan Steppe: The Shahsevan Tribes in the Great Game." In *The Conflict of Tribe and State in Iran and Afghanistan*, edited by R. Tapper, 401–35. New York: St. Martin's.
- . 1997. *Frontier Nomads of Iran: A Political and Social History of the Shahsevan*, *Cambridge Middle East Studies*. Cambridge and New York: Cambridge University Press.
- Ur, J.A., and K. Alizadeh. 2013. "The Sasanian Colonization of the Mughan Steppe, Ardebil Province, Northwestern Iran." *Journal of Iranian Archaeology* 4:98–110.
- Webb, J.M., and D. Frankel. 1999. "Characterizing the Philia Facies: Material Culture, Chronology, and the Origin of the Bronze Age in Cyprus." *AJA* 103(1):3–43.
- Young, T.C. 2004. "The Kangavar Survey: Periods VI to IV." In *A View from the Highlands: Archaeological Studies in Honour of Charles Burney*, edited by A. Sagona, 645–60. Louvain: Peeters.
- Zalaghi, A., S. Maziar, S. Sheikhi, and M. Jayez. Forthcoming. "First Preliminary Report of the Excavation of Köhne Tepesi (Eastern Azerbaijan), Northwest Iran."