Chapter 1

The Javakheti Plateau: Megaliths, Villages, and Obsidian mines in the Prehistory of the Lesser Caucasus of Georgia

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Abstract

The surveys carried out during the last decade in the Javakheti Plateau (Lesser Caucasus, Georgia) led to the discovery of hundreds of archaeological sites among which are obsidian mining-fields, different types of megaliths and kurgans, complex villages, and basalt/andesite quarries, which were exploited mainly during the Bronze Age. All sites are located between *c.* 1500 and 2500 m of altitude, where present temperatures are well below 0° Celsius during the winter months. This chapter discusses the complexity of the archaeological landscapes we have investigated, their probable seasonal exploitation, and suggested complementarities between residential, funerary, and mining areas, whose archaeological remains in no case overlap. The systematic occurrence of megalithic structures and scatters of obsidian artefacts, sometimes located dozens of km from the extractive sources, poses many questions regarding their distribution and presence rarely asked by archaeologists.

Keywords

GEORGIA; LESSER CAUCASUS; JAVAKHETI PLATEAU; MT. CHIKIANI; OBSIDIAN SOURCES; MEGALITHS; BRONZE AGE.

Introduction

Very few highland zones of Europe show visible traces of activities left by Bronze Age communities whose impact has contributed to shaping their landscape (Biagi *et al.* 2020). The Lesser Caucasus highlands show the remains of impressive megalithic structures. They consist of villages, fortresses, different types of tombs, and kurgans in some cases interconnected by long causeways, roads, alignments of stone boulders sometimes longer than 100 m, menhirs, and extended mining-fields, dotted by groups of pits opened for the exploitation of important stone resources among which are the rich obsidian flows of Mt. Chikiani (Kuftin and Field 1946; Biagi *et al.* 2017a; 2017b).

This chapter considers some aspects of the archaeology of the Javakheti Plateau in the Lesser Caucasus of south-western Georgia and the territory that surrounds it (Maisuradze *et al.* 2017; Sahakyan *et al.* 2018; Narimanishvili 2019). It discusses some of the results achieved during the surveys carried out between 2012 and 2019 in the area that extends from Lake Tsalka, in the north, to Lake Paravani, in the south.

Most of the sites and kurgans known in the territory were excavated between 1936 and 1940 thanks to a rescue operation promoted by the Committee for the Preservation of Cultural Monuments of the Board of Art of the Georgian Socialist Republic. The results were published in a seminal volume (Kuftin 1941) in which the author introduced the terms Trialeti and Kura-Araxes cultures to describe the finds and framed them into two distinct periods of the Bronze Age of the Caucasus (Kohl and Trifonov 2014: 1574).

Stuart Piggott was one of the first archaeologists to write about the importance of the Caucasus highlands, and to suggest the existence of trans-Caucasian routes punctuated by Bronze Age 'barrow-burials' (Piggott 1968: 278). The excavations carried out in many kurgans around Trialeti (Rubinson 1977) brought to light the remains of four-wheeled wooden vehicles, which were undoubtedly employed to transport heavy loads (Burmeister 2010). This type of vehicle implies

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the existence of a road system to move across a high mountain chain (Childe 1951: 186; Burmeister 2017). Apart from favouring a 'continuous movement of cattle herders north and south around the Great Caucasus range' (Kohl 2007: 119), wooden wheeled vehicles were undoubtedly employed also in the construction of megalithic monuments (Reinhold *et al.* 2017: 93).

Environment and landscape

The present Javakheti climate is cool and continental with cold winters and mild summers (Kvavadze and Kakiani 2010). However, during the Bronze Age Kura-Araxes culture, geo- and bioproxy data, among which are altitude of the upper tree-line and lake-levels (Connor and Kvavadze 2014), show quite a different climatic situation, with a significantly warmer and wetter climatic trend.

The present vegetation of the Tsalka Plateau is subalpine to mountain steppe, which consists almost entirely of grasslands. Pines have been planted at lower altitudes over wide areas for at least the last 50 or 60 years. The opening of wide grasslands is believed to be a consequence of overgrazing that took place in recent times (Badenkov *et al.* 1990). On the few ungrazed slopes, the willows and birches which dominate the tree species can easily grow up to an altitude of 2200 m.

The setting of megaliths requires a few basic steps: digging, quarrying, shaping, transporting, and building (Pickett *et al.* 2016). Regarding the last two steps, a recent debate has partly modified old assumptions considering the two main techniques employed to deal with stones of some tens of tons (sledges *versus* 'rollers') (Harris 2018). However, since many years, ethnographic studies (Röder 1944) and experimental archaeology (Coles 1973) agree that a remarkable quantity of wood is necessary, not only during quarrying, though there is a rich literature dealing with this topic (Willies and Weisgerber 2000), but mostly during transport and different phases of erection. Therefore, wood plays a fundamental role even in those ancient societies which could apply very large numbers of people to the task. The question of wood availability during the Bronze Age in the territory around Mt. Chikiani is, therefore, crucial.

The best data to reconstruct the local 3rd and 2nd millennia cal. BC environment are provided by the results of the pollen analyses from cores extracted 1) inside and around Lake Paravani, for the alpine belt of vegetation (Messager *et al.* 2020), and 2) the Tsalka region, for the subalpine grassland belt (Connor and Sagona 2007).

The pollen data relating to the 3rd millennium cal. BC in the upper belt show the dominance of mixed Conifer-broadleaved tree forest, whose upper tree-line could reach 2500–2600 m of altitude, pointing to a warm, humid climate. Local clearances were present in those times, as is shown by the presence of *Cerealia* pollen in some of the Paravani kurgans. Further down, in the surroundings of Tsalka, the pollen analyses of the cemeteries of Imera and Sapar-Kharaba show the presence of thermophilic species around 1500 cal. BC, with evidence of horticulture and viniculture (Kvavadze and Narimanishvili 2010). Therefore, the current pollen data show that the first Kura-Araxes groups crossed the mixed forests covering the flanks of Trialeti range before reaching the Paravani-Chikiani. The earliest local deforestation probably occurred at that time, followed by a larger, intense action on the forests paralleled by the increase of mining activities.

Surveys and discoveries

Obsidian sources and mining fields

During the Bronze Age, different cultural aspects developed in the Caucasus: Kura-Araxes (Kushnareva 1997), Bedeni (Gobedshizhvili 1980; Bertram 2010), and Trialeti (Kuftin 1941; Narimanishvili *et al.*, 2019). The beginning of the first aspect falls just after the middle of the 4th millennium cal. BC and continued at least till the middle of the 3rd (Alizadeh *et al.* 2018; Manning *et al.* 2018). A new radiocarbon date from kurgan 5 of the Bedeni graveyard tells us that this structure

was in use around the middle of the 3rd millennium cal. BC (GrA-69636: 3940±35 BP, on a *Cornus mas* stone: $\delta^{13}C$ -27.10).

The surveys carried out between 2012 and 2016 along the slopes of Mt. Chikiani were extended to a wider territory in 2017–2019. The scope was also to include part of the Tsalka Plateau and the western slopes of Mt. Paravani to cover an area of about 50 sq km (Figure 1). The reason of the 2012–2016 surveys was to collect obsidian samples, check the chemical characteristics of the lava flows, define the presence of different sources (Biagi and Gratuze 2016), and achieve more data regarding the distribution radius of the Chikiani obsidian. The 2017–2019 seasons were centred mainly on the archaeological potential of the highland, record and map archaeological sites by a

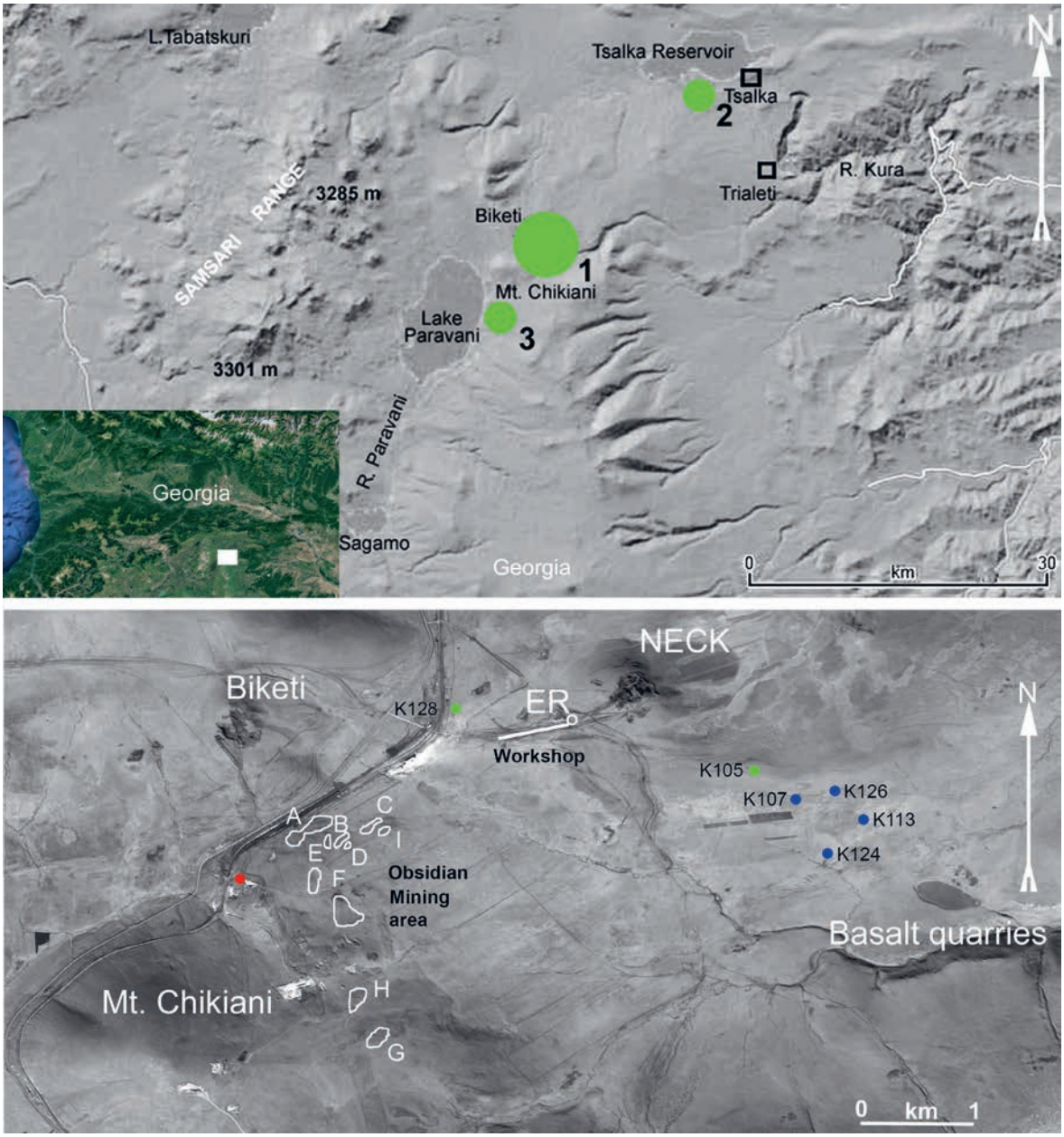

Figure 1 – Approximate location of three main areas surveyed in 2012–2019 (green dots): Mt. Chikiani and its surroundings (1), southern terraces of the Tsalka Reservoir (2), and western slope of Mt. Paravani (3) (top); the territory east of Mt. Chikiani surveyed in 2012–2019, with the location of obsidian mining-fields, most important obsidian workshop (ER), basalt quarries, menhir (red dot), a few monumental kurgans (green and blue dots), and megalithic alignments (blue dots) (P. Biagi and R. Nisbet).

Garmin GPS device, and take drone photographs of the sites and their surrounding landscape from different altitudes.

Mt. Chikiani is a volcanic dome that rises from the south-western edge of the Javakheti Plateau at an altitude of 2417 m. It dominates the north-eastern part of Lake Paravani whose northern side is punctuated by an impressive number of kurgans (Gogadze 1980). The gentle slopes of Mt. Chikiani are easy to access from every side. The volcano is a well-known obsidian source whose

Figure 2 – Mt. Chikiani: Obsidian mining-fields marked by the presence of groups of rounded mining-pits (top). Inyak Dağ: The fortress seen from the south-western upper slope of Mt. Chikiani (bottom) (P. Biagi and R. Nisbet, July 2018).

exploitation took place between the end of the Middle Palaeolithic and Historic times. However, the way obsidian was exploited and the chemical characteristics of the different lava flows (Le Bourdonnec *et al.* 2012; Nomade *et al.* 2016), which cover most of the northern and north-eastern slopes of the dome, were almost unknown till the 2010s (Biagi and Gratuze 2016).

The surveys led to the discovery of several groups of obsidian mines distributed over a territory of *c.* 5 sq km (Figure 2, top). Hundreds of characteristic mining-pits were dug out most probably during different periods of the Bronze Age, as suggested by the presence of polyhedral blade cores (Biagi *et al.* 2017a). A few obsidian manufacturing areas were discovered close to the lava flows, and a few km apart. Mining-fields and megalithic structures seem to cover different areas, which in no case overlap. The obsidian mining area is delimited, in the south-west, by a well-known menhir and, in the south-east, by the impressive fortress of Inyak Dağ (2310 m) that faces Lake Paravani

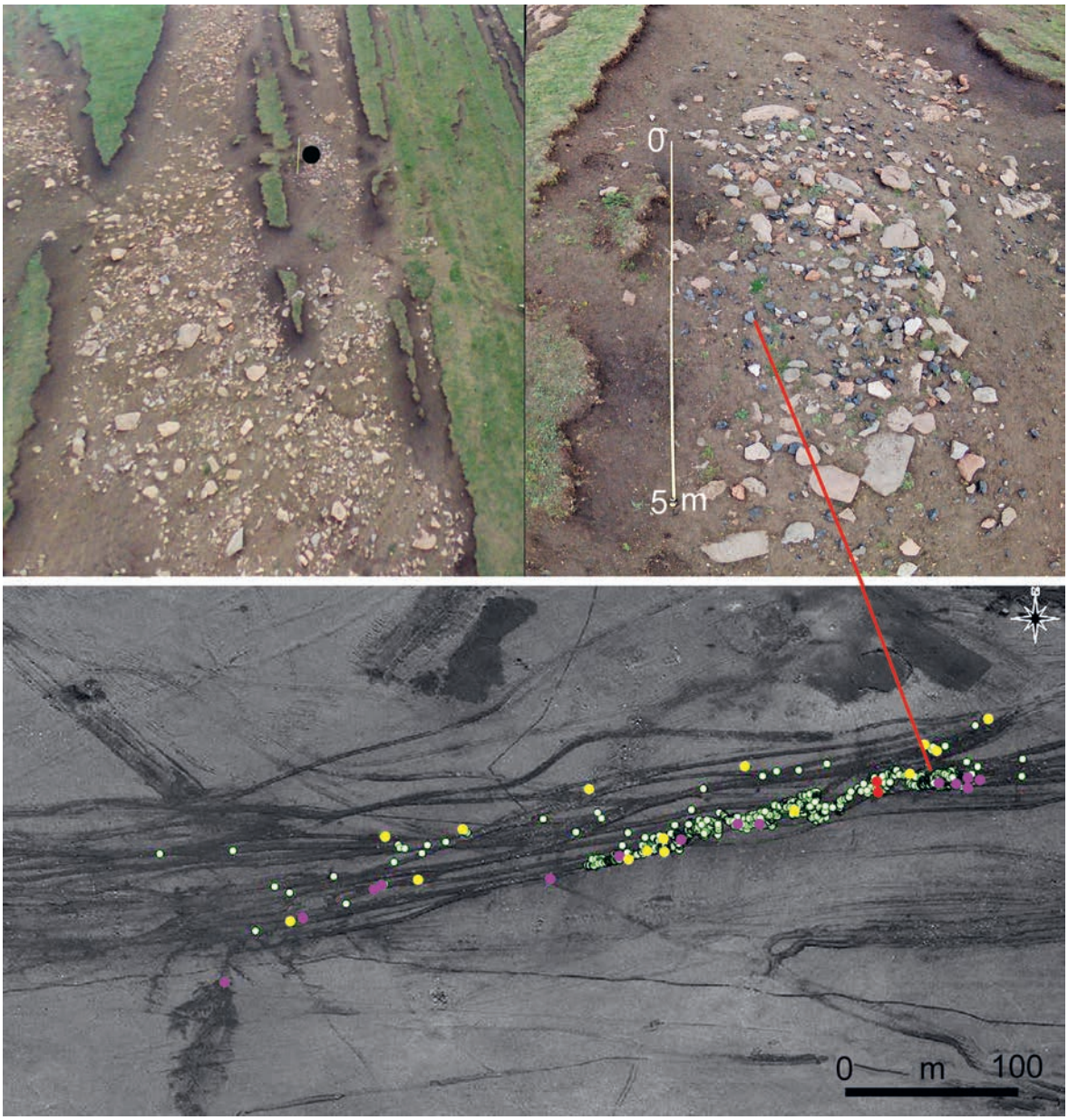

Figure 3 – NECK: Circular platform made of basalt blocks and related obsidian workshop (ER) discovered along the south-western slope of the small dome (black dot). Distribution of obsidian artefacts along the slope (white dots), chert artefacts (red dots), andesite/basalt pestles (yellow dots), and potsherds (violet dots) (R. Nisbet, July 2019).

Figure 4 – NECK: Knapped stone artefacts from the ER strip: exogenous chert artefact (nn. 1 and 2), obsidian, ovate rough-out (n. 3), obsidian, Bedeni type foliate arrowhead (n. 4), obsidian, spearhead rough-outs (nn. 5 and 6). The small bars are 1 cm (E. Starnini and P. Biagi).

Figure 5 – NECK: Basalt/andesite hammerstones from the hill slope with evident traces of hammering at one edge (P. Biagi).

(Figure 2, bottom). The presence of these two structures suggests that, during the Bronze Age, the Mt. Chikiani sources were controlled due to their economic importance and the stone monuments marked one of the boundaries.

A circular stone platform *c.* 6 m in diameter was discovered along the south-western slope of a volcanic hillock that we called NECK (see Figure 1: ER). The surface of the platform is covered with obsidian blocks, primary and debitage flakes. The platform was used first to group raw material blocks, then as a knapping floor (Biagi and Nisbet 2018: fig. 2). The latter activity resulted in thousands of debitage and debris flakes scattered on a strip *c.* 300 m long, 2617 of which were GPS-mapped (Figure 3). A few retouched tools were also recovered, as well as the proximal segment of one pressure-flaked polyhedral core (Crabtree 1968). This evidence contrasts with the presence of polyhedral cores with indirect percussion blade detachments known from the mining fields located *c.* 2–2.5 km south-west of the platform (Biagi *et al.* 2017b: fig. 8).

The discovery of one characteristic Bedeni Culture concave base winged arrowhead of type II-9 of the A. Orjonikidze typological list (Figure 4, n. 4) (Orjonikidze 2004: 53), a few unfinished bifacial spearheads, and two ogival, bifacial rough-outs (Figure 4, nos 3, 5, and 6), show that at least one of the activities performed at the workshop was the production of different types of bifacial arrowheads and spearheads. Other tools are represented by a few long end scrapers, side scrapers, unretouched and retouched blades with a trapezoidal or triangular cross-section, one medial fragment of a prismatic blade of exogenous, brownish, opaque chert with very fine unifacial, lamellar, flat retouch along one side and scrape-wood traces of wear along the other (Figure 4, n. 2), fragments of basalt/andesite pestles (Figure 5), and a few ceramic potsherds.

Elegant types of obsidian arrowheads and spearheads have been often retrieved from kurgan burial chambers associated with other grave goods. They show how important the role played by the Mt. Chikiani sources was during the Bronze Age, when a class of specialised artisans manufactured unique ceremonial obsidian arrowheads (Makharadze 2016). During the same period, metallurgy and ore mining began in the Lesser Caucasus, and the social order also started to change (Stöllner 2016; Smith 2019: 6).

Megalithic monuments shaping the landscape?

Impressive megalithic structures have never been recorded from Mt. Chikiani. The only exceptions are the small kurgans excavated on its top during the Soviet period and the simple kurgans made either of basalt or obsidian blocks aligned along the eastern slope of the volcano. One menhir, locally known as 'Tikma-Dash' (Zischow 2004), was set in a very visible spot at the foot of the northern slope of the mount, marking the Paravani Pass, which connects the Tsalka Plateau, in the north, with Lake Paravani, in the south.

At least six different types of megalithic structures were built partly in the bottom and partly along the gentle slopes which surround the valley floor. They can be summarily described as follows:

A. Typical monumental kurgans located *c.* 2 km from each other (K-105 and K-128). K-105 (N41°30'08.0"-E43°54'53.1": 2146 m) has a 36 m long east-west oriented (270° N) access causeway, opening on its eastern side. The central circular stone body is 28 m in diameter. The kurgan was purposely built as a typical landmark at the top of the ridge that dominates two opposed lowlands (Figure 6, top). K-128 (N41°30'22.7"-E43°53'33.5": 2134 m) has two opposite access passageways, northwest-southeast oriented, both departing from the central body (316° N). The kurgan is mostly covered with brown-black soil. The total visible length of the structure is 146 m (Figure 6, bottom).

Figure 6 – Mt. Chikiani: Kurgans K-105 (top) and K-128 (bottom) (R. Nisbet, July 2018).

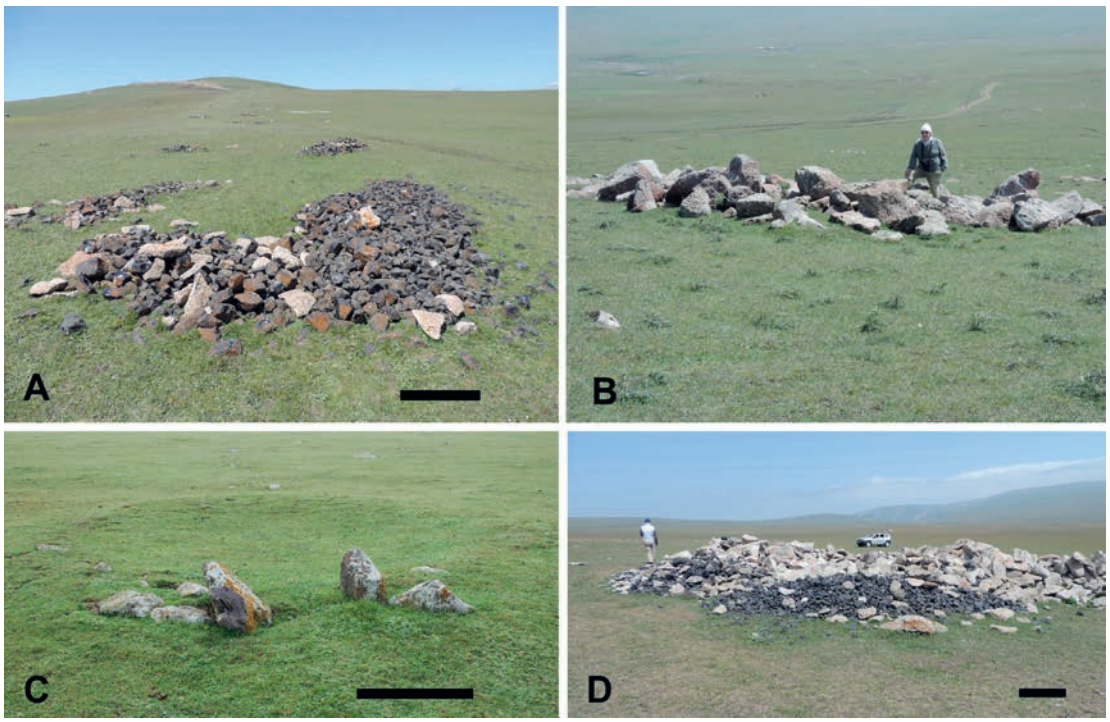

Figure 7 – Mt. Chikiani: Different types of small kurgans made of basalt and obsidian blocks (A, B, D), and shallow rounded habitation structure (?) whose probable entrance is marked by vertical slabs (C). The black bar is 1 m (R. Nisbet, July 2018).

Figure 8 – Mt. Chikiani: Village VIL-6 made of apsidal stone structures, facing south-west (top) and unmapped village located north-east of Seyttapa (bottom) (VIL-6: M. Ferrandi, July 2017).

B. Stone kurgans, without any access passageways, and an irregular or slightly elongated central body. Some of these structures are made of obsidian boulders (Figs. 7A and 7D).

C. Rounded or slightly oval heaps of smaller blocks *c.* 3–4 m in diameter, some of which consist exclusively of obsidian boulders. This is the case for some of the small kurgans aligned along the eastern slope of Mt. Chikiani (Figure 7B).

D. Shallow pits with a slightly projecting rim, some of which are partly covered with stones (Figure 7C).

E. Seven more or less rectilinear alignments made of basalt boulders 1 m or more in diameter, north-south and east-west oriented, sometimes longer than 100 m (K-107 and K-111). Close to Mt. Chikiani, megalithic alignments have been recorded only in an area of *c.* 50 ha, where they seem to delimit the marshy depression that extends west of Seyttapa. Similar alignments, though even more concentrated, numerous, and longer have been found also along the eastern terraces which extend west of the village of Sameba, facing the southern banks of the Tsalka Reservoir. Their linear character may be related with possible movement patterns across the landscape and whatever else was occasionally related with them (Bourgeois 2013: 190)

F. During the 2017 survey, three small settlements (VIL-4, VIL-5, VIL-6) were discovered along the western slope of Seyttapa, not far from its top, *c.* 6 km east of Mt. Chikiani (Biagi and Nisbet 2018). VIL-4 and VIL-5 consist of clusters of roughly rectangular and circular rooms without any apparent order, some of which are bordered by vertical slabs. VIL-6 shows quite a different arrangement of two symmetrical rows of semi-subterranean rectangular, apsed rooms, *c.* 100 m long, separated by empty space (Figure 8). This architectural pattern closely resembles the so-called Late Bronze Age 'settlements with symmetric layout' known north of Mt. Elbrus (Reinhold 2016: fig. 5, 6, and 13).

Discussion

Due to the complexity of the monumental landscape discussed in this chapter, and the megalithic structures discovered during the surveys, one of the questions to answer regards mortuary ritual variability (O'Shea 1984). This fact may be reflected by the different categories of stone monuments, and the way they effected and related to the social structure of the Bronze Age communities that settled and changed the Javakheti Plateau. What is the meaning of their great structural variability within a high-altitude open landscape? Were they built to mark some kind of itinerary, or was their construction followed by feasts and ceremonies similar to those we know elsewhere from ethnographic parallels? It does not seem to be a coincidence that most megalithic alignments are precisely oriented in a north-south and east-west direction. This is also the case for the line of small kurgans mapped along the eastern slopes of Mt. Chikiani, which may otherwise be related to some kind of territorial boundary or catchment area.

The Javakheti Plateau presents an opportunity to shed light on many questions regarding megalithism and high-altitude archaeology in general, because of the occurrence of a great variety of archaeological sites that are rarely found in association elsewhere. Among them are those regarding the exploitation of the obsidian sources that are so far a unique case in European prehistory. Groups of hundreds of extraction pits show how important the role played by obsidian was in the Bronze Age of the Caucasus, despite the abundance of metal and the production of a great variety of everyday objects, ornaments, and weapons in bronze. Obsidian mining was organised for the manufacture of different types of tools, among which are varieties of elegant, winged arrowheads that we often find deposited as grave goods in the burial chambers of monumental kurgans (see, Murvanidze 2016: 317).

The sites discussed in this chapter regard prehistoric periods during which metal had already superseded stone in the production of many everyday use items, the complex network system of raw material procurement and trade between centre and periphery was already active (Frank 1993), and the distribution implied demand, organisation, and a good set of infrastructure (Stöllner 2012: 440). In spite of some similarities, it would be untimely to apply the model recently suggested for the Northern Caucasus highlands to the Lesser Caucasus. In the Northern Caucasus, a change from a Middle Bronze Age nomadic pastoralism to a more sedentary Late Bronze Age lifestyle took

place, and is demonstrated by the different pattern of soil occupation and diet (Knipper *et al*. 2020). In the case of the Javakheti Plateau, the first Bronze Age activity is most probably linked with the search for, and the extraction of obsidian sources, while so far there is no clear evidence for pastoral activities. However, the prolonged presence of a, presumably, large community of miners in the mountain, and the appearance of a highly structured society with ideological complexity demonstrated by the different monuments, raises the question of the location of the permanent settlements within the same or neighbouring areas, and consequently the local exploitation of animal and vegetal resources.

What can be said about environmental changes, taking into account the more recent archaeological research in the area? Palynologists have attributed the evidence for limited Bronze Age clearances in a woody landscape to small-scale agricultural or pastoral activities. The so far unsuspected presence of the impressive obsidian mining-fields along the slopes of Mt. Chikiani deserves more attention on the topic, which is one of the main factors putting strong pressure on the Bronze Age environment, opening a previously forested landscape, and finally favouring its change into an alpine grassland. It has been properly suggested that a change in the Tsalka-Javakheti highland forest management, from Chalcolithic large-scale fires to a better-targeted use of wood (Joannin *et al*. 2014), could mirror the new use of timber and woodwork in both stone monument erection and wheeled vehicles manufacture, which display an unprecedented level of sophistication.

The small linear settlements discovered along the western slope of Seyttapa, *c.* 5 km east of the obsidian extractive zone, show close similarity with the Late Bronze Age 'settlements with symmetric layout' of the northern Caucasus (Reinhold 2016). A major, interesting architectural/functional difference between the Javakheti and the Great Caucasus houses exists in the opposite openings of the rooms, with entrances oriented towards the outside of the settlement in the Elbrus region (Peters *et al*. 2014: 185 and fig. 3), and towards the central corridor in the Javakheti Plateau. The north Caucasus villages were recently described as being composed of 'multifunctional houses that were partly used to stable animals in winter' (Knipper *et al*. 2017: 125). If this interpretation is correct, these villages may suggest a major shift in the Late Bronze Age economic exploitation of the landscape around Mt. Chikiani after some centuries of obsidian mining activities.

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