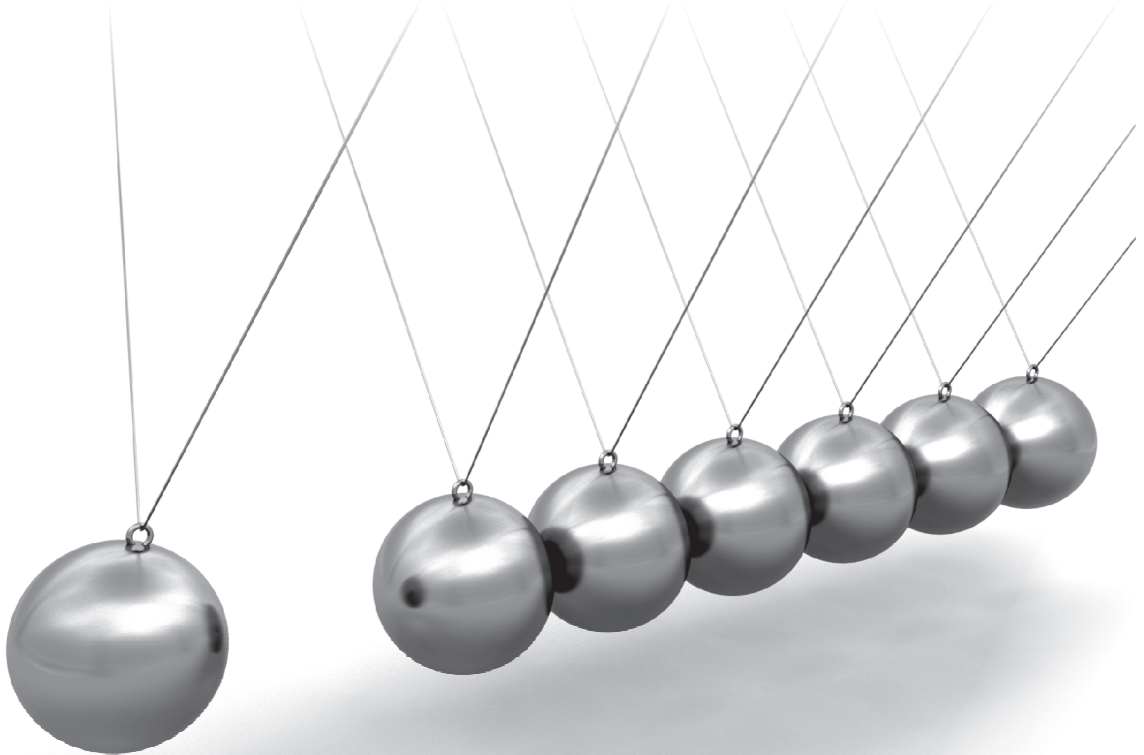


HUMANS AND SOCIETY IN TIMES OF CRISIS

# Archaeology of Crisis

Edited by Staša Babić



1838

UNIVERSITY OF BELGRADE  
FACULTY OF PHILOSOPHY



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of Crisis

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## EDITOR'S NOTE

In December 2019, a previously unknown coronavirus was registered and the severe and potentially fatal illness it causes swiftly spread around the world. On January 30, 2020, the World Health Organisation declared a state of Public Health Emergency, followed by the declaration of a pandemic on March 11 of the same year.<sup>1</sup> More than a year later, while this volume is submitted for publication, the world is still struggling with a plethora of severe problems initiated by, but by no means reduced to, the medical aspects of the current crisis. The disturbances in the economic and social activities further induce profound distress in everyday lives around the globe. Depending on the current state of the epidemic curve, we are advised to observe more or less rigorous measures of caution, most of them limiting our movements and contacts. While maintaining distance in the real world, we are connected virtually, various technologies enabling us to compare experiences of restricted interactions. One can thus get a glimpse of the diverse ways in which people around the world make sense of their changed worlds. Many express their thoughts in words, but some use other means. Like, a photo series that invites us to choose and arrange objects that are essential to us under the current predicament.<sup>2</sup> The similarities in created assemblages (an assortment of face masks, hand sanitizers, laptop computers, comfort food, books...), as well as idiosyncratic objects reflecting particular lifestyles (dog leash, musical instruments...), illustrate eloquently what archaeologists know so well: our lives are framed in materialities that shape and are being shaped by our practices. Under the drastically changed circumstances, such as the ones we are currently enduring, our relationship with our material surroundings also changes, creating new possibilities and constraints to our practices. Our present experiences are not unique and throughout the history of our species, human groups have faced various crises, caused by a wide range of factors. From massive changes in their environment, population movements and violent conflicts, to profound shifts in attitudes, beliefs and value systems, these events have caused disruptions in everyday practices of communities and have invariably been reflected in some material form.

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1 <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

2 <https://www.collater.al/en/paula-zuccotti-lockdown-essentials-photography/>

Bearing this in mind, the purpose of this collection is to investigate some of the instances of crises that afflicted past populations of the Central Balkans and adjacent regions, via the material traces accessible through archaeological investigation. The knowledge of the causes of disruptions and of the responses devised for overcoming them in the past may bring us closer to solutions applicable in our present. At the same time, the aim of the volume is to offer an insight into the vast range of approaches currently practiced by archaeologists, their possibilities and limitations, as well as synergies created in the domains of theoretical concepts and methodological procedures. The authors share the same working environment – the Faculty of Philosophy in Belgrade, and specifically its Department of Archaeology – but follow diverse research paths, illustrating the current state of the discipline in general, its many theoretical and methodological ramifications. It is our hope that our specific disciplinary knowledge of the past may contribute to more efficient responses to crises in the present and future.

Belgrade, May/June 2021

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Milena Gošić\*

## THE COLLAPSE OF CHALCOLITHIC SOCIETIES: WHAT ARE WE MISSING?

**Abstract:** The collapse of Chalcolithic societies in the southern Levant has been captivating the interest of scholars for decades. This paper aims to offer a metallurgical perspective of the issue and explain why the full understanding of this transition evades archaeological grasp. I propose that mobile communities, possibly pastoral nomads, had a critical role in sustaining Chalcolithic metallurgy and ritual practices. Changes in their involvement in metallurgy and mobility patterns likely contributed to the collapse of Chalcolithic societies. The relatively low archaeological visibility of these groups also provides a possible, albeit speculative, explanation for our lack of resources for fully understanding their role and the changes that occurred.

**Keywords:** Chalcolithic/Early Bronze Age transition, pastoral nomadism, metallurgy, Levant

*It was the end of an era...* These words mark the beginnings of many stories that aim to describe and possibly explain complex changes at the end of what is perceived as a better, more prosperous time. It sometimes seems that whole societies can disappear, leaving no immediate archaeological “successors.” While there are both those who see discontinuity (e.g. Davidovich, 2013; Gilead, 1993; Milevski, 2013) and continuity (e.g. Golani, 2013; Van den Brink, 2013; Yekutieli, 2014) between the end of the Chalcolithic and the beginning of the Early Bronze Age I (henceforth EBI), it is certain that the end of the Chalcolithic period witnessed dramatic changes: settlements and cemeteries were abandoned, and intricate metallurgical technologies disappeared.

The end of the Chalcolithic period in the southern Levant and its relation to the subsequent EBI have long inspired scholars, probably because of the stark difference between the two periods and an alleged settlement hiatus. However, recent research indicates that the two periods

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are chronologically closer than previously thought. Below I overview the existing research on the collapse of Chalcolithic societies and explain why this process has evaded archaeological understanding.

## Before the Collapse: The Archaeological Context and Absolute Chronology of the Late Chalcolithic Period

Several distinctive archaeological cultures<sup>1</sup> characterized the Chalcolithic period of the southern Levant (Tab. 1). Three cultural entities are relevant for the present discussion: a) the Ghassulian, of the northern Negev, the Coastal plain, the Shephella, the Jordan Valley, and the Judean Desert (the Chalcolithic core area); b) the Golanian, of the Golan Heights; c) the Timnian, of the southern Negev, Sinai, and Feinan (Map 1). While the Ghassulian and Golanian lasted roughly through the second part of the 5th millennium, the Timnian started earlier and terminated later during the 4th millennium, meaning that it chronologically overlaps with the Chalcolithic/EB transitional period and EB1a in the core area (Gilead, 2011, p. 14). While the Ghassulian is the most explored of the three, including its connection to the EB1, the latter two contribute to the better understanding of the changes during the transitional period.

**Table 1.** Comparative chronology of 5<sup>th</sup> and early 4<sup>th</sup> millennia of the Southern Levant (after Gilead 2011, Table 2.1)

BC	Period	Cultural entities			
		Southern Levant Core area	Golan	Southern Negev/ Sinai	
5000	Late Pottery Neolithic	<i>Wadi Rabah</i>		<i>Timnian</i>	
4700	Neolithic/ Chalcolithic Transition	<i>Natzur 4, Tsafian, Besorian</i>			
4500	Chalcolithic	<i>Ghassulian</i>	<i>Early (Premetallic)</i>		<i>Golanian</i>
4300			<i>Late (Metallic)</i>		
3900			Chalcolithic/ EBI transition		
3700	Early Bronze I				

1 The term archaeological culture is used here as defined by Gilead (2011, p. 21).



Map 1. Map of the southern Levant showing relevant regions and sites

## The Ghassulian Culture

The late phase of the Ghassulian culture is relevant here. During this phase, which started around 4,300/4,250 BC, metallurgy was introduced (Gilead, 2011, p. 20). Among the prominent features of the Ghassulian assemblages are V-shaped bowls, hole-mouth jars, churns, fan scrapers, bifacial tools, sickle blades. Rectangular surface structures and subterranean features characterize the settlements. Second burial was practiced in karst and artificial caves, and surface stone and brick structures. Copper was smelted and processed at the newly established sites along the Nahal Beer, Sheva drainage system: Nevatim, Abu Matar, Bir es-Safadi, Horvat Beter and Shiqmim. Most ores originated in the Feinan region (Hauptmann, 1989; Shugar, 1998, p. 114), c. 100 km to the south, in the eastern Arabah Valley. Ghassulian metallurgy is also known for its locally produced intri-

cate lost-wax casting (Shalev et al., 1992) from copper alloyed with various amounts of arsenic, antimony, and nickel (Tadmor et al., 1995). The exact location from which these metals originated is unknown and the various alloys are most likely the result of recycling. Arsenic, antimony, and nickel rich ores are found north of the Levant, and were probably imported from Anatolia, the Iranian Plateau, and the Caucasus mountains (Ilani & Rosenfeld, 1994; Key, 1980, p. 242; Rothenberg, 1991, p. 7; Tadmor et al., 1995, pp. 141–142). The exact location where casting was practiced is unknown. Such a workshop probably existed at Fazael in the central Jordan Valley (Rosenberg et al., 2020). Fazael boasts the largest assemblage of metallurgical production outside the Nahal Beer Sheva region. At this site, metallurgical practices consisted of casting and repairs, as the finds there include numerous amorphous lumps of metal and damaged objects (Rosenberg et al., 2020, p. 251). The only other location outside the Nahal Beer Sheva region with remains of metallurgy, including casting, is Ashqelon Agammim in the southern Coastal Plain (Asscher et al., 2021; Varga et al., 2021).

The Ghassulian exhibits a degree of regionalism (Rowan & Golden, 2009), also reflected in metallurgical activities. Finished metal artifacts, simple and lost-wax castings alike, were discovered at various sites, including burial caves and settlements. The hoard unearthed at Nahal Mishmar in the Judean Desert (Bar-Adon, 1980) is the most important collection of Ghassulian copper artifacts. Pastoralism was an element of the Ghassulian economy, but its role in the overall economy and the distances covered by herders is disputed (Gilead, 1992; Levy, 1983; Rowan & Golden, 2009, p. 25). Prevalence of sheep and goat over cattle and pigs in the faunal assemblages of the Nahal Beer Sheva sites (Price et al., 2013, Tab. 2), as well as the relatively few sickle-blades in the flint assemblages (Gilead, 1992, p. 31), point towards the greater significance of herding comparing to cereal agriculture. However, the existence of at least one specialized sickle-blade workshop in the proximity of these sites, as well as traces of specialized sickle-blade production at Bir es-Safadi (Gilead et al., 2010; Vardi et al., 2020), calls for caution. Since harvesting was a seasonal activity conducted during three weeks in late spring, it is likely that both farming and herding were of importance for the northern Negev communities and that the farming vs. herding dichotomy is misleading, as settlements were permanently settled but some inhabitants were more mobile than others. Part of the population probably moved seasonally to the more distant pastures, as indicated by the herding stations in Nahal Sekher to the south from Beer Sheva (Gilead, 1992, p. 39).

## The Golanian Culture

Settlements attributed to this culture are located on the Golan Heights (Epstein, 1998), known as a source of basalt. The basalt from the Golan present in Chalcolithic sites throughout the southern Levant (Kafafi, 2010, p. 154) indicates contacts between the different regions. Agropastoralists and transhumant pastoralists alike populated the Golan (Kafafi, 2010, p. 143). Remains of metallurgical activities and metal artifacts are missing from Golan sites. Considering that some exchange with Beer Sheva sites was taking place, one can only assume they had no interest in metallurgy and finished artifacts. Considering the ritual nature of Ghassulian metallurgy (Gošić & Gilead, 2015), this lack of interest may indicate that dwellers of the Golan and the Nahal Beer Sheva regions held different religious beliefs. The Golanian pottery unearthed at the Ghassulian second burial site of Peq'in (Gal et al., 2011, p. 201) does not necessarily indicate that the inhabitants of Golan buried their dead there.

## The Timnian Culture

The Timnian is a culture of pastoral nomads (Henry, 1995; Rosen, 2013) in the arid zones south of the Beer Sheva region, including copper-rich Feinan and Timna. Pottery is scarce at Timnian sites and the vessel types are unrelated to the Ghassulian (Gilead, 2011, p. 12). The role of the Timnian pastoralists in the Nahal Beer Sheva metallurgy is still unclear since there are no Ghassulian remains in either Feinan or Timna, where the earliest traces of copper smelting are of the mid-4th millennium (Adams, 1997; Adams & Genz, 1995). The Timnian encampment in Nahal Tsafit, along the Feinan-Beer Sheva road (Knabb et al., 2018, p. 28), supports the claims that local pastoral nomads played a role in the acquisition of ore (Gates, 1992). The sites of Hujayrat al-Ghuzlan and Tell Magas (Klimescha, 2011), dated to the Chalcolithic/EBI transitional period, and described as Timnian (Knabb et al., 2018, p. 55), albeit atypical (Rosen, 2013, p. 143), are also relevant. The two sites yielded evidence of extensive metallurgical activity, including smelting of Feinan ores and casting copper objects and ingots (Klimescha, 2013b, pp. 45–51). Copper from these sites was discovered in Maadi in Egypt and the techniques developed there continued to be used during the EBI in Feinan (Klimescha, 2013b, p. 58), indicating that the metallurgical developments at these sites made a lasting impact on metallurgy in the region.

## The Chalcolithic/Early Bronze Age I Transition: Records of Continuity

The periodization of the Chalcolithic, and especially its ending, is a hotly debated topic (Adams & Roux, in press; Bourke et al., 2004; Burton & Levy, 2011; Gilead, 1994; the second issue of *Paléorient* 2013), beyond the scope of this paper. The Chalcolithic period terminated at around 4000/3900 BC (Gilead, 2011, p. 14), though a few sites lasted another century (Burton & Levy, 2011). The high chronology suggests that the EBI started at around 3700 BC at places such as Ashqelon and Beth Yerah (Regev et al., 2012, p. 555), leaving a gap of at least a century between the periods.

Braun (2019) offers a detailed overview of archaeological sites where settlement continuity throughout the transitional Chalcolithic/EBI is apparent. The site of Modi'in-Buchman shows the most unequivocal evidence of settlement continuity throughout the transition. The picture is less clear for other sites where continuity is claimed, such as Tel es-Shuna North, Yesodot, Ashqelon Barnea, and Ashqelon Afridar, and the Cave of the Warrior (Braun, 2019, p. 68). The Red Sea sites of Hujayrat al-Ghuzlan and Tell Magass, which were settled during this time, are unrelated to the Ghassulian (Braun, 2019, p. 86) and should not be taken as an example of settlement continuity between the Chalcolithic and the EBI. The settlement of most Chalcolithic sites in the southern Levant terminated at the turn of the 5th millennium, including those of the Nahal Beer Sheva area and Teleilat Ghassul. Thus, the continuity of settlement in few locales does not imply that no dramatic change occurred. It is also noteworthy that evidence for continuity, significant as it may be, does not help us understand the mechanisms of change and site abandonment. The papers mentioned above discuss the sites where continuity is established, mainly based on lithics and pottery. Still, they do not deal with the reasons and the dynamic behind the change. Except for a few examples (e.g. Joffe, in press; Lovell, 2002), there is little new research addressing these issues in the past two decades. The reoccurring explanations revolve mostly around environmental changes and population dynamics.

## Did the Climate Change?

There is no consensus regarding climatic conditions during the Chalcolithic period. Some (Goldberg & Rosen, 1987) claim that the Chalcolithic climate was more humid than the present one, while others (Bar-Matthews et al., 2003, p. 3196; Robinson et al., 2006, p. 1537; Verheyden et al., 2008, p. 379) claim that conditions were more or less comparable



with contemporary, with relatively short wetter intervals (Bar-Matthews & Ayalon, 2011, p. 169). What is certain is that past environmental conditions were as diverse in different regions of the southern Levant as they are today. Joffe (in press) reconstructs how climate changes could have affected various communities, depending not only on where they lived but also on their subsistence economy before the change. It is clear that the effect of environmental changes, either pronounced or minor, affected regions differently and could not have been the primary trigger behind the region-wide collapse of the Chalcolithic settlements.

## Are There Any Newcomers to Blame?

Explaining culture change as influence of foreign population was the norm in archaeology, with noteworthy examples concerning the origin (Wright, 1937, p. 22) and demise (Levy, 1995, p. 243) of the southern Levant Chalcolithic. Although it seemed for a while that such explanations characterized past research, they have resurfaced recently, encouraged by the increasingly popular ancient DNA analyses. The study of ancient DNA conducted on a small sample of Peqi'in burial cave human bones (Harney et al., 2018) has little bearing on the Chalcolithic-EBI transition since there are no indications of a different population towards the end of the period. The suggestion that violence increased at the end of the Chalcolithic period (Yekutieli, 2014, p. 613) is based on human remains with traces of violence discovered at the Cave of the Hoard in Nahal Mishmar (Haas & Nathan, 1973). However, a recent review of the Nahal Mishmar data (Gilead & Gošić, 2014) suggests that it is impossible to positively assign the human remains to the Chalcolithic period.

## What Happened with Metallurgy?

Metallurgy is the most important technological innovation of the Chalcolithic period. Metalworking appeared in the late phase of the Ghassulian with both local pure and exotic alloyed copper, and two casting techniques. Some of the know-how probably arrived together with ores from the north. However, it is difficult to say where each technology developed as there are no known metallurgical traditions in the Near East related to Ghassulian metallurgy. Since no lost-wax casting workshop is known, the identity of craftsmen and the origin of the craft are unknown. It is evident that when the Ghassulian collapsed, the metallurgical traditions of both the Nahal Beer Sheva sites and Fazael disappeared.

Several copper artifacts were excavated at the Modi'in Buchman site (Van den Brink, 2007a, 2007b), but no production remains were found. The situation in several sites located in the modern town of Ashqelon is less clear: metalworking was carried out at the Ghassulian site of Ashqelon Agammim and Ashqelon Afridar metallurgy was practiced during the EBIIb (Genz, 1997, p. 60). Apart from the change of location, the EBII metallurgy is very different both technologically and typologically from the Ghassulian metallurgy (Klimscha, 2013a; Shalev, 1994).

During the Chalcolithic period smelting was carried out in settlement sites in the Nahal Beer Sheva region, far from Feinan where most ores originated. During the EBII, smelting was practiced in the mining region, and casting and recycling at sites located away from the ores (Genz, 1997, p. 62). Other changes in technology increased the efficiency of production (Klimscha, 2013b, p. 58). The difference between Chalcolithic and EBII metallurgy is illustrated by hoards dated to these periods. The Chalcolithic Nahal Mishmar hoard consists of decorated copper artifacts with no use-wear, cast primarily in the lost-wax technique (Tadmor et al., 1995). The EBII Kfar Monash hoard features tools and weapons, made in an open cast, with noticeable use-wear (Hestrin & Tadmor, 1963).

It is not just the lost-wax technique that disappeared in the EBII. It is evident that there was a disruption in the supply of ores from the remote northern regions, yet it is unclear what happened: was it the supply that stopped or the demand? There is a suggestion (Ben-Yosef et al., 2016) that supply became problematic, and that lead occasionally solved the problem. But the opposite is also probable. The Ghassulian metallurgical process was ritualized and so were its products. If the rituals changed, leading to the deritualization of the craft (Sarabia & Knottnerus, 2009, p. 14), the demand might have died out. The fact that there are more metal objects in the Nahal Mishmar hoard than in all the other Ghassulian sites combined, supports such an interpretation because burying such a large number of objects in a hoard might indicate their ritual value has changed. According to Thornburg et al. (2007), deritualization can be observed in the loss of practice, in our case both metallurgical and ritual.

The elaborate iconography of the Ghassulian metallurgy (Bar-Adon, 1980) had clear connections to the Levantine landscape and other aspects of the culture, as zoomorphic, anthropomorphic, and architectural decoration present on metal artifacts exists on other artifacts as well (Gošić & Gilead, 2015, pp. 168–169). In contrast, the EBII has been described as a period of aniconic reformation since such motifs are largely absent not only from metal objects but also from the rest of the material culture (Yekutieli, 2014). The disappearance of Ghassulian metallurgy and iconog-

raphy, and the abandonment of second burial sites, imply a religious and ritual discontinuity between these periods.

## The Collapse of Chalcolithic Societies: The (In)Visible Role of Mobile Groups

The collapse of Chalcolithic societies was a widespread phenomenon that affected all its cultural entities. Most of the research focuses on the Ghassulian sites, as they are most researched and widespread in the diverse environment of the southern Levant. There are few sites with evidence concerning the continuity between the Chalcolithic and the EBI, and the reason for the widespread abandonment of settlements is unknown. Also unknown are the provenance and the procurement processes of the metals used for lost-wax casting. I would suggest that what we are missing is insight into the role played by Chalcolithic pastoral nomads that populated the vast regions of the Near East, including the Levant and the northern areas where ores for complex metals originated.

Pastoral nomads of the Timnian culture were involved in procuring Feinan ores. Their subsequent involvement in metallurgy is evident from the sites in the Aqaba region, the EBI smelting site in Feinan, and Serabit el Khadim in western Sinai (Beit Arieah & Gophna, 1977). They likely affected the metallurgy of the Nahal Beer Sheva Ghassulian sites (Gilead, 1992, p. 39). It is, however, unlikely that they played any role in procuring arsenic, antimony, and nickel-rich metals or ores, as these originated in the remote areas to the north (Shugar, 2000, p. 224; Tadmor et al., 1995). Pastoral nomadic societies with lifestyles similar to those of the southern Levant existed in the Near East throughout the 5<sup>th</sup> and 4<sup>th</sup> millennia (Arbuckle & Hammer, 2019), but the information is insufficient to understand their mobility patterns and social dynamic, and therefore to detect any disruption that might have occurred, at least to an extent necessary to interpret their role in ore procurement. Still, the role they played in Ghassulian metallurgy, and thus in society, is essential and therefore noteworthy.

However, concluding that Chalcolithic societies collapsed due to a disruption of exchange networks is overly simplistic, much like saying it was a consequence of climate change. Such changes might have occurred but did not have the same impact everywhere. The way societies reacted depended on their internal structure and dynamics. If the supply of metal was the only problem, people in the region could have kept using, repairing, and recycling objects they already had. But they did not. Instead, they entirely abandoned the craft and the iconography that was an essential

part of it. The EBI deritualized metallurgy was used for producing tools and weapons. Deritualization started before the EBI as a response to the crisis of unknown and most likely multiple origins, evident from the widespread abandonment of the sites, technology, and iconography. Ultimately, it resulted in the collapse of the Chalcolithic way of life.

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Милена Гошић\*

## КОЛАПС ХАЛКОЛИТСКИХ ЗАЈЕДНИЦА: ШТА НАМ ИЗМИЧЕ?

**Апстракт:** Крај халколита на јужном Леванту заокупља пажњу истраживача већ деценијама. Циљ овог рада је да понуди археометалуршку перспективу овог проблема, као и објашњење разлога због којих разумевање овог транзиционог периода већ деценијама измиче археолозима. Понуђено објашњење је да су сточарски номади имали кључну улогу у одржавању халколитске металургије, а уз њу и ритуалних пракси, и да су промене у њиховој улози у металургији и образцима кретања одговорне за колапс халколитских друштава. Компаративно мала видљивост номадских сточара у археолошком материјалу такође нуди објашњење, премда спекулативно, о томе зашто нам разумевање ових промена измиче.

**Кључне речи:** халколит, рано бронзано доба, транзиција, номадски сточари, металургија.

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While writing the texts collected in this volume, the authors have been living through an extraordinary experience, coping with everyday tasks made more complex by the crisis we have been facing, and creating new habits necessary to navigate the new environment. Although exceptional from our point of view, our present experience is far from unique, and the human history is replete with turbulent periods of crisis, profoundly disrupting the habitual order.

The aim of this collection is therefore to investigate some of the situations of crisis in the past from the archaeological perspective, in a search for insights that may help us to better understand and cope with the present one. At the same time, the papers demonstrate some of the vast possibilities of archaeological investigation to contribute to our understanding of the world we live in, as well as of the past societies whose material traces we study.

