

Mobility and Sedentism in the Mesolithic-Neolithic Contact Period of the Southern Caucasus

Yoshihiro Nishiaki
The University of Tokyo, Japan

ABSTRACT

This paper presents a current understanding of how farming economies were introduced into the Middle Kura Valley, Southern Caucasus, based on our ongoing field investigations in Azerbaijan since 2008. The main conclusions are as follows: (1) The Neolithisation in the Southern Caucasus happened rapidly at the beginning of the sixth millennium BC. (2) The cultural changes over this period probably resulted from interactions between local and immigrating societies. (3) Local Mesolithic hunter-gatherers seem to have played a certain role in achieving this important economic change. (4) Rapid shifts in local communities likely occurred due to sparse but consecutive interactions with Neolithic communities in the Fertile Crescent during the pre-dispersal period. (5) A particular type of Neolithic economic adaptation of the Southern Caucasus involving the exploitation of resources from diversified environmental settings did not allow for a coexistence of farmers and the local Mesolithic hunter-gatherers. This interpretation deserves to be evaluated alongside relevant data on the spread of farming into hunting and gathering communities in both modern and historical contexts.

INTRODUCTION

There has been intensive discussion on the transition from hunting and gathering to an agricultural, settled lifestyle in the anthropological literature, including the present volume. Archaeology can contribute to this topic—called ‘Neolithisation’ in archaeological terminology—from a uniquely long-term perspective that is not available in modern (or even historical) contexts. Archaeology has revealed that the transitions in the ‘core regions’ where farming developed indigenously through local cultural evolution (as in the Near East and Andean regions) were processes rather than revolutions, as they were considered in the early stages of research (Bellwood 2004). These processes have been best documented in the Fertile Crescent of Southwest Asia: experimental ways of farming or the cultivation of wild progenitor cultigens probably began in the terminal Upper Pleistocene,

significantly developed around 11,500 years ago, and became established approximately 10,000 years ago (Willcox 2013; Borrell et al. 2015). This novel economic strategy in human history spread to the neighbouring regions in various periods and through diverse processes.

Research into such indigenous processes can be carried out only in exceptional regions (Bellwood 2004). Therefore, most studies on emerging farming economies have focused on dispersal. The archaeological data, widely available from all over the globe, can provide useful insights for those working with ethnographic records from the modern world (Ikeya and Hitchcock eds. 2016; also see this volume), which can hardly shed light on indigenous processes like those known from the Near Eastern Neolithic. Alternatively, the archaeological data would provide a different dimension within which to interpret ethnographic records obtained through short-term observations.

This paper presents a case study of Neolithisation in the Southern Caucasus (Figure 1). The Neolithic of this region is believed to have emerged in relation to external factors, most likely influences from the Fertile Crescent, the region situated a few to several hundred km to the south. When the Neolithic economy was introduced to the Southern Caucasus, how did local Mesolithic hunter-gatherers cope with the new circumstances? This is not an easy question to answer. Nevertheless, an overview is presented to illustrate what has been discovered to date in our study region: the Middle Kura Valley of Azerbaijan.

THE NEOLITHIC CULTURE OF THE SOUTHERN CAUCASUS

When and how Neolithic farming emerged in the Southern Caucasus remained unclear for decades. Research from the 20th century once suggested a local origin theory (Narimanov 1987; Kushnareva 1997), although it recognised that interactions with the Fertile Crescent of Southwest Asia may have played at least some role in the development of farming in the Southern Caucasus. Research since the late 1990s changed this view completely based on modern archaeological techniques introduced to the Neolithic archaeology of the Southern Caucasus by the efforts of international teams. Numerous Neolithic mound sites have now been excavated in Georgia (Hamon et al. 2016; Hansen and Mirtskhulava 2017), Azerbaijan (Guliyev and Nishiaki 2014; Nishiaki et al. 2015a; Lyonnet and Guliyev 2017), and Armenia (Martirosyan-Olshansky et al. 2013; Chataigner et al. 2014) through field strategies that were unavailable before these countries became more politically stable. An important conclusion from these new investigations indicates that the earliest Neolithic villages thus far known in the Southern Caucasus date from about 8,000 years ago, which is about 3,000 years or more later than those in the Fertile Crescent. The first villages in the Southern Caucasus apparently appeared almost simultaneously on both the northern and southern sides of the Lesser Caucasus Mountains (Nishiaki et al. 2015b). Although we now have a consensus on when farming communities spread in the region, the processes of

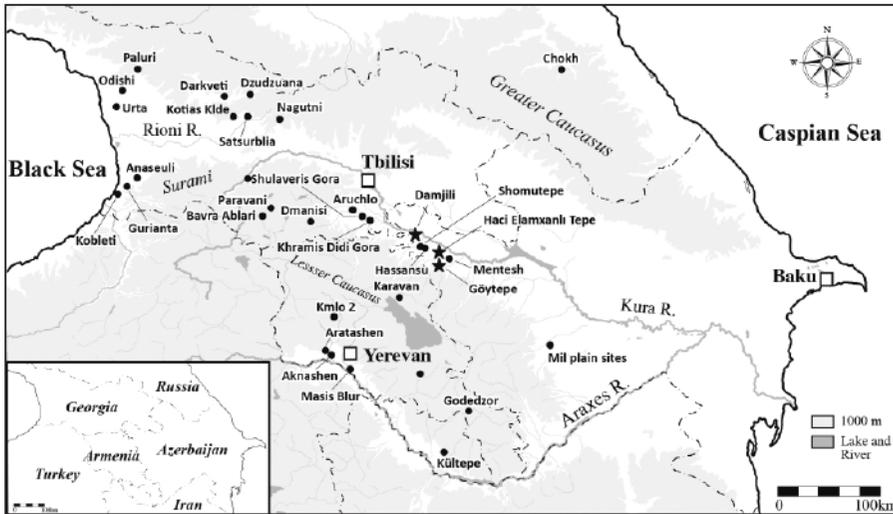


Figure 1 Major Mesolithic and Neolithic sites of the Southern Caucasus showing the locations of the study sites. ©Y. Nishiaki

their emergence have been poorly understood. A major obstacle for this endeavour has been the lack of local hunter-gatherer Mesolithic sites contemporaneous to (or immediately prior to) the first farming communities. However, this lacuna in our understanding has been partly filled in by the recent discovery of a Mesolithic site belonging to this key period: the Damjili Cave in Azerbaijan (Nishiaki et al. 2019a). By combining new information from this Mesolithic site and Neolithic sites already known, the transition processes can now be evaluated better than before.

NEW DATA FROM THE MIDDLE KURA VALLEY, AZERBAIJAN

The sites referred to in this paper are those examined by the Azerbaijani-Japanese archaeological mission between 2008 and 2019: the Neolithic sites of Göytepe and Hacı Elamxanlı Tepe, and the Mesolithic cave of Damjili (Figure 2). They are situated in the Ganja Kazakh Plain in the Middle Kura Valley of west Azerbaijan, one of the primary regions where numerous early Neolithic settlements have been discovered (Narimanov 1987; Helwing et al. 2017). The study sites were strategically selected to explore the formation and development processes of early farming communities. The research history and major findings of these sites are as follows.



Figure 2 Excavations of the study sites: (1) Damjili Cave, (2) Hacı Elamxanlı Tepe, (3) Göytepe. (Photos taken by Y. Nishiaki in 2013, 2014, and 2019 respectively)

Göytepe

This is one of the largest Neolithic settlements known to date in the Ganja-Gazakh Plain, 145 m in diameter and 9 m higher than the surrounding field. The site was identified as a Neolithic settlement in a survey by Narimanov (1987: 31) and was subjected to scientific excavations starting in 2008 (Figure 2: 1; Guliyev and Nishiaki 2014; Nishiaki et al. 2015a). The excavations revealed fourteen occupation levels, each of which contained a dense distribution of circular mudbrick-walled architecture and related structures. The associated archaeological assemblages attest to the prosperity of full-fledged farming communities: not only cultigens (wheat and barley) and domesticated animals (sheep, goats, cattle, and pigs) but also pottery, ground stone artefacts, female figurines, and other artefact categories widely considered typical of the Neolithic period have been abundantly recovered. The overall features of this settlement, including the large settlement size and numerous buildings, indicate that this site was a Neolithic village of a developed stage. The radiocarbon dates suggest that it was occupied between 5650 and 5460 cal. BC (Nishiaki et al. 2018).

Hacı Elamxanlı Tepe

This site is a small mound with a diameter of about 90 m and a height of 2 m, situated approximately 1.5 km northwest of Göytepe. It was discovered during our own survey in 2011 and was excavated from 2012 to 2015 (Figure 2: 2; Nishiaki et al. 2013, 2015a). The settlement consists of circular mudbrick buildings similar to those at Göytepe; however, its architectural type is different. While the architecture of Göytepe consists of circular buildings of 2 to 3 m in diameter connected with side walls to enclose a courtyard, the buildings at Hacı Elamxanlı Tepe are larger in diameter (4 to 5 m) and abut smaller, also circular buildings (2 m) to form a ‘snowman-shaped building complex’. The recovered archaeological remains include a full set of domesticated plants and animals, as well as artefacts revealing the site’s Neolithic character, such as ground stone tools and clay figurines. Nevertheless, the use of pottery was remarkably rare, even implying a nearly aceramic phase of the Neolithic (see below). The four levels of this early Neolithic settlement have been dated between 5950 and 5800 cal. BC.

Damjili Cave

The third site we looked at in this project is the Damjili Cave, situated some 40 km to the southwest of the Neolithic sites mentioned above. It is located in the foothills (ca. 650 m asl) of a limestone mountain of approximately 650 m, looking down upon the steppe plain (ca. 400 m asl). The excavations in the 1950s yielded remains of Palaeolithic to Neolithic occupations in mixed contexts (Hüseynov 2010). However, our investigations from 2016 to 2019 showed *in situ* occupational traces of our target periods, the Mesolithic to the Neolithic (Figure 2: 3). The radiocarbon dating demonstrates that the Mesolithic occupation of this cave dates from 6400 to 6000 cal. BC (Nishiaki et al. 2019a), and the Neolithic from

6000/5900 to 5350 cal. BC. As the site context would have suggested, the recovered features did not include any standing mudbrick buildings from either period. This most likely reflects a functional aspect of the cave's occupations. However, the archaeological remains from the Mesolithic and Neolithic periods present contrasting evidence regarding subsistence: cereals and domesticated animals were recovered from the Neolithic levels, whereas only wild resources (e.g., wild sheep, deer, bear, and a variety of fruits/nuts) were recovered from the Mesolithic levels.

THE MESOLITHIC-NEOLITHIC CONTACT PERIOD IN THE SOUTHERN CAUCASUS

Neolithisation in the Southern Caucasus

The three sites represent important phases of transition from the hunting and gathering to farming economies. The Damjili Cave yielded a typical Mesolithic cultural assemblage, while Hacı Elamxanlı Tepe and Göytepe produced Neolithic ones characterised by a farming economy. The latter two sites are considered to represent different stages of Neolithic development in the region: the early and the late stages. An overview of the available data highlights vital cultural shifts in the contact period, displaying both continuity and discontinuity between the Mesolithic and the Neolithic.

The most evident discontinuity is the Mesolithic-Neolithic cultural change that occurred abruptly about 6000 BC, without a visible transitional stage in the archaeological sense. The earliest reliable evidence of the Neolithic culture has been documented at Hacı Elamxanlı Tepe, which presents marked differences from the Mesolithic remains at the Damjili Cave. The absence of mudbrick structures at the latter does not necessarily indicate a crucial cultural change because of the specific cave contexts. What characterises the difference is subsistence: a full range of domesticated crops and animals from the Neolithic, and their absence from the Mesolithic levels. This contrast is attested to not only between the lowland village site of Hacı Elamxanlı Tepe and the mountain valley rock shelter of Damjili Cave, but also between the different levels of Damjili Cave (Nishiaki et al. 2019a). The fact that the contrast is present, regardless of the residential type, is significant.

The exploitation of domesticated food resources in the Neolithic is best considered a result of external processes. Some of the strongest supporting evidence was obtained from the study of animal remains. The size of sheep recovered from the Neolithic levels of Damjili Cave, Hacı Elamxanlı Tepe, and Göytepe is significantly smaller than that of the Mesolithic sheep bones found at Damjili Cave. The size of the latter is comparable to that of wild sheep remains recovered from the 'Proto-Neolithic' (PPNA) period of Hasankeyf Höyük, Southeast Anatolia, which was examined for comparison (Nishiaki et al. 2019a). This radical change is unlikely to have come about through indigenous cultural processes, but was probably due to the introduction of herds of sheep from the

south. A more persuasive piece of evidence was obtained from an analysis of ancient goat mitochondria (Kadowaki et al. 2017). The Southern Caucasus accommodated wild goats (*Capra aegagrus*), the progenitor species of the modern domesticated goat. However, the analysis has shown that the haplotype of the goats from the earliest Neolithic contexts at Hacı Elamxanlı Tepe points to their southwest Asian origin.

The introductory processes for cereal are not as clear as for goats and sheep. Notwithstanding, the Southern Caucasus has been considered separately from the core distribution area of wild progenitors for the major Neolithic crops of emmer and einkorn wheat and barley (Zohary et al. 2012). Our discovery of the dominant occurrences of the hulled types of wheat and barley at Hacı Elamxanlı Tepe (and not at Göytepe) also implies their origin in the Fertile Crescent, where the presence of such cereals is diagnostic (Akashi et al. 2018).

The abovementioned information causes us to ask two important questions: (1) Was the observed change a replacement of Mesolithic hunter-gathering economies by incoming Neolithic farmers, or a rapid assimilation of hunter-gathering communities into farming communities? (2) How can this phenomenon be explained? The next sections address these questions.

Replacement or Assimilation?

I suggest that the Neolithic culture of the Southern Caucasus developed through cultural assimilation rather than large-scale population movement. Three pieces of evidence can be provided to support this claim. First is the absence of colonial settlements from the Near East in the study region, which is important. In later periods, such as the Chalcolithic period when the Uruk expansion occurred, enclave settlements with cultural elements were often located outside the original homeland (Algaze 1993). Even from the remote past of the Palaeolithic, when population dispersals occurred over a longer timescale, pioneering frontier sites are often found with homeland lithic technologies (Gamble 2013). Hardly any settlements assignable to Neolithic colonies have been identified—at least not in our study region, the Middle Kura Valley.

Second, the material culture of the earliest Neolithic peoples in the Southern Caucasus exhibits local traits that could not have been imported from the Neolithic culture of the Fertile Crescent. For example, the use of pottery was extremely rare in the early stages of the Caucasian Neolithic, although pottery use had been popular in the Neolithic of Southwest Asia since the early seventh millennium BC, well before the Neolithisation of the Southern Caucasus. The rare use of pottery in the latter is reminiscent of the Mesolithic aceramic way of life, which may have persisted into the first centuries of the earliest Neolithic socio-economy. The scarcity of spindle whorls in the archaeological records can also be counted as a comparable example. This artefact class, made of either clay, stone, bone, or wood, was popular in the seventh-sixth millennium BC settlements of the Fertile Crescent. Elements absent from the Southern Caucasian Neolithic also include



Figure 3 A semi-subterranean building of Hacı Elamxanlı Tepe.
(Photo taken by Nishiaki)

architectural structures. The *tannor* (Arabic) type of cooking ovens, popular in the Near East Neolithic, has not been identified at Göytepe or Hacı Elamxanlı Tepe. The construction of semi-subterranean buildings is also unique to the Southern Caucasian Neolithic, particularly in its early stages (Figure 3; Baudouin 2019). Such buildings characterise the late Epipalaeolithic to early Neolithic architecture of the Fertile Crescent during the transition from hunting and gathering to farming. Given the popularity of circular buildings among modern hunter-gatherers (Flannery 1993), the occurrence of circular, semi-subterranean buildings in the early Neolithic period of the Southern Caucasus may imply a cultural continuity. The use of a circular plan continued even in the later phase of the Neolithic for the construction of standing buildings.

Third, I would like to call attention to the great diversity of the early South Caucasian Neolithic cultures by region. While we have focused on a Neolithic culture from the Middle Kura Valley known as the Shomutepe culture, different cultures have been identified in other regions. The Armenian plateau, along the

Upper Arax Valley, reveals a distribution of comparable early Neolithic peoples, called the Aratashen culture or the Aratashen-Shulaveri-Shomutepe culture (Badalyan and Harutyunyan 2014; Chataigner et al. 2014). Despite numerous similarities in terms of material culture, the cultural entity of the Armenian highlands displays crucial differences, including the rare use of mud bricks for architecture (Baudouin 2019). Instead, the cob technique was common for mud-walled buildings. This contrasts with the widespread use of mud bricks in many other areas, even in the early Neolithic of the Lower Araxe Valley (Marro et al. 2019). Moreover, the communities manufactured abundant quantities of pottery vessels from the beginning, presenting a very different tradition from that of the Middle Kura Valley. One may argue that the large regional variability resulted from the different origins of incoming Neolithic cultures. However, given that the cultural elements of each tradition from the Near Eastern homeland cannot be identified, I suggest that the regional diversity observed is most likely to have arisen from local adaptations of Mesolithic hunter-gatherers confronted with Neolithic dispersals.

Why so Rapid?

According to our interpretation, the Neolithisation of the Southern Caucasus was accomplished by multiple factors including an important contribution from local Mesolithic communities. Next, the second question arises: How was this rapid change possible? The observed shifts in the archaeological record occurred within a short period, around 6000 cal. BC, almost invisible in current archaeological data. I estimate that the changes may have been completed within a few generations (Nishiaki et al. 2019a).

When interpreting this phenomenon, at least two views will be useful. One is a historical perspective. The rapid dissemination of the food production economy seems to be a consequence of long-term cultural interactions in the pre-Neolithic period. The Mesolithic communities in the Southern Caucasus were not isolated from the Neolithic communities of the Fertile Crescent, who had commenced farming a few thousand years earlier. Good examples are seen in the flaked stone industry. The Mesolithic industry discovered in the Mesolithic levels of Damjili Cave is characterised by the predominant use of pressure technology for blank production and the common manufacturing of geometric tools for numerous purposes, including hunting (Figure 4; Nishiaki et al. 2019a). These features are perfectly comparable to those of the Neolithic lithic industry of the East Wing in the Fertile Crescent, the region stretching from Southeast Anatolia to the Zagros Mountains (Kozłowski 1999). In other words, the Mesolithic stone tool manufacturing tradition of the Southern Caucasus is regarded as part of the greater tradition of the East Wing of the Neolithic Fertile Crescent. It differs remarkably from the Neolithic tradition of the West Wing (the Levant), where neither pressure blank production nor the manufacturing of geometric hunting tools were ever popular in the eighth to seventh millennium BC contexts. It is not surprising to see

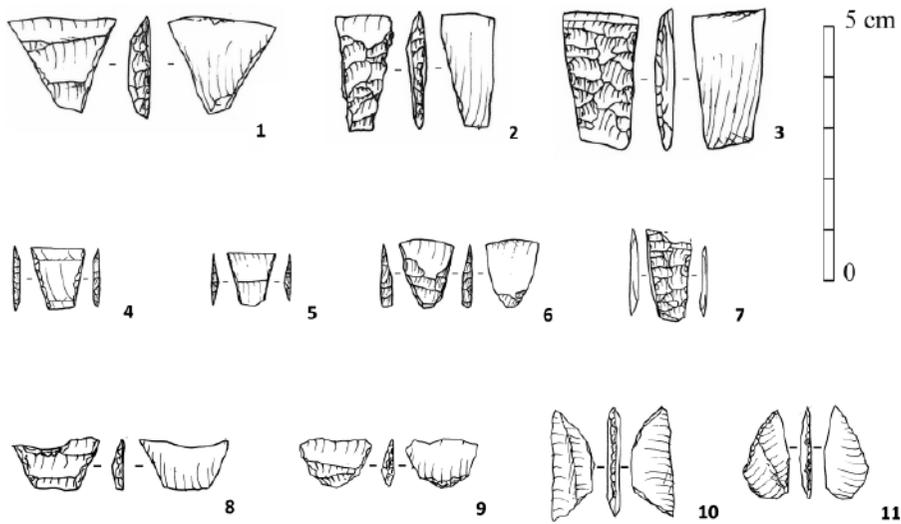


Figure 4 Mesolithic and Neolithic geometric lithic tools of the Southern Caucasus. 1–3: Göytepe (Nishiaki and Guliyev 2019), 4–7: Hacı Elamxanlı Tepe (Kadowaki et al. 2016), 8–11: Damjili Cave (Nishiaki et al. 2019a).

closer similarities between the Southern Caucasus and the Southeast Anatolian Neolithic given their geographic proximity. The lithic assemblages in these two regions shared particular types of obsidian artifacts known as Çayönü tools (Redman 1982). Although the examples from the Southern Caucasus were termed Kmlö tools (Arimura et al. 2012), they exhibit virtually the same technomorphological features, allowing them to be grouped under a single term. Çayönü tools represent bilaterally retouched obsidian blade or flake tools that were retouched with a series of steep and regular pressuring. It is unlikely that these peculiar tools were invented independently in two separate locations in this specific part of Southwest Asia. The Çayönü tools probably indicate sparse but long-term contact in the pre-dispersal period, comprising part of the foundation for the rapid acceptance of the economic strategies of the Fertile Crescent.

The second important factor that facilitated rapid economic change is, in my opinion, concerned with the nature of the hunter-gatherers' and farmers' habitats in the Southern Caucasus. The Middle Kura Valley consists of sharply contrasting environments situated adjacent to each other: the lowland plains (ca. 400 m asl) along the Kura River, and the highland terrain of the Lesser Caucasus (up to 2,000 m asl or more). If the new Neolithic communities occupied the lowland plains for farming, and the indigenous Mesolithic stayed in the mountains for hunting and gathering, their co-existence might have persisted longer. However, the co-existence period is barely discernible, encouraging us to reject this hypothesis. In fact, there is sufficient evidence to imply that the habitat of Neolithic farmers included the mountains as well. The exploitation of mountain resources by Neolithic farmers is exemplified by the common use of deer antlers and obsidian

for tool manufacturing, both available only in the mountains (Nishiaki et al. 2019b).

In order to exploit mountain resources, the Caucasian Neolithic farmers seem to have developed a unique settlement system. According to our current understanding, the early Neolithic communities in the Middle Kura Valley were not fully sedentary (Nishiaki et al. 2018). This interpretation is based on the fact that so many *in situ* objects have been discovered intact on the floors of buildings, typical of *de facto* refuse indicating the abandonment of the settlement for their anticipated return (Schiffer 2010). Plenty of still usable tools like obsidian blades, bone tools, ground tools, and sling stones have been repeatedly discovered in many occupational contexts in both Hacı Elamxanlı Tepe and Göytepe. This pattern is closely compatible with the ethnographic records of communities who abandoned settlements in anticipation of later use (Cameron and Tomka 1993). My interpretation is that this unique residential pattern reflects an adaptation to the particular climatic conditions of the study region. It is very hot in the lowlands during the summer (> 40 degrees centigrade), and severely cold in the winter (well below zero degrees centigrade) due to inland climatic conditions, which were not always common in the Neolithic homeland in the Fertile Crescent. The mountainous zones, which provide important pasture fields for livestock in summer, are covered in snow during winter. In this context, it would be worthwhile for future studies to explore the possibility that a transhumance economy—a traditional style of subsistence in the Southern Caucasus nowadays—was already being practised in the Neolithic. Regardless, the current evidence is inconsistent with a hypothesis of the co-existence of hunter-gatherers and farmers in different habitats.

CONCLUSIONS

I have reviewed the latest evidence from our field investigations in the Middle Kura Valley of Azerbaijan to provide a preliminary picture of the transition from hunting and gathering to an agricultural lifestyle in the Mesolithic-Neolithic contact period of the Southern Caucasus. The main conclusions can be summarised, as follows: (1) The Neolithisation in the Southern Caucasus took place rapidly at the beginning of the sixth millennium BC. (2) The cultural changes over this period probably involved interactions between local and incoming societies. (3) An important role in achieving this important economic change was apparently played by local Mesolithic hunter-gatherers. (4) Rapid changes in local communities were realised due to sparse but consecutive interactions with Neolithic communities in the Fertile Crescent during the pre-dispersal period. (5) A particular type of Neolithic economic adaptation, making its segregation from the local Mesolithic economy impossible, facilitated the process.

The above is a case report based on the archaeological evidence from a specific

region. Although the transition from hunter-gatherer to farming economies in the Southern Caucasus took place around 6000 cal. BC, during a very short time that is invisible in the archaeological sense, it is regarded as a result of long-term cultural interactions in the pre-dispersal period of farming. Further, I suggest that the particular adaptation to the environmental settings of the study region did not allow for the co-existence of two different economies for a long period. This preliminary picture deserves to be tested with ethnographic records, which include numerous case reports on the spread of farming into hunting and gathering communities on a global scale. Comparisons with ethnographic data would contribute to archaeology; the reverse would also be true. There have also been arguments linking the abrupt Neolithisation of the Southern Caucasus to the major climatic fluctuation known as the 8.2 ka event at the end of the seventh millennium BC (Nishiaki et al. 2015a). Ethnographic observations may also help to test this often asserted, but unverified, hypothesis.

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