

ARCHAEOLOGICAL SURVEY IN THE LESSER CAUCASUS: NEW MESOLITHIC–CHALCOLITHIC DISCOVERIES IN THE JAVAKHETI HIGHLANDS

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ABSTRACT

The exchange of natural resources and their distribution and transportation in the Southern Caucasus has seen limited study. Archaeological data accumulated over the past few decades, however, enables us to discover more about the everyday life of ancient populations. Moreover, many issues surrounding the socio-economic life of Neolithic–Chalcolithic people and the influences on their culture in the highlands of this region have not been fully observed. Plentiful obsidian sources in the Southern Caucasus act as the most significant lithic material in the late prehistoric period. The author describes and discusses a brief archaeological survey in the Lesser Caucasus of Georgia, carried out during the autumn of 2020. They present new evidence of Neolithic impact in the Javakheti Highlands, which has seen little studied in recent years.

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INTRODUCTION

Over the past few decades, we have developed a better understanding of the Neolithic–Chalcolithic record in the Southern Caucasus. This has principally been achieved through the investigation of sites discovered during the second half of the twentieth century (Nebieridze 1972, 2010; Dzhaparidze & Dzhavakhishvili 1973; Gabunia 1974; Kiguradze 1970, 1986; Kiguradze & Menabde 1981; Hamon 2008; Helwing *et al.* 2018). The territory between the Black and Caspian seas played a major role in the development of late prehistoric societies (Figure 1), and recent research has demonstrated that the climate and natural resources of the Caucasus were significant factors in the neolithisation process.

Around the start of the Holocene (ca. 12,000–10,000 BP), the Caucasus experienced a period of dramatic warming (Messenger *et al.* 2013, 135), which served as a driver in the

transition from hunter-gatherer to farming societies, with the Neolithic package arrived in the central and eastern parts of the Caucasus from the Near East. Obsidian emerged as a leading lithic raw material and saw dominance between 13,000–9,000 BC in the Eastern and Western Mediterranean coastal zones (Carter 2009; Le Bourdonnec *et al.* 2012, 1317), while in the Middle and Near East it became dominant ca. 14,000 BC (Chataigner *et al.* 1998). During the Neolithic–Chalcolithic period, the use of obsidian became prevalent in a number of regions, both in those mentioned above, as well as in the Caucasus (Wright & Gordus 1969, 75).

BACKGROUND

Neolithic–Chalcolithic cultures in the Southern Caucasus

In the Southern Caucasus, the Neolithic is expressed via a number of cultural elements. The Neolithic lifestyle is well-represented

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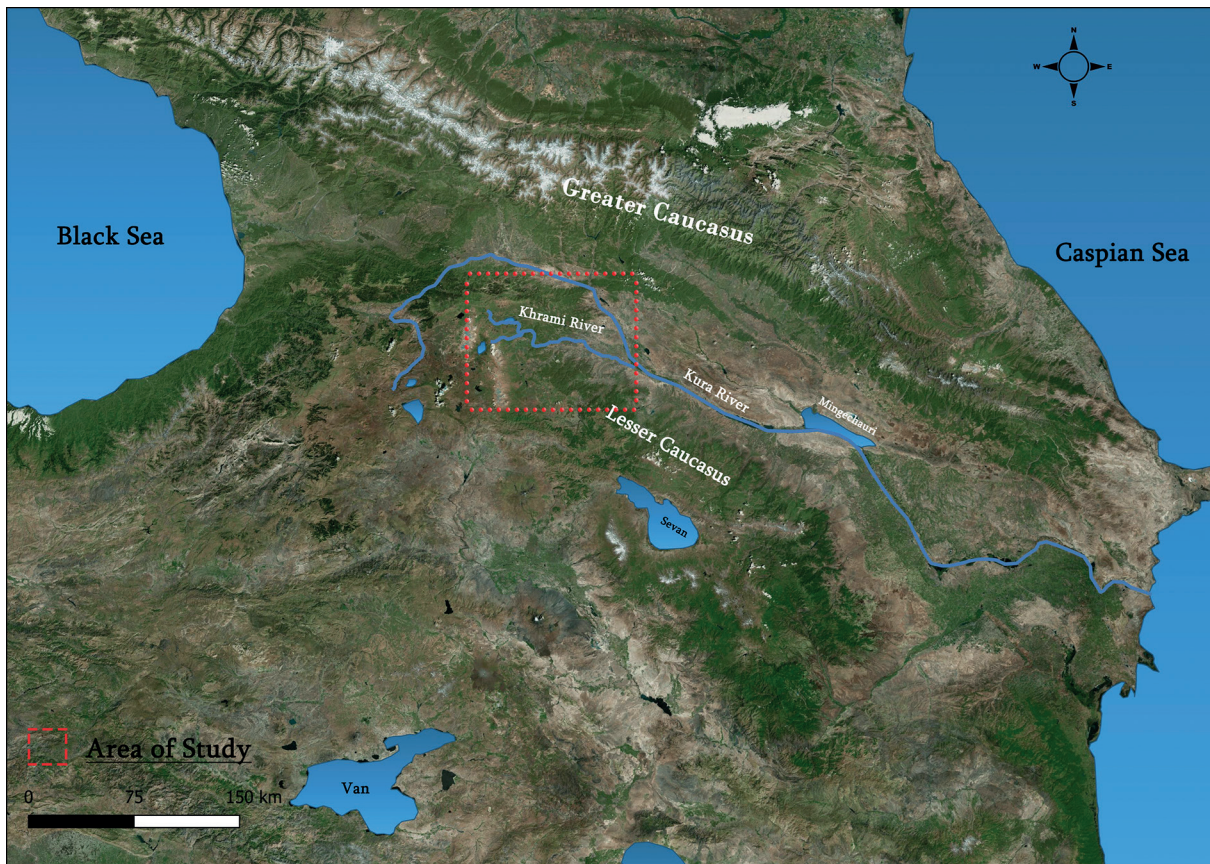


Figure 1. Map of the Caucasus region and study area (map by S. Jokhadze using satellite image from Bing Virtual Earth).

by the Shulaveri-Shomutepe culture, which was identified in South Georgia and Azerbaijan in the 1960s (Narimanov 1966, 121–125; Poulmarc'h & Le Mort 2016, 184; Ritchie *et al.* 2021). Recent analyses date the emergence of the Shulaveri-Shomutepe culture to the end of the seventh millennium or the very beginning of sixth millennium BC (Hamon 2008, 85). The Kamiltepe culture can be found further south, which is characterised mostly by short-term occupation (Helwing *et al.* 2012; Poulmarc'h & Le Mort 2016, 185).

The Chalcolithic Sioni culture, which was spread over the lesser Caucasus (Figure 2) and covers a larger area than the Kamiltepe culture, dates to the fifth millennium BC and differs greatly (in terms of settlement type, architecture, building methods etc.) from the aforementioned Neolithic cultural settlements (Kiguradze & Menabde 1981,

2004; Kiguradze 2011). Everyday activity within these Neolithic–Chalcolithic cultures, however, still depended upon the exploitation of obsidian, irrespective of differences in, for example, settlement practices or lifestyle, and it is during the sixth to fifth millennium BC that systematic exploitation of obsidian in the Southern Caucasus reaches its zenith.

Obsidian utilisation in Neolithic–Chalcolithic cultures

The Shulaveri-Shomutepe culture incorporated a lithic industry that predominantly utilised obsidian (Kiguradze 1970, 1986; Dzhaparidze & Dzhavakhishvili 1971, 81; Chubinishvili 1973; Chelidze 1984; Hansen *et al.* 2007; Chikovani *et al.* 2015). Copious cores of varying size have been found on Shulaveri-Shomutepe tell-like settlements, and appear to have been used to produce long blades (Kiguradze

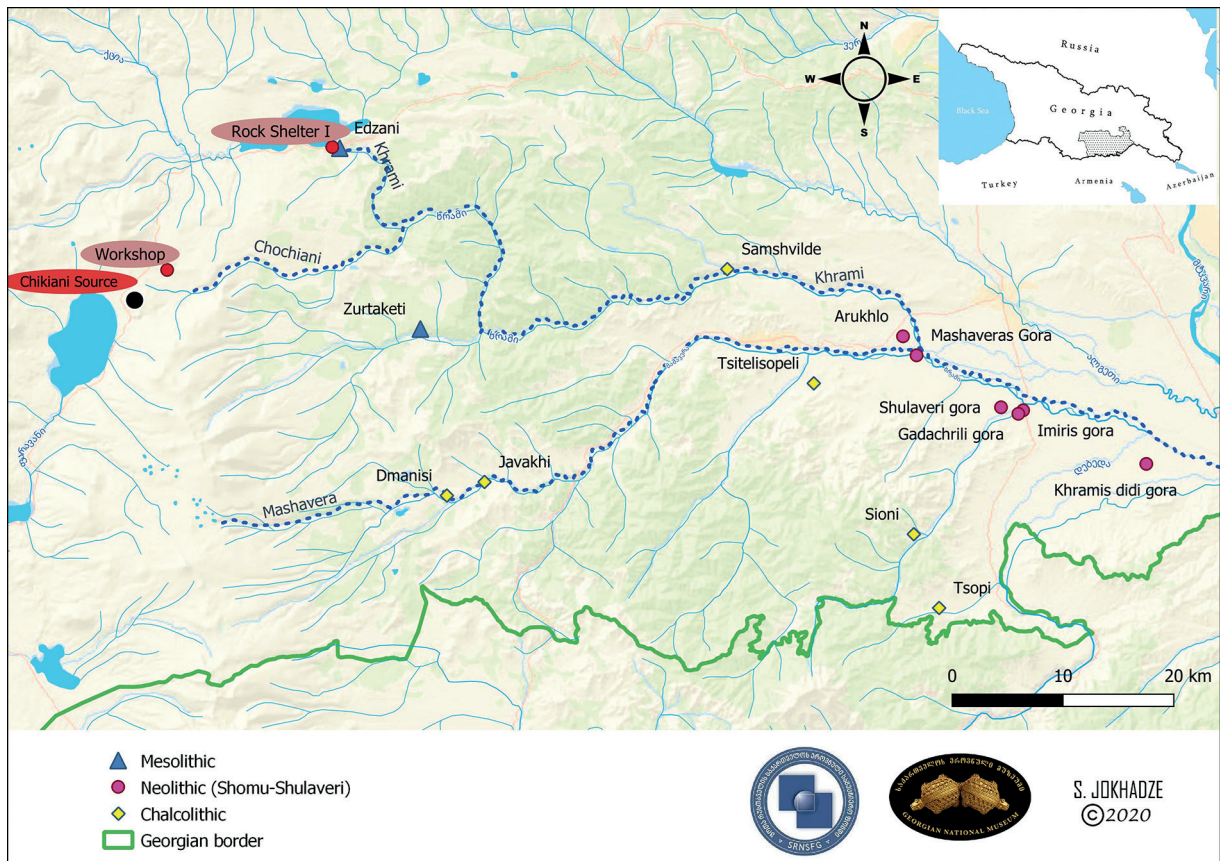


Figure 2. Location of main researched late prehistoric archaeological sites in Kwemo Kartli region: new discoveries (red dots); Mount Chikiani obsidian source (black dot). Map by S. Jokhadze using ESRI Ocean map.

2011; Hansen *et al.* 2013; Chikovani *et al.* 2015). While the idea that intensive knapping of obsidian was not carried out near these Neolithic settlements has already been noted (Hansen *et al.* 2013, 30; Helwing *et al.* 2017, 248), evidence of knapping within Shulaveri-Shomutepe settlements, as well as knapping scatters, has as yet scarcely been attested to. This suggests that the first stages of knapping took place at the raw material source and semi-finished, prepared cores were transported away from these locations. A similar situation has been observed at Shulaveri-Shomutepe settlements in Azerbaijan.

Large-scale distribution of obsidian stays stable within the later Sioni culture sites. At sites relating to both cultures, the use of obsidian procured from Mount Chikiani, near Lake Paravani, can be observed

(Badalyan *et al.* 2010, 35; Nebieridze 2010, 41–42; Helwing *et al.* 2017, 247). Despite that fact that late prehistoric populations were in constant contact with this obsidian deposit, evidence for Neolithic–Chalcolithic activity has not yet been studied within this area and existing information regarding its use remains sparse.

Mount Chikiani obsidian

The obsidian source at Mount Chikiani is located to the north of the Javakheti Highland. At 2,400 metres above sea level (masl), it sits around 300 m above Lake Paravani, which lies to the west (Biagi & Gratuze 2016, 14). The obsidian from Mount Chikiani is of high quality and is mostly a homogeneous black colour with an occasional brown, reddish or green hue (Le Bourdonnec *et al.* 2012, 1320) (Figure 3). The raw material source is spread around



Figure 3. Huge obsidian blocks near Mount Chikiani. These blocks have been produced by exploitation of a modern quarry (photograph by S. Jokhadze).

the dome of the volcano and extends further east (Badalyan *et al.* 2004, 442), with flows dating to around 2.8–2.3 Mya (Keller *et al.* 1996; Lebedev *et al.* 2008).

RESULTS

Materials and methodology

In the Autumn of 2020, a two-month archaeological survey was conducted in the eastern vicinity of the Mount Chikiani obsidian source. Field investigations were aimed at a general understanding of the landscape in the southern and western parts of the Tsalka Plateau, as well as the River Khrami and its potential for future research as an obsidian dispersal route in the eastern part of the Lesser Caucasus. The intensive archaeological survey mainly comprised fieldwalking. The parameters of the survey tracks were determined by physical boundaries, such as field borders, roads and forests. Considerable use was made of spatial data, primarily satellite imagery (Google Map, Bing VirtualEarth, Esri

Terrain). A handheld GPS device was used to map sites and features, and the collected data was merged using QGIS. Soviet era topographic maps were also made available as an additional tool (Soviet Military Maps v6.9.1, ATLOGIS Geoinformatics oHG).

The following artefacts were recovered from across all areas surveyed: some 450 artefacts, including: 94 finished tools, up to 20 of which were made of various other types of stone as opposed to obsidian; 55 pottery sherds; and 15 bone fragments, two of which were formal tools. The lithics were divided into the following categories: flakes without retouch, tools and cores. Subgroups were used only in some cases (e.g. different endscrapers, arrowheads, etc.) Approaches to site assessment depended their geographic location within the landscape, with fieldwalking approaches modified to accommodate fields, canyons and valleys. In addition, natural obstacles within each region were taken into account.



Figure 4. Rock Shelter I in the Khrami River Valley, viewed from view from the south-east and showing the presence of a burnt cultural layer (insert photo) (photographs by S. Jokhadze).

Archaeological finds primarily consisted of superficial artefact concentrations, which included material from different periods. Despite our goal of identifying Mesolithic–Chalcolithic material, we described and documented materials from all chronological periods. The following sections present our interpretations with regard to the main research objectives: the discovery of the new Rock Shelter I (name taken from field records) and an obsidian assemblage from a possible Neolithic workshop in the Javakheti Highland.

Rock Shelter I

This rock shelter was discovered in a deep, canyon-like valley, north-west of Tsalka. The total height of the valley reaches 70–80 masl and then gradually declines eastwards. The rock shelter is approximately located in the central part of the canyon, around 300 m east of a railway bridge.

On the left side of the valley, about 20 m

from the lowest point of the river at a height of 10–15 meters, a rocky outcrop overlooks a cave, forming a natural shelter (Figure 4). Over time, falling boulders from the upper part of the outcrop have changed its overall shape, but the original profile contours are nevertheless easily reconstructed. The stratigraphy shows a denuded burnt cultural layer, measuring 30–40 cm in thickness (see Figure 4, inset), which had become exposed as a result of erosion processes. It is from this layer that the archaeological material was collected.

The assemblage contains a large amount of obsidian, as well as bone tools and faunal remains. Given the fact that short-term occupation sites are not generally characterised by the presence of thick cultural layers, the presence of bone artefacts suggests that this newly discovered site may have been an intensively occupied area.

Determining the scale of the site is difficult.



Figure 5. Obsidian tools and bone awls from Rock Shelter I (photo by S. Jokhadze).

Although the contours of the cultural layer abutting the rock outcrop are currently not visible, 15 m along the face of the outcrop have been denuded by erosion exposing five perpendicular layers. Our observation suggests that the cultural layer might be concave in form and could contain further remnants of the same cultural layer that extends along the valley.

The archaeological material consists of obsidian blades. In some cases, retouch can be observed. Two bone awls were also recovered, which had fallen from the burnt layer. The first one displays better preservation; it was fashioned from an animal rib and displays a more pointed end. Traces of polishing treating and working were observed on both sides. Its tip, measuring 20 mm in length, is highly polished (Figure 5). The second awl is represented by a fragment fashioned from a femur. It is broken roughly across the middle and part of the tip is missing. Its surface displays traces of processing and burning.

On the basis of a preliminary typological study, the probable age of Rock Shelter 1

is suggested to be Mesolithic. The presence of the two bone awls, however, differs from other known Mesolithic sites nearby. For example, at the Mesolithic rock shelter at Edzani, located some 500 m distant, a total of 22,000 obsidian artefacts were found; however, no bone awls were discovered (Gabunia 1975, 32). As a result, an Early Neolithic date cannot be ruled out.

The workshop area

Located north-east of Mount Chikiani, approximately 4 km from the obsidian source and at approximately 2100 masl, this working area has been previously mentioned by Biagi & Nisbet (2018, 2019), who identified later Metal Age obsidian artefacts in the vicinity. During our survey, Palaeolithic obsidian tools were observed in large quantities across the southern section of a modern red pumice quarry located nearby, as well as a large number of knapped obsidian flakes and finished tools on slopes to the west (Figure 6). Within the area surveyed, a humus layer was exposed, most likely by erosion processes, and a denuded, blackish mixed layer was observed, with depressions washed out via heavy precipitation. Across the entire



Figure 6. Workshop area, southern slope of the modern red pumice quarry (photograph by S. Jokhadze).

slope, we encountered an especially large quantity of obsidian knapping debris along with finished tools; the assemblage mostly comprises patinated flakes resulting from the production of cores and other tools.

The obsidian assemblage from the workshop area mainly comprises tools made from blades, the majority of which are end-scrapers. Most of these are represented by forms with convex working edges, formed using fine facet pressure retouch. Additionally, we encountered artefacts with clear Neolithic characteristics; for example, single-side retouched blades made using long lever pressure technique (Figure 7). A conical core was also found which displayed sharp, straight, parallel negatives from blade removals and had been split in half across the middle (see Figure 7, which shows the side displaying flake scarring); the platform is half oval in shape and several instances of platform preparation can be observed.



Figure 7. Neolithic artefacts from the Workshop Area: conical core (left) and broken blades made using long lever pressure technique (photos by S. Jokhadze).

One end-scraper in particular is highlighted here (Figure 8). Its proximal end is broken. It is rectangular in profile, forming a trapeze in cross-section. The right side and distal part were executed using parallel pressure retouch with short pressure technique, while the left side has a very straight working surface. This method of retouch is expressed by shifting narrow facet flake



Figure 8. Chalcolithic obsidian end-scraper from the Workshop Area (photo and illustrations by S. Jokhadze).

removals along the lateral edge of the dorsal surface and is observed at Late Chalcolithic sites, such as Sioni (Kiguradze & Menabde 1971, 19).

The Neolithic period is well-represented in the workshop area, and is supported by the discovery of a polished axe/chisel made from a pebble that has been narrowed to form a working surface. It is oval in cross-section, with straight sides, and measuring 43 x 34 x 14 mm (Figure 9). The typology of the tool, its form and the quality of treatment enables us to associate it with the Neolithic period and, more concretely, with the Shulaveri-Shomutepe Neolithic culture of the Southern Caucasus.

DISCUSSION

The neolithisation process in the Southern Caucasus is characterised by an intense

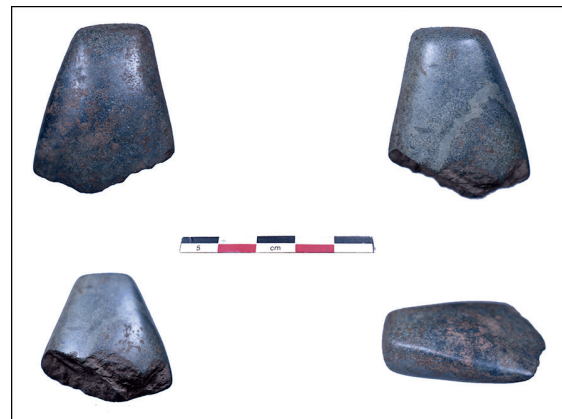


Figure 9. Neolithic polished stone chisel from the Workshop Area (photo by S. Jokhadze).

mobile lifestyle in which defined groups aimed to assimilate new territories, as well as search for and distribute natural resources (Chataigner & Barge 2010). Traces of Neolithic cultural elements in the highlands of the Southern Caucasus have either been partially or completely

neglected in previous studies. According to the results of our research, traces of Neolithic groups detected in the highlands of the Lesser Caucasus present another piece of a complex puzzle, proving the organisation of obsidian exploitation and distribution by late prehistoric populations.

We acknowledge that the context of the study area and the direction of further research present their own problems: the workshop area appears to have been used over an extended period, during which only obsidian was worked, and at no point did it serve as a dwelling place. Abundant remnants associated with obsidian working littering the entire area. This location is also considered important because, as Figure 1 shows, both the main obsidian source at Mount Chikiani and the Chochiani river valley are visible from the workshop area. It is our opinion that the latter could have served as a route for the Neolithic–Chalcolithic population to reach the Chikiani obsidian deposit from the east.

Rock Shelter I also indicates continuity of use from the Mesolithic through to the Neolithic period. The importance and potential of this site is underlined due to the fact that it is one of a rare number of sites within the highlands at which later prehistoric activity has been identified. We know that the area surrounding Lake Paravani formed one of the main obsidian sources during prehistory, but our understanding of how prehistoric societies organised obsidian procurement and distribution is currently limited. The Javakheti region is mainly volcanic, with rocky geological layers covered directly with humus. It is a region full of megalithic structures and cultural layers representing human activity are thus mostly formed of closed complexes (e.g. graves and kurgans). In situ evidence for settlements and shelters, on the other hand, is lacking. Therefore, Rock Shelter I provides a rare insight into late prehistoric settlement activity within

the Javakheti Highlands.

The development of agricultural lifeways forced populations to select riverside lowland plain locations to settle (as indicated by the location of Neolithic settlements in Figure 2); however, the increased interest in the assimilation of natural resources is reflected in permanent mobile lifeways within the highlands. Extraction of obsidian was clearly organised and the spread and transportation of this material would have been realised by means of rivers. People would have followed the routes of rivers which served as guideways in the prehistoric period, and in turn contributed to the development of sophisticated navigation techniques. The first stage of obsidian processing would have been implemented at the raw material source, as proven by the workshop area. The existence of cores and blades produced by long pressure retouching can be associated with the semi-finished product that characterise the Neolithic settlements within the Southern Caucasus.

Despite the problems that the archaeology presents us with, the interpretation of these cultural activities and chronological peculiarities, discovery of new evidence of Neolithic activity, the suggested routes for dissemination of natural resources, and the necessity of further study of this widespread obsidian network nevertheless remain interesting phenomena to consider within the framework of the economies of late prehistoric peoples in the Southern Caucasus.

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