



PREHISTORY IN THE BALKANS

INTERREGIONAL RESEARCH
AND EDUCATIONAL PRACTICES



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ПРЕДИСТОРИЈА НА БАЛКАНОТ
РЕГИОНАЛНА СОРАБОТКА И ОБРАЗОВНИ ПРАКТИКИ

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Foreword

This publication is an outcome of the international conference ‘Prehistory in the Balkans’ which was a final component of the Common Cultural Heritage project between the Center for Prehistoric Research, Institute of Archaeology in Tirana and the Faculty of Philosophy in Belgrade. This event was the 8th edition of the already traditional archaeological conference that the Center for Prehistoric Research has been organizing since 2015.

The ‘Prehistory in the Balkans’ conference was scheduled in three days (November 25th-27th - 2022) in the city of Ohrid where both students and specialists presented their knowledge on the cultural heritage from Albania, Serbia and North Macedonia. It considered a series of presentations of students that were involved in the project which presented their research as well as their experiences during the summer workshops and visits of different sites and institutions in the Balkans.

This set was followed up with the presentations by the leading experts in the Balkan prehistory. Archaeologists from various institutions in Albania, Serbia and North Macedonia exposed their current research regarding the regional prehistoric perspectives, networks, and other aspects of social and economic processes in the Balkans from the Paleolithic until Iron Age.

Consequently, this publication, titled as ‘Prehistory in the Balkans: interregional research and educational practices’, summarizes some of the ideas and discussions proposed in this conference, but also emphasizes the current fieldwork and theoretical research in the prehistoric Balkans, such as the transitional period from the Paleolithic into the Neolithic, recent excavations at Pogradec (Lake Ohrid), Magareći Mlin (Vojvodina), Vlaho (Pelagonia) and Cocev Kamen (Kratovo), as well as the archaeobotanic and pottery analyses. We believe this edited book will be a constructive resource for both specialists and students devoted in the research of prehistory and hopefully will inspire new ideas, as well as future academic networks.

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THE COMPLEX PREHISTORY OF THE BALKAN NEOLITHIC 1: *HOMO PRIMORDIALIS*

СЛОЖЕНАТА ПРЕДИСТОРИЈА НА БАЛКАНСКИОТ НЕОЛИТ 1: *ХОМО ПРИМОРДИАЛИС*

ABSTRACT

Discovering the past of a particular community/culture/civilization, in itself, requires discovering ‘what was/happened’ before its past. In that context, the emergence of the Neolithic in the Balkans and its cultural-historical consequences are of particular importance to us. In order to get, at least, some of the answers it is necessary to discover the prehistory of the Neolithic – which means discovering the past and the origin of this culture. Hence, a good knowledge of the Palaeolithic and Epipalaeolithic (Mesolithic) is of particular importance – in space and time. In spite of the great knowledge gained from the many interdisciplinary analyzes in archaeology – for the mentioned periods, we still cannot get satisfactory answers to the fundamental questions. After all, this should not surprise us much considering that modern archaeology has almost completely detached from anthropology. For these reasons in the first part of the paper I will try to include modern approaches in anthropology (ontological perspectivism), which can contribute a lot to our understanding of the events before the Neolithic and the emergence of the Neolithic. What’s more in the papers that will follow I will try to show that the chronological cultural-historical classification (Palaeolithic, Neolithic, etc.) is non-objective and is a product of our contemporary and therefore subjective approach in the explorations. In the paper below, I will present a fictitious model of a community (which in archaeology and anthropology is known as hunter-gatherer community) ‘from the inside’ – as its active participant/member/observer of the processes.

Keywords: *Palaeolithic, Epipalaeolithic/Mesolithic, hunter-gatherers, cosmology, ontological anthropology, perspectivism*

АПСТРАКТ

Откривањето на минатото на одредена заедница/култура/цивилизација, сама по себе, бара да се открие и „она што било“ пред нејзиното минато. Во тој контекст, за нас е од посебно значење појавата на неолитот на Балканот и нејзините културно-историски последици. За да дојдеме, барем, до дел од одговорите, неопходно е да ја откриеме предисторијата на неолитот – што значи и откривање на минатото и на потеклото на оваа култура. Оттаму, од особена важност е доброто познавање на палеолитот и епипалеолитот (мезолитот) – во просторот и времето. Наспроти големото знаење добиено од многуте интердисциплинарни анализи во археологијата – за набројаните периоди, ние сè уште не можеме да добиеме задоволителни одговори на суштинските прашања. Впрочем, тоа и не треба многу да нè изненадува, имајќи предвид дека современата археологија речиси целосно се оддели од антропологијата. Од овие причини, во првиот дел од трудот ќе се обидам да ги вклучам современите пристапи во антропологијата (онтолошкиот перспективизам), кои, можат многу да придонесат за нашето разбирање на случувањата пред неолитот и појавата на неолитот. Уште повеќе, во трудовите што ќе следат ќе се обидам да покажам дека хронолошката културно-историска класификација (палеолит, неолит, итн.) е необјективна и е производ на нашиот современ, а со тоа и субјективен пристап во проучувањата. Во трудот подолу, ќе се обидам да претставам еден фиктивен модел на заедница (која во археологијата и антропологијата се нарекува ловечко-собирачка заедница) „однатре“ – како нејзин активен учесник/член/набљудувач на процесите.

Клучни зборови: *палеолит, епипалеолит/мезолит, ловци-собирачи, космологија, онтолошка антропологија, перспективизам*

INTRODUCTION

The only value of this world lay in its power – at certain times – to suggest another world.
Thomas Ligotti, *Songs of a Dead Dreamer*

Uncovering the secrets of the past is probably as complex as predicting the future. Methodology and approaches in such an exploration are particularly important, however, at the same time, they cannot answer the fundamental questions – and our attempts are just that – to arrive at ontological answers in the past, present and future. Today we have incredible knowledge about the world's past, and especially about the history of ancient cultures in some places in the world, which have long attracted the attention of scholars and aficionados. The Neolithic is one such episteme, especially within the Mediterranean and its surroundings.

The Balkans Neolithic (6,500–4,500 BC) is the legacy of the so-called Pre-Pottery Neolithic in the Levant (11,000–7,500 BC) and the later Anatolian Neolithic (7,500–6,000 BC). The unearthing of this legacy directly means an exploration of the Pre-Pottery cultures of the Levant and what preceded them (Epipalaeolithic and Upper Palaeolithic 50,000–12,000 BP). The affluence of material culture

and the uniqueness of the discovered artefacts (from caves to the first temples) are breathtaking. The knowledge we have today about these cultures is equally amazing – we conjecture how they ate, what kind of communities they lived in, how long they lived, how they fought, how they saw the world, what they believed in, etc; and yet, our answers are not complete.

There is hardly any site for which we have all the fundamental answers. Of course, that is not possible, because no matter how advanced today's science is, it is not a time machine – to take us to a specific place and at a specific time. On the other hand, we have the incredible opportunity – to mentally create the space and time that interests us. Unfortunately, even here we fail because we hardly get out of our subjectivity and our (modern) view of the world. To discover the processes of a certain site in the past we need to be 'armed' with incredible knowledge (which we have) and the mental ability to place ourselves in a specific space and time (which we fail to do). Unlike us, ancient people long before the Neolithic and very likely later, were exceptionally mentally capable of overcoming their subjectivity and seeing the world from different perspectives.

Even though we are unaware of this mental causality, we use perspective in everyday life, for example we say: don't step on the ant – imagine someone stepping on you (we get out of ourselves and put ourselves in the place of the ant); get over yourself and put yourself in his/her place (the same process – we get out of ourselves and put ourselves in the perspective of the other), etc. It is this approach that is the only way we could discover the meaning of the amazing animals in the ancient caves of France and Spain, the man-lion of Germany, the structures built from mammoth bones in the Ukraine, the first temples in Turkey, Syria, Jordan, Israel, Iran and Iraq, and probably a large part of the so-called archaic communities that still live today in Australia, South and North America, Africa and Eurasia.

Since this 'approach' is unscientific in archaeology is rarely used today. However, unlike us, the fundamental anthropological works of the 20th century and especially the works of modern anthropologists since the beginning of the 21st century use exactly this approach in the study of the cultures that interest them. The so-called ontological anthropology today provides exceptional answers to almost all topics that interest anthropologists. They, unlike us archaeologists, are (slightly) more interested in people and their stories, and less interested in their material culture. This gap between anthropology and archaeology can be easily overcome, but for that we need to have enormous knowledge, and later to challenge it; to further know and apply the methodology of one science to the other and thus test the given problem; to consider the structure and shape of the object of research – from both anthropological and archaeological view, etc.

From the pioneering works of Hallowell [1960] on Ojibwa ontology to Ingold's ecological phenomenology [1986, 2000a], Philippe Descola's socialized nature and schemes of practice [1986, 2005] and Viveiros de Castro's perspectivism (1998a), a new way of looking at the relationship between humans and nonhumans has emerged. The fundamental premise shared by these approaches is that, in Amerindian [and North Eurasian] ontologies, intentionality and reflexive consciousness are not exclusive attributes of humanity but potentially available to all beings of the cosmos. In other words, animals, plants, gods, and spirits are also potentially persons and can occupy a subject position in their dealings with humans (Fausto 2007, 497).

The key to understanding any culture of the world is probably in the ‘perspectivism’ of seeing things, just as both ancient and modern communities practice in their understanding of the world. In that context, applying this ‘anthropological’ approach, I will try to provide alternative ideas about the prehistory of the Balkan Neolithic. In this first part, I will focus on the prehistory of the first Neolithic communities in the Fertile Crescent – the place where Balkans Neolithic originated. The paper below will be based on the research of several key contemporary anthropologists. In that context, the approach applied in this paper will be based on the so-called ‘Amerindian perspectivism’ of Viveiros de Castro (1998). The works of Willerslev (2004; 2007; 2009; 2010; 2013a; 2013b; Willerslev and Ul-turgasheva 2012; Pedersen and Willerslev 2012; Willerslev *et al.* 2015; Bubandt and Willerslev 2015) are particularly important for the issue discussed here – in which the cosmology and ontology of the Yukaghirs of Siberia occupy a special place.

Perspectivism implies that the subjectivity of humans and of non-humans is formally the same because they share the same kind of souls, and that this in turn gives both these categories a similar viewpoint on the world. Non-humans – animals, spirits, even inanimate objects – thus see the world as humans do, living in households and kin groups and considering themselves to be human hunters, hunting for their animal prey. However, what each category sees as prey differs depending on the physicality of the body. Human beings see the moose as prey, because all the human beings share a similar body. The moose, for their part, see themselves as human beings, whereas they see human hunters as monstrous cannibals. ... In other words, it is bodies that enable a particular way of seeing: who you are and whom you perceive as prey and predator depends on the kind of body you have (Bubandt and Willerslev 2015, 14).

The incredible humans past constantly surprise us with new discoveries around the world. Some of the insights fit perfectly into already existing models, theories and definitions, and some of them cannot be accommodated in any system – thus challenging our knowledge. In that context, it is necessary (we archaeologists) to get out of our world view in which we focus on a discovered artefact, dwelling, grave, cave, village, city → context and its details and try to change the perspective – ‘enter’ the thought of the one(s) who he created them. Of course, we cannot get a simple answer for all cultures, but the ontological perspective of anthropology applied in archaeological contexts can very likely bring us much closer to the answers we seek. As Malinowski (1922) said a long time ago in anthropological context – we can and we should apply the same in archaeology.

To grasp the native’s point of view, his relation to life, to realize his vision of his world (Malinowski 1922, 25).

Our professional education and especially the specializations within the framework of modern archaeology that we practice directly or indirectly, especially today, allows us profound insight into almost all ancient cultures in the world and that with a high level of knowledge and interpretations – verified through empirical sciences. The interdisciplinarity that more than half a century ago was involved in archaeology (archaeometry) gave incredible results for the thorough knowledge of the vast number of world’s cultures. As time went on, especially after the 21st century, archaeologists slowly fell under ‘empirical’ (or archaeometry) results, under strict scientific calibrations, tests, models, modelling corrections, etc. Today, the conclusions of all interdisciplinary reports are necessary for the modern archaeologist for the most accurate interpretation of the investigated culture.

Unfortunately, this is where the gap between anthropology and archaeology was created, or perhaps the targeted specializations created it. Namely, both sciences deal with human so in that context one of them focused exclusively on the human who lives here and now (anthropology), and the other, from a discipline that was interested only in the beautiful artefacts of the past – made by humans who died a long time ago (archaeology) – was oriented as a discipline that also interests the human of the past. Contemporary Western thought has long insisted that archaeology is actually part of cultural anthropology (which is true). In any case, no matter how we define these disciplines, what is missing today in contemporary archaeology (paradoxically also in Western archaeology) is precisely the anthropological approach.

WF16 was a 'normal' Early Neolithic settlement. As recognized within the excavation report: 'people lived at the settlement for extended periods of time, with all the concomitant activities, including sleeping, eating, socialising, sex, childbirth, child rearing and rites of passage through puberty, into old age, death and post-mortuary practice' [Mithen et al. 2018: 692]. It was a location from which hunting and gathering took place, food was prepared, stone tools were made and used, and so forth. What is now being proposed, is that shamanic thought and practice pervaded many, if not all, of those activities; they all required some form of engagement with the spirit world, at times involving the use of sacra, architectural structures and – leaving no archaeological trace – particular words to be either spoken or sung (Mithen 2022, 186).

The absence of an anthropological perspective in modern archaeology is an ever-increasing problem, and it is precisely for this reason that modern archaeological texts are full of information about material culture and economy, but not about the cosmology of a particular culture. Hence, every new finding (with whatever meaning) that comes out of the framework of the long-established chronological, cultural or cultural-historical system creates a problem or at least ambiguity. Its construction, meaning or dating bounces off the system and thus creates headaches for the reader. He – in the attempt to define the finding includes the empirical sciences and thus discovers all its physical properties that will contribute in the interpretation of the finding and the culture. In this context, archaeometric results are indeed necessary, but only as a support or help in creating the image of the finding/culture.

What's more, although much is insisted on in archaeology today, interdisciplinarity cannot even provide the 'real' picture of the economy of a site/culture. Of course, it will allow us a detailed insight into the metric values from the archaeological contexts, on the basis of which the archaeologist will form a 'complete' picture of the extremely important aspects of the economy and subsistence strategies – thus relying only on these archaeometric data – will bring, at least, incomplete and very likely biased conclusions. And, of course, this trend of constant pre-dimensioning of the archaeometry results – in archaeology, has brought modern archaeology into an invisible crisis that is facing more and more problems not only in older models and theories, but also in the latest ones. This is the price paid by the exclusion of the anthropological approach in archaeology.

Twentieth-century archaeology embraced the idea that animals in prehistory played one primary role: as subsistence resources. In the United States, the subdiscipline of zooarchaeology became integrated into archaeological practice in the 1970s, with the development of processualism [Thomas 1996]. Processual archaeology focused on macro-scale phenomena, such as ecological adaptations and subsistence strategies

[Binford 1962, 1964, 1984] *and emphasized explanation* [Watson et al. 1971], *the scientific method* [Binford and Binford 1968; Binford and Sabloff 1982], *and the use of analogy to generate hypotheses* (Hill 2013, 118).

In the paper below I will try to demonstrate what is the meaning of ontological anthropology in an archaeological context. Of course, a universal approach or methodology for discovering and defining all cultures of the last 100,000 years does not exist. However, I will try to show that in the history of *H. sapiens* (to date) there is indeed one and only original cosmological model (with its hundreds or perhaps thousands of corollaries in time and space) – based on the research of the above-mentioned anthropologists. At this point, I take responsibility for the speculative nature of this and the next/following papers.

In other words, our cosmology postulates a physical continuity and a metaphysical discontinuity between humans and animals, the former making of man an object for the natural sciences, the latter an object for the 'humanities'. Spirit or mind is our great differentiator: it raises us above animals and matter in general, it distinguishes cultures, it makes each person unique before his or her fellow beings. The body, in contrast, is the major integrator: it connects us to the rest of the living, united by a universal substrate (DNA, carbon chemistry) which, in turn, links up with the ultimate nature of all material bodies. In contrast to this, Amerindians postulate a metaphysical continuity and a physical discontinuity between the being so of the cosmos, the former resulting in animism, the latter in perspectivism: the spirit or soul (here not an immaterial substance but rather a reflexive form) integrates, while the body (not a material organism but a system of active affects) differentiates (Viveiros de Castro 1998, 479).

FIRE, HUNT AND MORALITY

There is a very important (anthropological) 'layer' in Kipling's (1920) collection of stories – "The Jungle Book." Namely, a very young boy is abandoned in the wilderness. A pack of wolves discovers it, does not consume it, on the contrary, decides to take it with them and raise it. As the boy grows up, he makes friends with most of the forest animals (panther, bear, etc.), although even among them there are two great enemies that would gladly eat him (snake and tiger). The boy, unlike all animals, controls fire. In the story, the control of fire is extremely attractive to the monkey king, whose subjects (monkeys) kidnap the boy in order to reveal the secret of fire to them. His friends (the panther and the bear) save him from the monkey kingdom and the boy does not reveal the secret of fire control to them. Later, with the help of the fire, the boy will save himself and the entire forest from the attacks of the terrible enemy – the tiger.

The Promethean narrative in the story is exceptional from an anthropological point of view. It is about the inequality of man and animals exclusively in terms of control of fire (by man). Here, hunting (which is undoubtedly essential for all living things) does not have the primordial meaning (on the contrary the entire focus is placed on fire). It can be said that in neuropsychology, evolutionary biology, anthropology and archaeology, the control of fire (or the place of man in this world) is still an unsolved question. Without delving deeper into the many (Promethean) mythologies from different periods of the past, it is clear that only human and (some?) his ancestors desire to 'touch' fire from an early age – unlike all animals.

How did consciousness emerged and how later this change in the consciousness of human ancestors happened, is not clear to this day. The emergence of consciousness (the control of fire) also implies the emergence of morality in the ancestors of the 'first human' and later in the 'first human' (the boy protects the community with fire; the hero reveals the secret of using fire to other people; etc.). Although it is a seemingly unrelated relationship: the emergence of consciousness → control of fire (power) → morality, it has a fundamental role in the development of human thought. Without getting into arguments about the emergence of consciousness (which makes us human), the control of fire means both 'control over the world around' us and self-control (which in a certain way implies the emergence of morality). The control of fire (power), which implicitly means self-control, undoubtedly leads to the division of good and bad (morality). Hence, consciousness of the 'self' and the objectified nature may have arisen.

In contrast to evolutionary approaches that instantiate this premise in terms of processes of reciprocity and reputation management, I stress that early human individuals understood that they were at the same time both judge and judged, so that the concern was not just for what "they" think of me, but rather for what "we," including "I," think of me. The essence of my account is thus a kind of "we" > "me" psychological orientation, and that is what gives the individual's moral notions their special powers of legitimacy in individual decision making. None of which is to say that biological evolution in any way determines an individual's moral decision making. Nature makes us creatures capable of making moral decisions, but we make those decisions ourselves (Tomasello 2018, 668).

Unlike control of fire, hunting has a much longer history with both human and animal ancestors. There is no doubt that in the distant past of the human's ancestors, hunting had only the basic purpose – for food procurement. With the emergence of consciousness and control of fire, and possibly language, it can be theorized that the role of hunting slowly changed its meaning. If we accept the existence of morality, then, hunting itself enters into a certain contradiction: does the human perception of hunt/catch have a moral dilemma? The probability that dilemma existed is very high. I believe that this is where the foundation for the original cosmological model of the world was laid. Below, I will try to elaborate this problem from the perspective of the 'first human' (after the appearance of *H. sapiens* at the latest) – in a fictitious model.

ABSENCE OF TIME

The world around us is alive. The forms we see here are changing: the Sun and the Moon are often changing, as is heat and cold and the clouds' dance; the snow falls and then disappears; rivers rise and plummet again; some of the trees lose their leaves and they are born again; deer are hunted by wolves, bears, cave lions (and us), and then they and we are reborn, etc. Such is this world. It tries to create constant repetition. This world is shared to us humans, and to everyone else around us. Some of those around us have a face and persistently look at us with a piercing gaze. Sometimes they come to us themselves, and sometimes they run away. Sometimes trees and plants give us their fruit, and sometimes they don't love us and hurt us. All forms disappear and reappear. Whose forms are we all?

We probably come from Mother Earth – our ancestors and the ancestors of the rest of us came from her. We know how animals live and we live the same way – some crawl into holes and some create dwellings. We learned that from them. We have long known how animals hunt each other, and also from them – we have learned to hunt them. They were running away from the fire, but we have long known how to deal with it. We know that fire disappears when it is touched by water, but it can re-emerge by itself or we can help it to re-emerge. Mother Earth is the mother of all. In it and on it we live, under the Sun, when the sky is blue or gray, or when it is black – deep in the night, under the Moon and under the small flickering fires of what is always above us.

Mother Earth gave birth to everything; she also gave birth to our mothers and everything we see around us. Our father is Heaven. When he is merciful, he warms us all, and when he is angry, he throws lightings at us. Sometimes he is sad – and then it rains. Our Mother and Father are the parents of this world. They are always here. Their firstborn children are the mountains, forests, seas, lakes and rivers (they are always ‘half awake’). These are our older brothers and sisters. Perhaps it seems that they are always asleep and the rest of us are always awake. We are awake even when our eyes are closed during the night. Only we and animals can do that. And we used to sleep all the time (we were ‘half-awake’). We woke up once and since then we do not sleep (sleep is equal to waking). Then there were only humans, and later animals arose from humans.

*We find that veridical perceptions – strategies tuned to the true structure of the world – are routinely dominated by nonveridical strategies tuned to fitness. Veridical perceptions escape extinction only if fitness varies monotonically with truth. Thus, a perceptual strategy favored by selection is best thought of not as a window on truth but as akin to a windows interface of a PC. Just as the color and shape of an icon for a text file do not entail that the text file itself has a color or shape, so also our perceptions of space-time and objects do not entail (by the Invention of Space-Time Theorem) that objective reality has the structure of space-time and objects. An interface serves to guide useful actions, not to resemble truth. Indeed, an interface hides the truth; for someone editing a paper or photo, seeing transistors and firmware is an irrelevant hindrance. For the perceptions of *H. sapiens*, space-time is the desktop and physical objects are the icons. Our perceptions of space-time and objects have been shaped by natural selection to hide the truth and guide adaptive behaviors. Perception is an adaptive interface (Hoffman et al. 2015, 1480).*

Shuar (Jívaro) of the Amazon see the normal world as an illusion, since the only real world is that of spiritual forces, which only the soul can reach through dreaming. This, however, does not reflect the Yukaghir understanding. They do not see the two worlds as opposed, but regard them as mirror images of each other, in much the same way as the soul, ayibii, is understood to be the reflected image of the person (remember that ayibii literally means “shadow” in Yukaghir). Therefore, in their view, the world of dreams and waking life are two sides of the same reality, which together constitute one world, and neither is therefore amenable to prioritization (Willerslev 2007, 176).

The Yukaghirs’ vision of dreams, one could say, is almost the opposite of that of Freud. For them, the dreaming Self, far from taking a break from the demands of coping with reality, is seen to set out in search of meanings that will help it to accomplish concrete objectives in the tangible world of waking life. While

the hunter's body is lying asleep, his soul, ayibii, is thus said to penetrate beneath the surface of things into the 'shadow-world' so that he can encounter the invisible counterparts of animals, their guardian spirits, and seduce them into supplying him with prey For Yukaghirs, on the contrary, the mind always subsists in the very engagement of the person in the world, quite independently of whether he is asleep or awake (Willerslev 2004, 409, 410).

Our younger brothers and sisters are the animals. Although their forms are different, they are just like us, calm, scared, angry and sometimes evil! Everything around us is always alive. However, when some of us (both humans and animals) fall into 'eternal sleep' (death) they go to the other world. The other world is equal to this world, although both worlds are part of one eternal and permanent world that is constantly repeating itself. They are separated by a 'border' – the place in which we are awakened here and now. Falling 'asleep' (dying) means that we will go to the other side (the other world) of the 'border'.

In relational ontologies, animals are persons, possessing traits or capacities that, in the modern West, tend to be restricted to humans. Personhood is a category of "human-like subjectivity" [Brightman et al. 2012a: 2] that is defined in part through social behavior. Animal persons relate to each other, and to humans, in social terms, as conscious subjects capable of communicating, decision making, and intentional action. Like humans, animal persons live in societies with rules for behavior and moral codes; they are capable of engaging in reciprocal exchanges and gift giving [contra Knight 2005, 2012; Oma 2010]. Analogous to the human self, the animal self has no prediscursive existence; rather, it is defined through (inter)action [Aaltola 2008]. In other words, a bear is a bear because it behaves like a bear, lives in the forest or on the tundra ice, eats the food of bears and is the prey of hunters. Similarly, humans behave like humans, live in camps, eat human food, and hunt animals. When such activities are not or cannot be performed, distinctions between human and animal blur, facilitating transformation, liminality, or an exchange of perspectives [Vilaca 2002]. A hunter, for example, may temporarily shed his humanness to mimic his animal prey. He is, in Willerslev's [2004, 2007] terms, "not animal, but not not-animal." In relational ontologies, the external form of skin, fur, fins, or feathers is simply a covering, an envelope that contains a person who, under certain circumstances, may shed one form for another [Viveiros de Castro 1998] (Hill 2013, 120).

The other world is the same as this one, there is only one difference – what happens there is the opposite of this here (this world). And there are our Mother and Father – and all their children. There go our souls and the souls of our brothers and sisters, and the old forms (bodies) remain here. Our Mother has allowed us to eat the old forms (bodies) that remain here (but under certain conditions). And of course, Mother also allowed her children (humans and animals) of that world (that is souls in this world and bodies in that world) to feed on our 'sleeping' old forms (dead bodies) there. The children (humans and animals) of that world have the same form (body) that they had here. When the form (body) falls 'asleep' (dies) there, it immediately wakes up here in almost the same body. What is 'asleep' (dead) here is alive in the other world and vice versa. The body is allowed to eat other bodies with special respect – both in this world and in the other one. The soul always 'lives' in the bones, and when the form (the body) falls 'asleep' (dies) here, there are special rules as to how much, how and with what to feed from form (the body/flesh). First, there are several different ways to enable the soul to 'go' to the other world. It must cross that path safely – from here to there.

The nominal death of an animal was only one moment in a cycle: animals live in the bush, are killed by hunters, persist as souls after their bodies are eaten, and return again to the world through birth or spontaneous regeneration (Brightman 1993, 288).

Thus, from a phenomenological standpoint, the body is the primary self: we are not related to our bodies in a detached way. Our bodies do not constitute something that we have as a thing, but signify who we are; that is, we exist as bodies (Willerslev 2007, 55).

Both hunters and herders depend on the animal's meat for food, and both believe that its soul will go to the spirits and be recycled into a new body of the same species (Willerslev et al. 2015, 10).

When we hunt for form (body/meat) in this world, we must not allow blood to fall on Mother Earth, because that means the body 'did not allow', that is, did not receive 'permission' from the soul and its Spirit to be voluntarily put to sleep (caught). If such a thing happens, we must summon a special person who will be able to change it (and constantly change its form) and correct this mistake with the other world, that is, with the angry soul. We name him a shaman. We need him even more if we anger or hurt one of our brothers or sisters (an animal – another child of our Mother). Falling 'asleep violently' is murder, which is an almost irreparable mistake – and for such a mistake we need a special shaman who knows how to perform more complex procedures (rituals). 'Violent falling asleep' (suicide) committed by someone over himself is an irreparable mistake and the shaman cannot help here. Only in this case the soul will not be able to travel to the other world, and it will have to remain – 'stuck' here – in this world (constantly creating problems for it and for us).

Ritual perfection is difficult or impossible to achieve in actual hunting, not least because the animal is unlikely to respond in the required ritual manner. In sacrifice, by contrast, all the accidental variables are controlled, so that the animal is compelled to play its part rather than run away, just as it is (usually) compelled to assume the correct posture which makes it possible to kill it among the Chukchi and Koryak with a smooth clean blow to the heart. Among the Eveny of Yakutia, a sacrificial reindeer is generally not pierced but strangled with a lasso in order to avoid actual bloodshed. Thus when these pastoralists sacrifice a reindeer, they are effectively doing what the hunters say they do, but cannot do: killing it in an essentially non-predatory manner (Willerslev et al. 2015, 11).

Just as in this world and in the other world there is an elder – there he is named a Spirit. As our elder is responsible for us – the awakened (and our brothers and sisters) in this world, so the souls' elder (spirit) is responsible for 'us' in the other world. Before we hunt and catch our brothers and sisters (animals) their elder (Spirit) should allow us to put them to 'sleep' (kill in this world). Hence, when we go hunting, we specially prepare for it. In order to please their elder (Spirit), and thus the animal itself, we must behave almost exactly as the animal behaves. In a way we become neither animal nor human. If we succeed in this, the animal will not escape from us and thus we know that its elder has given us 'permission' to feast on its form (body/meat). That is why in every hunt we make sure not to injure the animal and that there is no blood. If the animals keep running away from us, then their elder (spirit) does not allow us to put them to 'sleep'.

The hunt can last both long and short. When we go hunting, as I have already said, it is necessary to get close to the animal we are hunting. That is why we have to appear almost the same as them, we must not smell like humans, we avoid talking – on the contrary we have to become ‘almost animals’ – with their appearance, smell and sound. What’s more, we should be even more ‘beautiful’ animals than they are, but we must pay attention to two things: the hunter and the animal must not enter into a ‘love’ relationship, because then the hunter will not only put the animal to ‘sleep’ (catch), rather, the hunter will ‘become an animal’ – who will not be able to catch the animal and will not be able to return among humans; and vice versa, if the animal ‘falls in love’ with the hunter, it will come to him by itself and it will be difficult for the hunter to put the animal to ‘sleep’ (catch). For these reasons hunting is difficult.

The relationship between man the hunter and his prey has . . . a marked erotic component. The hunt is practically a courtship and a sexual act. . . . The verb to hunt, vai-merä gametarári, [is] translated as ‘to make love to animals.’ . . . [The hunter] is always conscious of the erotic aspect and the essentially sexual relationship that unites him and his prey. . . . When I asked if the hunter felt sexually excited, the informant answered dryly: ‘to kill is to cohabit’ (Reichel-Dolmatoff 1971, 220, 225).

Rather, the idea is that of sexually exciting the animal so that it draws near enough to be shot. In order to achieve this, the hunter must appear sexually attractive to his prey, and thus friendly and harmless. Indeed, this is why he undergoes the long process of preparation by which his body is modified into the image of the animal. The animal will then come to perceive him not as an evil spirit or a predator, but as a harmless lover and a member of its own species. We might say that the hunter, by taking on his prey’s identity and acting in a manner that resonates with its behavior and sensibilities, establishes an empathetic relation with it. Because of this empathy, the animal suspends its disbelief and inherent hostility toward him and “throws” itself at him (Willerslev 2007, 104).

When the hunt is over, the hunters return to the settlement with the ‘sleeping’ form (the catch). Depending on how the hunt went (good or bad), we will or will not summon a shaman (even if necessary the hunter himself can perform certain shamanic procedures to appease the Spirit at the place of the hunt). The meat from the body will be distributed equally to all the people of the settlement, and the hunter may not eat the meat of his catch. Hunters, when they return from a hunt (no matter how successful it may have been), must go through procedures to ‘cleansed’ their animal appearance. After they are physically ‘cleansed’ of the animal properties, the hunters sit by the fire whose Spirit cleans almost everything. The last procedure of the hunt is – the ‘cleansing’ – is telling stories from the hunt, because then the hunters completely ‘return’ to their human form.

For the Yukaghirs, a good hunter must be skilled in conquering his human smell. This speaks of their general theory that hunting is anchored in a skilled “dehumanization,” the reshaping of the qualities of one’s human body into those of the prey. Thus, hunters will go to the banya (sauna) the evening before leaving for the forest. Instead of using soap, they will wipe themselves with dry whisks from birch trees. They say that the elk recognizes the attractive smell of birch leaves and does not flee, but comes closer to the hunter (Willerslev 2007, 83).

The shamanic procedures (rituals) are extremely important. Shamans are needed to correct the wrongs of forms/bodies (or souls) in this world, while spirits do this for souls (or forms/bodies) in the other world. The primary purpose of shamans and spirits is to assist in the passage of souls between the two worlds. Both spirits and shamans can 'temporarily' cross between worlds. Shamans with special rituals can 'temporarily' pass into the worlds – where, in the world where the body 'remains' and constantly, repeatedly pulsates, the shaman's 'soul' goes to the other world – to communicate with spirits. Spirits can do the same, in a much easier way – because they do not need a body, unlike shamans, who only temporarily leave the human body – in rituals.

Above all, it is the shaman who, through bodily transformations, is capable of assuming the 'infra-human' perspective of other beings. However, laypeople also have, to various degrees, such access. Thus, we have seen how the hunter, when mimicking his prey, replaces his profane vision with a 'double perspective'. It is a mode of seeing, attuned to detecting the intertwining and coming into being of things (as during their creation in mythical times), rather than the things in their clear and fixed visibility or objectness: animals in the process of becoming human; self in the process of becoming other, and so forth. Thus, the hunter sees the formation of 'figures' that, however, are never completed, but remain on the threshold between figure and ground, unconcealment and concealment, visibility and invisibility in a liminal or in-between state of being (Willerslev 2010, 35).

Our eternal existence belongs to one world (with two sides/worlds) – although we live on the 'border' between two 'same' worlds (because the world is 'sacred' and was created by our Father and Mother). Hence, it is especially important that souls pass peacefully from one side (one world) of the 'border'/reality to the other side (the other world). If this passage between the two worlds is ever disturbed, we hope that more experienced shamans will appease the spirits (elders) or souls. For these reasons, special and more experienced shamans must constantly change their form due to 'angry or stuck' souls or disgruntled spirits (elders).

Spirits can become angry if the soul has not been treated well (or disrespected) in one world or the other. Most often, this means the following things: if the hunter did not respect the hunting rules during the hunt; if the meat was not divided according to the rules; if someone fed on parts of the body that are not allowed to be eaten; if someone did not comply with the rules for disposing of body remains; if someone did not respect the skull – because this is where the soul enters and leaves; etc. Furthermore, if the soul loses its way, it will create problems in the world in which it is 'stuck', that is, it will not be able to reincarnate itself into what it was before. Such 'stuck' souls may attempt to incarnate in an 'awakened form' (living body). Since the soul has not received the right treatment (whichever side of the 'border' it is on), it cannot see (it has no body to see) and by some instinctive or intuitive feeling it tries to enter a body that does not belong to it.

The attempts of the 'stuck' soul to enter an already 'awakened form' (living body) will create problems for both the soul and the body (they are then attacked) – because the soul always wants to have a body, and this is impossible in cases where the rules of soul passage are broken. In such cases a very experienced shaman is needed. The awakened soul and body make their way (are born and die) on

one side of the 'border' and, following the rules, will easily cross over to the other side – when the time comes (where they will be reborn from death). They will return to this side of the 'border' again, but only if the rules are not broken. If the rules are severely broken, the shaman can't help much.

As I said, 'stuck' souls require a form to reincarnate. Fortunately, we are careful and respect the rules of the world, and if an unintentional error occurs, experienced shamans are usually successful in their work. As the world constantly repeats itself (with cyclical changes from 'living to dead' and vice versa), the number of 'stuck' souls also increases from our mistakes. Since shamans are not always able to correct our (or even their) mistakes, the 'stuck' souls will constantly wander on this side of the 'border' (on the border between now and here – between the two worlds – this reality). The best way to fend off 'evil, stuck' souls is to somehow do what shamans do. We will try to lure and even 'capture' the 'evil, stuck' souls. For that we need shamans again, but even if we don't have enough shamans (especially in larger communities of people), just like shamans we will have to find ways to disguise ourselves.

Masking (of the face and body or a part of us) is performed when we are under direct attack by an 'evil, stuck' soul (for the same reasons shamans must always be masked, and even better constantly change the form, rhythms, sounds, etc.). When the soul is gone from here, we can unmask ourselves. However, there are also very persistent souls, whose instincts do not allow them to leave the place. We can hardly defend ourselves against them, and therefore we will create a specific place for them to gather – preferably, as far as possible from where we live, but this hardly succeeds (since souls want to be immediately close to the awakened forms, hoping that will be embodied). In the place we have created for them, it is best not to go. More experienced shamans can occasionally come there and maintain the place (their 'settlement'). It is good to leave them 'food', and it is even better to make concrete forms – as large as possible, representing people or animals (mimicry of bodies). Also, this place for 'stuck' souls is good to fence off and cover with trees or stones because that way the souls will have the 'belief' of having a body and dwelling.

The easiest preys for 'stuck' souls are children, because children have returned from the other world (died there) and are now in this world. Souls have some 'memory' of the other world and therefore children are more familiar and attractive to inhabit. Until they reach a certain age, everyone in the community looks after the children (because the children as well as the food are shared). The greatest attention is paid to this – that children do not attract 'stuck' souls, and therefore especially for them, shamans make small sculptures and figurines that resemble people or animals. They protect the children in case the 'stuck' soul approaches them and instead of attacking the child – it attacks the object. If the objects fail in this (they are usually broken and discarded) and the help of an experienced shaman is requested – to take the souls away from the children. Some people from other communities also use real animals for this. They are raised from a young age and they are the protectors of the children. In such cases, 'stuck' souls will try to enter the body of animals, thus substituting the children's body.

A common conception in Amazonia is that the baby's vital principle is not securely attached to the body and can be captured. The baby has not yet been entirely fabricated as a member of its community and can be made into kin by other people, animals, or enemies: if "parents do not take the necessary ritual

precautions, a newborn infant's soul may be 'stolen' and converted into that of an animal" [Goldman 2004, 174] (Fausto 2007, 505).

One of the most precarious stages in the human life cycle is that of early childhood. Generally, the young child is viewed as fragile and volatile, and thus unable to resist attacks by malevolent spirits. Because of this, the personhood of newly born children is understood as moulded by social relations with various other-than-living agents of both the human and the non-human world. This particular stage in the human life cycle is perceived as the most precarious and is expressed in the concept of an 'open body' (angati aertang). The 'open body' is thus an essentially frail body of a newly born child, which requires such means of protection as khavek, the guardian reindeer, and a proper name. Owing to its precarious 'openness', the 'child' soul is viewed by non-human spirits as an animal prey to be killed and consumed, and by the spirits of the ancestors as an absent kin who needs to be brought back to the land of the dead. In particular, danger comes from the ancestral spirit whose name was given to the child. The ancestral namesake of the child strives to get hold of the child's 'open body' and continues to do so until the body 'closes' – that is, when it separates from the deceased ancestor. At this stage the child is more its deceased namesake than its own individual being. Hence this asymmetry between the inferior position of the child and the domination of the predatory spirit points to a totemic type of relationship between the living and the dead (Willerslev and Ulturgasheva 2012, 52).

Because of what I have said so far, it is important that all people live together, that they all have large or small dwellings – and that there is a hearth in them, because only when the fire is burning, there, lives the strongest guardian Spirit, thus being at the very 'border' – here and now – in this world (reality). For those reasons, the fire in every dwelling should burn constantly. It is good to have sculptures or figurines (which resemble forms familiar to souls: people and animals) in every dwelling – for protection from 'stuck' souls. Furthermore, it is important to have special places for "stuck" souls – where they can gather and not attack us constantly. Unfortunately, when many 'stuck' souls 'gather' in a place where people live, then it is desirable to leave their dwellings and settlements, and for people to find a new place to live. Animals do the same. And in such cases, shamans must perform certain rituals – to keep the 'stuck' souls there. Usually they leave them 'food', sculptures and figurines, and the fires have to be extinguished. Only in this way, the souls will not go after people and animals – to the new place of residence.

The same happens with places where the bones of former bodies (of both humans and animals) have been carefully left/processed. Souls once lived in bones, and they are especially attractive to 'stuck' souls. For those reasons it is especially important not to leave the skulls. Skulls are taken care of by more experienced people, usually shamans. Shamans use skulls in their rituals: when they communicate with spirits or souls from the other world, because souls can enter the body only through skulls. From skulls (usually noses) begins embodiment – through the senses, and for this very reason, shamans only temporarily use skulls (always separated from the skeleton so as not to embody the soul that was 'temporarily' summoned). Shamans often paint the skulls red (blood) or 'beautify' them as much as possible to make them more attractive to the 'temporarily summoned' souls (in which they will try to incarnate). And because of this, shamans must be very careful, wear protective masks and modify

their appearance: voice, sound, smell, rhythm, etc. In this way, the shaman will protect himself from the ‘wrath’ of the ‘temporarily summoned’ soul in its unsuccessful attempt to incarnate. This ‘deception’ of the shamans is always part of special rituals, especially because they can disturb the spirits as well.

Here we find a set of correlations replicated at different scales: body is to soul as meat is to bones as the body soul is to the eye soul. The first term is the prey part vis-à-vis the second term, the predator part, as though each person contained multiple predatory relations. Thus while feasting on the meat is associated with the liberation of the body soul, feasting on the bones is associated with the liberation of the eye soul, the bones being described by the Kashinawa’ man Pudicho Torres as “the bones of the nawa [foreigner], of the powerful man, of the sky man, of the jaguar, of the jiadama [giant]” [McCallum 1999, 456] (Fausto 2007, 511).

Human skulls are sometimes kept in the dwellings – in special places. These are skulls of people who have some kind of greater significance for the community. Some communities keep them in a visible place, and some bury them under the dwellings themselves. And these skulls have the same purpose – to ‘temporarily summon’ the specific soul from the other world (by the shamans). And here it is important that the skull is separated from the skeleton, for the reasons already stated; even more so because the ‘temporarily summoned’ soul leaves its body in the other world and is at the very ‘border’ (this world/reality) – at the moment when the shaman communicates with it – through the skull (the half-body from this world). Also, it must not be forgotten that this ‘temporarily summoned’ soul is not a ‘stuck’ soul, but a soul that has to ‘die’ in the other world and be ‘born’ again in this world. Therefore, in these rituals the shaman must be especially careful (if he makes a mistake, he will create a new ‘stuck’ soul).

Skull removal first developed during the Natufian period. The earliest cases are probably opportunistic but by the Late Natufian a clear planned and standardized custom is in place. If not already present, this practice spread to the Northern Levant at the beginning of the PPNA. Skull removal appears to have been a selective practice, applied to a limited number of adults (mainly young adults) and only few children. However, these selected individuals receive a standard inhumation comparable in all ways to the rest of the population. Generally speaking, cranium/skull retrieval happened as a secondary process when the decay process had ended (Bocquentin et al. 2016, 47).

A number of sites have cemeteries or burials under house floors, including a young canid (possibly a dog) buried with an elderly woman at Ayn Mallaha. Although many Natufian groups became much more mobile during the Late Natufian, there is evidence for elaborate rituals and people with special roles in society. At Hilazon Tachtit, for example, an elderly woman was buried with 50 tortoise shells, a golden eagle’s wing, a gazelle horn, a wild cattle tail, a leopard’s hip, and a human foot (among other things), and there is evidence for feasting rituals, perhaps in association with her burial (Olszewski 2018, 6).

Shamans and elders always take care of the people of the communities. For people who have made their way – in the current body – in this world/reality, when they ‘fall asleep’ (die), the whole community takes care of the preparation of the body – so that the soul can easily ‘liberate’ of it and continue

peacefully in the other world. The path of the soul from this side of the 'border' to the other side is always predetermined by more experienced people. This does not require a shaman. We invoke him if something unpredictable happens, if the 'sleeping' (deceased) person was often haunted by 'stuck' souls, and especially if a shaman 'falls asleep' (dies). On such occasions, an experienced shaman is always needed who will perform special rituals – thus showing the way to the soul.

The remains of the 'sleeping' (dead) human body whose soul has left it are usually left in a special place – outside the place of residence and settlement. There the animals are allowed to feed on the meat – just as us who feed on them. After a certain time, we collect the bones and return them to Mother Earth (bury them). Some people from the settlements, according to the shamans, take with them the whole skeletons (together with the skulls), and some take only the skulls. As I have already said, these 'cleansed' bones are no longer attractive to the 'stuck' souls and the shamans allow them to be preserved in the dwellings as well. But we must always be careful, because 'stuck' souls usually look for an animal or a person, and best of all a child – to embody. We must not forget that these souls, who actually no longer belong to any world, have no way to incarnate and are constantly doing mischief.

In some of the cellular enclosures around the central circle at Wadi Faynan 16, heads of the dead, stretched or detached from their bodies, emerge from beneath the floors to rest on top of them, while their bodies remain below. Persons of the past, they become very much present in the now (Porter 2021, 202).

When the Chukchi people in Achaivaiaam sacrifice a reindeer to the ancestors, it is a way of doing everything in their power to ensure that the sacrificed reindeer is reborn as a reindeer among the ancestors and not as some other life form. The same logic applies to humans. If for example a person dies of a disease, and the body is left to decompose, that person will not be reborn in the ancestral world and the soul is lost to another system of life, the life of the disease, which means that person will continue in the circulation of life among the K'let. By ritually treating the body of a deceased; scare away the K'let, and safely contain and direct his or her soul in a rightful manner – by ritually dismantling the deceased again – is a way of transforming a bad death into a good one (Lykkegård and Willerslev 2016, 31).

Sometimes it happens that some communities meet other communities of unknown people. Due to mistakes and misunderstandings, unwanted things can happen. Since they do not know each other, and this means that their shamans do not perform the same rituals, it is possible for a violent death to occur. Violent death, as I have already said, is a big problem for all communities. Then it is best for the participants in this accident to reconcile and let the shamans of the community where the violent death occurred take care of the ritual (which is practiced in that community). If this does not happen, greater misunderstandings may arise and people from multiple communities may die. Then neither shamans nor elders can do anything, because violent death suddenly creates more 'stuck' souls.

In such cases, each community collects the body remains, whose bones were damaged by a violent death, and the shamans will take care of them. Then, the shamans must perform special rituals to find out what will be asked of the Spirit, which hardly forgives a violent death, especially if it happens often. According to the shamans, in these difficult situations it is good to sacrifice a person from the

community that caused the violent death. But the shaman must not ask people to do it, but only the one who voluntarily accepts to sacrifice can be accepted. If great accidents have happened, the Spirit may also ask for a child sacrifice – to appease the ‘stuck’ souls. Fortunately, this happens very rarely, and in such situations, an older member of the community usually comes forward – especially if they are very closely related to the child. Because shamans are skilled in their work, they often succeed in appeasing the Spirits with an animal sacrifice. In this way, Mother Earth balances the ‘excess stuck’ souls with more people and more animals.

And this is where the act of trickery enters the scene. What from the viewpoint of the living is considered an old, decrepit person on the verge of dying is seen by the spirits as the greatest of gifts: a newborn baby. In other words, when the living carry out a human sacrifice, they are turning what in practical terms is a worthless person into a perfect sacrificial victim. So, although the real act of killing a beloved kin member may confront the sacrificer with the fear and trembling of the dreadful task, it also represents the ultimate act of trickery. The spirits are given what they most desire; yet, in utilitarian terms, the investment comes close to zero (Willerslev 2013b, 149–150).

However, the Spirit often disagrees with the shamans’ demands that an animal sacrifice should be given instead of a human one. This is especially the case if there has been a severe violent death of several people (in this world) and usually the Spirit then requires equalization/‘sleeping’ of the human bodies/sacrifices in this world. It is for this reason that human sacrifice must be voluntary and not violent. Some shamans, in some other communities, ‘trick’ the Spirit in a certain way and thus make a much smaller sacrifice. The same thing happens with our younger brothers and sisters (animals). When they hunt each other, they also seek permission from their spirits. Therefore, it is difficult for shamans to replace a human sacrifice with an animal sacrifice. Human and animal spirits always try to equalize victims on both sides of the ‘border’.

When [they] give their cattle in sacrifice, they are very much, and in a very intimate way, giving a part of themselves (Evans-Pritchard 1956, 27).

Chukchi sacrifice is, therefore, really about the symbolic displacement of ritual violence from the human donor to the animal and beyond, to an almost endless chain of substitutions. However, although the substitute stands in for the original human victim, the deceased do not forget or deny that it is a substitute, and they continue to await the return of the souls of their living human kinsmen. In a fundamental sense, therefore, the sacrificer seeks to postpone, for as long as possible, his or her own death or that of relatives by offering substitutes for real human lives. In this sense, sacrifice is a calculated action, a technology of time manipulation, so to speak, in that the delay or time lag generated through the killing of substitutes is what allows human life to continue (Willerslev 2009, 699).

The path of souls from one side of the ‘border’/reality to the other side has long been known to our ancestors. If we do not fall ‘asleep’ from a ‘violent death’ or suicide, we (our souls) will leave this body, and animals will feed on it (and there are even communities of people who, due to certain rituals, feed on human body parts/flesh). Then, our soul will be directed and travel to the passage to the other

side – where it will reincarnate. From there, it will return cleansed and almost the same as before – embodying and multiplying in our children and other descendants. That is why we don't raise our children, because a part of our soul has entered them (here and now – at the 'border'/reality) and even though they are newborns, they have prior knowledge – 'memory' of this side (and the same thing happens vice versa). Even when children are young, they are unsure of this world and unsure of themselves. In other words, their understanding of themselves is vague and often changeable (among other things, this is why they are attractive to 'stuck' souls).

This also applies to the entire life of human and animals in all its repetition, in the transitions – from one world to the other and in the temporary 'intermission at the very border' (here and now). This variability of the 'self' is seen through our changing mental states, feelings and intuitions. Our 'selfhood' is only the successor of our previous 'selfhood' which originated from the 'selfhood' before it, constantly passing from one side to the other, with a short 'intermission at the border'. The world will endure as long as we don't break the rules and honour our parents (and their parents and those before them), while we honour those before us (and those after us and those after them).

For the Siberian peoples, the objective of rebirth is not to get out of the circle of reincarnation, as in the Buddhist or Hindu tradition, where one tries to attain "nirvana" or "moksha," the Sanskrit word for salvation. Instead, the Siberian peoples expect that people must pass through infinite rebirths and bring back personality traits that they displayed in their earlier lives. Furthermore, some people would add, "a person's body is him or herself," thus emphasizing that it is an aspect of the person, the soul, rather than the person in toto that is reborn. What all of this quite clearly points to, is that a person is never simply identical to or exactly the same as his incarnation(s). He is also a person in his own right. Thus, "duplication" or "copying" seems to be something of a misnomer: rebirth consists in the return, not of the identical, but of someone other. With respect to time, this signifies the curious notion that every new difference is also the moment of an immediate recurrence. In other words, difference and repetition are not seen in opposition: what is produced, the absolute new itself, is in turn nothing but repetition (Willerslev 2013a, 83, 85).

The soul's 'memory' is always incomplete for the 'dwell' in one and the other world – which is probably the result of temporary 'intermission at the very border' and thus the soul 'feels' a certain loss. The soul in its transitions has no gender, but when it incarnates it receives the gender of the body. Souls in their 'partial memories' recognize other souls from past world passages. When they are embodied, souls, precisely because of 'partial memories', create special feelings towards another embodied soul: they can't or can have good communication, or they develop incredible sympathies for each other. A 'partial memory' may be a very 'faint memory' and then the youth's parents find a suitable embodied soul for them (from a ritualistic and rule-abiding family).

I have already pointed out that, although a child is considered the new embodiment of a dead relative, he is also seen as a person in his own right. He carries within him an aspect of the dead relative, his ayibii [soul], but is not the deceased person in any absolute sense. This is why one cannot simply interact with the child in the same way as one did with his namesake, but instead must act toward the child as a mimetic agent (Willerslev 2007, 53).

The Siberian peoples are very attentive toward determining their infant's true identity. Now and then, a dying person will disclose in advance the pregnant woman he will attempt to enter. At other times, a woman will dream about a definite deceased person during her pregnancy, and in this way she will know what relative has returned in her unborn child. In other instances, the child will, when it is two or three years old and has just learned to speak, declare who it is by describing events from its previous life (Willerslev 2013a, 84).

Embodied souls with a 'faint memory' enter into communion – creating new offspring. On the other hand, embodied souls who have a 'good memory of sympathy' with each other, seek (infinitely but, paradoxically, temporarily) to 'merge' the souls – (paradoxically) by exiting their bodies. The souls' 'temporary joining' takes place only when bodies have intercourses with each other, thus most of the time this 'exit from the bodies to merge the souls' creates new offspring. If this does not happen, then the shamans perform special rituals – to help the bodies – to create offspring, in which the souls that will return from the other world will be reincarnated. If the shaman fails in these rituals, the bodies that failed to produce offspring will 'transfer' their souls to the 'more numerous' offspring of their ancestors (from the other world). In other words, it is always good for the offspring to be as large as possible, precisely because of the balance of bodies and souls between the worlds.

The souls passage between the two worlds, in some way, also signifies an almost invisible loss of souls. For 'stuck' souls the loss does not exist because they will never be able to cross from one world or the other – they are forever permanently disembodied – 'frozen' from the error in the crossing and therefore remain at the 'border'/reality. That is why spirits always try to equalize souls and sacrifices/bodies in the other world, and vice versa, shamans always try to reduce sacrifices/bodies at the expense of 'stuck' souls. Some of them even manage to reduce the sacrifice at the expense of the soul, making special objects (mostly figurines, sculptures and other representations). These rituals require very experienced shamans to successfully perform this procedure in this world, while 'tricking' the spirits. As I said, some shamans even manage to appease spirits without sacrifices, but this always has consequences. Then the spirits become enraged and disturb Mother Earth. We see her answer when she awakens her 'ever-sleeping', older siblings (the volcanoes, mountains, forests, and bodies of water): her body – on which we live, trembles, and if we make her very angry she can punish us with floods, destruction, etc.

The number of souls is said to remain finite and fixed – no new souls will ever enter the cosmos and no old ones will ever leave. Souls can, however, swap hosts, so that a human soul is taken over by the body of another being – which is the inherent danger of interacting with tannit, and needs to be avoided at all costs (Lykkegård and Willerslev 2016, 4).

'Small losses' of souls 'free up some space.' As I already said, the 'stuck' souls in their search for embodiment do not choose in which body they will incarnate. They, after some kind of 'memory' from past transitions, always direct themselves towards children and towards weaker humans or animals. 'Stuck' souls also 'know' that there is some small space for them in their bodies. But we must not forget that these souls can never be embodied. 'Awakened' people and animals also know about this 'free space' in souls and use it successfully all the time. It is not abuse at all, on the contrary this 'space' allows us

to learn from each other, as follows: when we hunt, we ‘enter the space of the soul’ (in a certain way taking the gaze of our prey) and then we face ourselves and with the prey itself. Animals do the same. In this way in hunting, as I said before, people are neither people nor animals because they have the ‘double’ view of themselves and the prey, and vice versa: I am me, but I ‘am’ also my prey – and my prey is ‘he’ who is me, and he who is he.

Through the comprehensive review of 59 Magdalenian sites where human remains are reported, two expressions of funerary behaviour during the Magdalenian are identified: primary burial and cannibalism. We propose that cannibalism was practiced as a form of funerary behaviour given the high frequency of cannibalistic site across a limited geographic area in Europe and their concentration over a relatively short period of time (cannibalism has been observed during the entire Magdalenian period, although it was more often practiced during the Middle Magdalenian, between 18.5 and 14.6 k calBP). At least six Magdalenian sites also showed possible evidence of the ritualistic manipulation of human remains with the shaping of skull-cups and engravings. These patterns, their recurrent appearance within a historical context, and the manipulation of human remains beyond the cannibalistic act, are considered as strong argument for cannibalism as a funerary practice (Marsh and Bello 2023, 17).

When a hunter mimics the elk to bring it into the open so that he can shoot at it, he acts simultaneously within two motivational spaces, which could be called “the space of predatory mastery” and “the space of animal imitation.” The first has to do with the hunter’s intention of killing the animal, the second with his need to take on its identity in order to fulfill that intention. The hunter, we might say, acts with a dual nature: he is both hunter and animal. To act in between these two identities is a highly complex task. If he lets his intentions as a hunter show through his actions, the prey animal will either run or attack him. If, on the other hand, he allows his intentions to merge with his bodily movements (which are that of an elk), he will surrender to the perspective of prey and turn into it. The hunter therefore needs to be aware not only of the prey animal, but also of himself being aware of the prey, in order to make sure that his perspective is neither that of a hunter nor that of the animal, but instead somewhere in between or both at once. In other words, the success of the hunter depends upon his ability to keep up a double perspective, or act as a mimetic agent (Willerslev 2007, 96–97).

Rather, the hunter uses acts of mimesis to achieve a double perspective that allows him to assume the point of view of his prey while still remaining a human person with the intention of killing it. Thus, perspectivism among Yukaghirs is not really about moving from one point of view to another. Rather, it is about not surrendering to a single point of view. It is concerned with action in between identities, in that double negative field that I have characterized as not animal, not not animal (Willerslev 2007, 110).

Thus, when we hunt or when we observe we are shamans – we change our soul and ‘free some soul’s space’ so that we can see from further and from higher (then we are partly eagles or falcons); to hunt faster (then we are partly cave lions or wolves); to run faster (then we are partly deer or gazelles); to disappear more easily (then we are partly foxes or martens); etc. This is possible both in humans and animals for three reasons: souls incarnate in almost the same bodies in both worlds, embodiment creates a small loss in each passage; the small loss ‘makes space’ for the temporary residence of a ‘part

of another' soul' (the 'double' view of the hunter and the prey) and from the legacy of our first ancestors/souls when animals were also human. However, soul's 'loss' increases during transitions from one world to another. In this way, the soul is constantly changing, and with it the bodies themselves and the view of the bodies/souls towards everything around them are also changing. This is exactly why 'stuck' souls seek embodiment – so they can 'see/live'.

Humans see humans as humans, animals as animals and spirits (if they see them) as spirits; however animals (predators) and spirits see humans as animals (see prey) to the same extent that animals (as prey) see humans as spirits or as animals (predators). By the same token, animals and spirits see themselves as humans: they perceive themselves as (or become) anthropomorphic beings when they are in their own houses or villages and they experience their own habits and characteristics in the form of culture (Viveiros de Castro 1998, 470).

...Cashinahua of the Amazon see different parts of the body as the loci of different kinds of knowledge, and this again is linked to a notion of bodily spirits. For instance, the knowledge/spirit dwelling in a person's skin is said to tell him where to find prey. Thus, for the Cashinahua, as for the Yukaghirs, a human person is not just considered to be him or herself, but is believed to contain multiple agents or persons within (Willerslev 2007, 63).

Shape shifting of bodies/souls is seen all around us. So, some of the people became shorter, some taller, some darker and some lighter, the same thing happened with their behaviour – some became better, some worse, quieter or louder, stronger or weaker, etc. The same applies to animals. For them, the change of appearance brought even greater changes. These changes are the result of the 'faster' transformation of some bodies/souls and with the constant transitions between the worlds different animals/souls have been embodied. For these reasons, animals can more easily pass between the worlds and for them there is no need for any ritual.

First, the status of person is not ascribed equally to all animate beings. Hunters generally seem to reserve this classification for the principal species of prey, including the elk and reindeer, as well as for the predatory mammals, including the bear, wolf, wolverine, and fox. Certain species of birds, most notably the raven, may also be thought of as persons. Other kinds of animate beings, including insects, fish, and plants, are hardly ever spoken of as conscious beings with powers of language and intentionality, and are in general seen to lead a mechanical, inconsequential existence (Willerslev 2007, 74).

The shape shifting are best seen in their appearance and behaviour: some are smaller, others are larger; some are stronger and others are weaker; some have thick fur and others don't; some can stand up on their hind legs, and others cannot; some emit screams, others 'laugh', others do not emit any sound; some do not run, others are extremely fast; some can climb trees; some crawl; some can fly to our Father, and others can jump high, etc. Then, some live in herds and some live alone; some stay with their 'mate' in a family relationship forever, and some breed with more of their kind; some of them have 'elders' and some do not; some eat only fruits and plants, others eat only meat, still others eat both meat and plants; some live in the tall grass, some in holes in the ground, some make their

dwelling; some steal habitats from other animals; some live in water, and some in rocks; some hunt by 'deceit,' and some hunt with incredible speed and skill; etc.

Yukaghir hunters see certain animals, including the bear, reindeer, and elk, as very similar to themselves in terms of their moral values and rules of conduct. The last animal, in particular, is understood to be a highly sociable and moral creature. Myths describe the elk as always tidy and eager to assist its kin. However, these character traits should be seen not simply as a manifestation of mythical thinking, but also as a reflection of empirical knowledge about the behavioral characteristics of the animal. A hunter explained to me, for example, that unlike foxes and other predators such as sables and wolverines, who are attracted to dirty and smelly spots and whose dens have a terrible stench, elk find it impossible to live in such places (Willerslev 2007, 75).

Humans feed on animals and animals feed on humans. Since humans are the older siblings of animals, they rarely allow animals to feed on humans. Also, animals flee from the powerful Spirit of fire and cannot be cleansed; it is done for them by humans – on certain occasions. Then, people do not feed on all animals, and depending on who and what kind of animals they are, people hunt them in different ways. For example, 'trickster' animals (foxes, weasels, martens, rabbits, snakes, frogs, ravens, etc.) can be caught in traps, and animals that are often hunted by other animals because of their large herds (roe deer, deer, chamois, reindeer, bison, aurochs, mammoths, etc.) are hunted by both human-hunters and animal-hunters in a similar way. Let's not forget that their Spirit doesn't care much about the 'trickster' animals (because they are deceivers); about the many animals that live in herds, the Spirit usually allows us to hunt them (because we constantly send him souls – it constantly sends us a large number of animals: bodies), while for animals that are successful hunters, their Spirit rarely allows us to hunt them (since they are not many and they themselves are hunters like us).

Sometimes shamanic action is directed at a particular class of prey, as in the Bororo case, where animals deemed to be the food of metamorphic spirits [bope] must be treated by a shaman to make the meat safe for general consumption [Crocker 1985, 142]. Shamanically treating the dead animal is not enough, however. Its subjective condition must be neutralized through cooking. Culinary fire is a central operator in the reduction of animal subjects to objects (Fausto 2007, 504).

There are rare animals that their Spirit takes special care of. These are mostly animals that hunt: cave lions, bears, wolves, eagles, but also other strong animals (mammoths, rhinoceroses, aurochs, bison, etc.). These animals, according to shamans, are especially important to humans and often they are also part of rituals (mostly their depictions). Cave lions, like bears, can behave like humans – but they cannot walk on their hind legs and fiercely attack all animals from trees and with great leaps, unlike bears and humans. These animals are especially dangerous to all bodies because they hunt bodies 'sneaky,' unlike bears and wolves. For those reasons, we avoid hunting this animal at all costs, and if a hunter succeeds in it, then, just like in bear hunt the skull is of great importance to shamans.

We do not eat lion meat, and we treat all parts of the skeleton with special respect. Lion hunting is practiced on exceptional occasions and mostly at the request of shamans (because of their 'commu-

nication' with spirits) and especially, because lions never agree to be hunted (their Spirit hardly ever allows them to be hunted). For these reasons, lions rarely approach humans, and the same goes for humans. However, in certain 'dead end' situations lions can brutally attack humans and this probably happens without the knowledge of the spirit/shaman. This is not the case with other animal-hunters, because we know that they often also approach humans (and vice versa), without attacking each other.

Direct evidence of large predator kills is exceptionally scarce in the archaeological record. Hunting lesions provide some of the clearest evidence that an animal was actively killed by humans, rather than being accessed shortly after a natural death or acquired through confrontational scavenging. The new evidence from Siegsdorf presented here is the earliest instance of cave lion hunting with wooden spears. ... The cutmarks on several bone elements of the Siegsdorf specimen suggest that the lion was processed at the kill site. After the acquisition of meat and viscera, the carcass was abandoned. The Siegsdorf Neanderthals likely killed a lion in poor condition and exploited the meat for consumption. ... The earliest evidence of lion fur exploitation is the newest addition from the site. The lion remains from inside the gallery testify to the ability to the careful handling of this animal's skin by hominins as early as at least 190 ka. The hide was brought by Neanderthals into the cave potentially for physical comfort, socio-cultural display, or both. Regardless of function, the treatment of lion fur is evidence of this animal's significance to Neanderthal societies. ... We conclude that Neanderthals were capable of engaging with non-human predators such as lions not only economically but also culturally – as Homo sapiens also is evidenced to have done later in time (Russo et al. 2023, 8).

Nowadays, upon killing a jaguar, the Parakana~ dance with its corpse in order to dream about it and transform themselves into it and subsequently leave to hunt in the forest [Fausto 2001, 878–79]. Before departing on a war expedition, the Yanomami conduct a ritual which aims to incorporate the vital images of certain animals, particularly the vulture, who help the killer to devour the victim during posthomicide seclusion [Albert 1985, 363]. In all these examples, the aim is to produce transformations in certain persons so that they can interact with nonkin and familiarize them (Fausto 2007, 506).

In some communities, shamans consider bears to be almost the same as humans because they are the first descendants of animals – that were before humans (although there are certain communities that consider humans descended from bears). Bears eat both plants and meat, can walk on their hind legs, climb trees, and many other behavioural things they do just like humans (among other things, when they are 'naked' – without their 'clothes' – their fur, they very much resemble of people). Bear hunting is, in fact, in a certain way a voluntary sacrifice – for our 'elder/spirit' in the other world. The meat from the bear (but not from the head) is distributed equally to everyone and is eaten under special conditions. Therefore, shamans from many communities keep bear skulls in their dwellings/settlements, and some of them 'beautify' the skulls – so that they can achieve a deeper communication with their Spirit.

As is widely recognized, east Siberian hunter-gatherer groups have accorded great significance to the bear: perceived variously as ancestors of indigenous groups or particular clans, they have been seen as guides between the otherworldly realms and the world of humans and in shamanistic frameworks as the shaman's guide through different levels of the Universe (Pasarić and Warren 2019, 471).

The bear is a large and dangerous carnivore. However, fear alone does not account for the rich and varied traditions linking bears and humans. Not infrequently, people have felt a kind of kinship with bears, for humans and bears share many characteristics. They live in the same regions and eat the same fish, roots, and berries. Unlike other animals, bears can stand on their hind legs as humans do and they can use their fore paws as humans use their hands. A bear's skinned body looks human, and several bear bones resemble human bones, which lends credence to the view that the animal is really a man in disguise. ... The red ochre traces on several fossil bear remains in Belgian caves were shown to have been applied purposely by prehistoric people and were not the result of contamination with spilt ochre or ochre containing sediment. The archaeozoological record shows that in Upper Palaeolithic cave sites bear elements with color traces are mainly remains of the head and paw regions. This parallels the ethnographic evidence since in many circumpolar societies, the bear head/skull and paws were colored with red or black marks during bear rituals, and it was the skull, in particular, that was disposed of at a sacred location (Germonpré and Hämäläinen 2007, 13, 20).

Wolves, on the other hand, are also especially important to us because almost every person can 'communicate' with them. These little siblings of ours, not only live like us, they almost never attack us and often come close to our settlements. Some of the braver ones even enter the settlements themselves. We give them our food and they often stay with us for a long time – in our settlements. Some human communities even keep wolves with them, so they not only live together, but also hunt together. It should be known that for special needs, communities keep different animals – from their youngest age. This is usually done for specific rituals of hunt and sacrifice, but also for other practical uses.

Unlike wolves, we consider foxes to be 'trickster' animals. With their behaviour, they know how to 'smile and say something' to us, they often and quickly disappear above and below the ground, and they 'deceitfully' hunt – they 'steal' the catch of other animals. Other smaller animals behave in the same deceptive way, such as weasels and martens – which successfully and very quickly know how to 'steal' the catch. Animal spirits and shamans know the fickle nature of these animals and therefore allow us to trap them. The same is true of some birds, especially the raven (the magpie and some other birds). He (they) behaves very much like foxes. They often know how to steal from others (humans and animals), come close to us and sometimes croak. Sometimes they are solitary, and sometimes in huge flocks – and then they are the loudest. Sometimes they tell us that a storm is coming, and sometimes they call us to follow them. Rabbits also have this 'deceitful' character. Small children can easily follow one of these animals and disappear far from our settlements. Sometimes they play with us, and sometimes they can lead us into an unknown space – maybe even into the other world (and only the shaman has temporary access to that world!). It can happen even to experienced hunters, especially when they are still in the state of neither animal nor man. That's why some communities believe that foxes, ravens and rabbits are actually animals that try to pretend to be shamans.

... The presence of this fox in two adjacent burial contexts suggests a complex relationship between humans and foxes earlier in the Epipalaeolithic. Furthermore, the animals represented in these graves are from a small, specific range of species, including aurochs, fox, tortoise and gazelle and, thus likely had a special relationship to the individuals interred or doing the interring. It seems these animals were

more than just economic resources from which food and other items could be taken and modified into tools, clothing, or decorations (Maher et al. 2011, 9).

The raven is the creator and trickster figure in Chukchi mythology. His name is Ku'urkil, or the "self-created one" [Bogoras 1904–1909: 315]. He is like a great shaman that possesses enormous powers to make things in the world. Yet he is also a fool who does this by default, someone people can trick to take on their blame (Lykkegård and Willerslev 2016, 15–16).

There are other interesting animals that we hunt (with their Spirit's 'permission,' of course). They live in different parts of the land and appear at a certain time and place. Such are, for example, the frogs which with their 'speech' call us to the swamps from where, sometimes, we cannot get out of the deep mud. Scorpions and spiders live in very dry places, which if they only just touch us, immediately can put us to 'sleep' (kill). This is a 'violent death,' and spirits and shamans always warn of the bad character of these animals. One of the 'most dangerous' animals is the snake. This elongated body, which has only a head, sometimes knows how to sneak into our settlements. Then it can steal and eat our little children, and it often does this to other animals and birds. Her noiseless movement allows her to reach her prey and bite it easily, while her gaze also reveals the character of this body – which allows multiple souls to metamorph/embody in this form. Therefore, shamans always warn about these animals, reminding us of their stealthiness and especially of the snake's body itself – which has no bones. If the body has no bones, then it is only a form that lures the souls to enter it – but there is no place for them to reside, because the souls reside in the bones! Thus, according to shamans, snakes probably manage to attract all souls, but cleansed souls coming (returning) from the other world have no way of incarnating in this form. Presumably, unlike them, 'stuck' souls can slip into this form – thus deceiving them and us that they have incarnated.

The animals we hunt are mostly those that live in huge herds and feed on herbs. They live in different places, and most of the time they don't run away from us. For them, we usually have 'permission' from their Spirit and our shamans, because the more we hunt here – the more souls cross into the other world. There are mostly deer, gazelles, pigs, ibexes, chamois and animals similar to them. However, the hunting rules are the same for these animals as well – respect for the bones and skull (separation of the meat), and especially allowing the peaceful passage of the soul to the other world is the most important rule. Among these animals, huge mammoths, rhinos and aurochs are especially important to us. Although, they are relatively quiet animals, even when they are near us, if we break some of the basic rules while hunting, for example, to smell like people (and not like them), to speak 'human' and not 'animal' – then they can easily get excited and become very dangerous. Therefore, the hunt of these animals is very difficult and requires us to fully respect their Spirit, as much as possible 'detach from our human form and resemble their form,' see through 'their perspective,' behave like them, etc.

*In total, the remains of 35 crania have been recovered, of which 28 belong to bovines (*B. priscus*, 14; *B. primigenius*, 3; *Bos/Bison*, 11), 5 to cervids (*C. elaphus*, 5; all males bearing their unshed antlers) and 2 to rhinoceroses (*S. hemitoechus*). Many have suffered intense post-depositional fragmentation caused by the sediment that surrounded them. However, detailed analysis of the recovered fragments indicates*

that many of the crania (39.3%) initially conserved the frontal region, including many horn cores or antlers, as well as the occipital and nasal areas, but not the maxillae, the bony palate or the zygomatic bones. Some crania were found lying over clusters of thermoaltered materials, including burned cranial fragments. ... In the present case, the fact that the crania all belong to species with cranial appendages (unshed antlers in the case of the deer) suggests that they may represent trophies. Their concentration in a small space also suggests that the accumulation might be considered a hunting shrine. However, other interpretations cannot be ruled out, such as a link with ritual and fire (given the proximity of the evidence of the latter's use), some expression of the symbolic relationship between Neanderthals and the natural world, or some kind of initiatory rite or propitiatory magic. The characteristics of the Cueva Des-Cubierta archaeological assemblage remain the same over the ~2 m thickness of Level 3. The finding of crania, thermoaltered materials and lithic elements throughout, along with the continued presence of the tools necessary for that exploitation over the entirety of Level 3 (sometimes superimposed but separated from one another by packages of sediment), indicates that the site's Neanderthal occupants repeated the same type of behaviour over a long period (years, decades, centuries or even millennia). The intentional deposition of large mammal crania over the time that Level 3 formed suggests the transmission of this behaviour between generations, which would be consistent with its interpretation as a cultural phenomenon (Baquedano et al. 2022, 343, 345).

In fact, the more one kills, the more the herds of the animal master-spirits will enlarge and the more one will be likely to kill in the future (Willerslev 2007, 35).

Antelope are a source of food for the Hopi. Prior to being hunted, prayers and offerings are made to render the antelope willing to be caught. Like other large animals, after being killed they are traditionally covered with a white blanket, or manta, and smoke is blown over them, an act usually described as a blessing or a prayer offering of thanks. Antelope clan people, like other Hopi, may eat antelope meat when available despite the apparent 'totemic' relationship (Bahti 1994, 131).

The size of mammoths, rhinos, aurochs and bison always amazed us. We have often seen how strong they are in their 'duels' with the most dangerous animals – the cave lions, when even these strong and fast bodies run away from this force. Therefore, these animals although quiet by their character, have a very dangerous side when they are threatened and even the most dangerous animals run away from them. The mammoths' tusks and rhinos' horns as well as aurochs very often ended up in the stomachs of cave lions and bears. There are communities that hunt only mammoths and feed on just one caught mammoth for a long period of time. Their respect for these animals is incredible, so some of them make places from their bones to 'return/incarnate' a new mammoth. Some other communities, on the other hand, do the same by keeping the aurochs' skulls in special places within the settlements.

Cattle are a key component of feasting deposits, with males over-represented in these and other special contexts. Cattle parts are frequently found in what I have termed commemorative deposits: idiosyncratic selections of items buried beneath house floors that appear to represent specific events. These commemorative deposits were buried on the south and west sides of houses, while human burials are generally on the north and east, implying a certain complementarity. If humans were buried in houses so that ancestors,

in the broad sense, could protect and benefit the inhabitants, it implies that these material talismans of ceremonies also had protective and beneficial power, and perhaps even that cattle were regarded as a kind of ancestor, possibly invoking a mythic past when humans and cattle were not distinct. Wild bull horns were incorporated into houses in both visible and invisible ways. As well as the hidden commemorative deposits, horns were sometimes concealed in walls. They were also set into benches, on pillars, and in clay heads. These displays likely served as trophies that attested to past hunts and feasts, but given the concealed horn deposits, they probably also enhanced the power of the house (Russell 2022, 6).

Unlike these large animals, even deer and ibexes with their large antlers do not have the same strength and thus become easy prey for carnivores. We humans mostly hunt deer, pigs, chamois, and ibexes – because there are many of them. But we must never forget the rules! Some communities live very close to the deer/elks, and apart from these animals (and the occasional bear, wolf or fox) on the vast expanses of Mother Earth other animals are rare. The proximity of deer/elk habitats to human habitats is sometimes invisible and then we see that these animals and humans can live together. This closeness is best seen – when a small deer/elk is born and when a human child is born. Then, some communities ‘adopt’ the baby deer/elk and bring them closer to specific children. In this way, the deer/elk and the man become ‘guards’ each other from various troubles. After many transitions of the souls of deer and people (from one world to the other and vice versa), their bond becomes so strong that the deer/elks become protectors of specific people. We eat the meat of these deer/elks only according to strict rules – and that after the animal has ‘fallen asleep’ (died) by itself. We dispose of their bones and skulls in a special way.

The ‘children’ who most often visit our Father (sky) are the birds. Apart from the ‘trickster’ birds that I mentioned above, there are special birds that are cared for by their Spirit and our shaman. These are eagles and vultures. Eagles are actually ‘cave lions that can fly:’ their vision and incredible speed when they hunt – almost freezes their prey, and therefore they are very dangerous. We hunt them with special ‘permission’ from the Spirit and from the shaman, and this is mostly when we keep them in our settlements. We usually keep eagles when they are small and they often hunt with us. Shamans, on the other hand, need them for feathers, with which they often perform rituals – disguising themselves and ‘seeing like eagles – everywhere in the vast space’.

In contrast, vultures never manage to hunt like eagles, but they have other abilities. Thus, the vultures – high in the sky, are the first to discover where there is a ‘sleeping’ body (carcass), then they make big circles in the sky calling other vultures for the food that is waiting for them down on the ground. Then, when, one by one land at the carcass, they quickly manage to ‘drive away’ even dangerous animals (lions, bears, wolves, etc.), interestingly, mostly struggling with the ‘deceitful’ foxes (which almost never give up from the carcass). Finally, after all the vultures have fed on the body, they receive their most important duty – ‘taking’ the soul from the bones of the body and carrying it to our Father (sky). Therefore, these birds are respected by almost all communities as great helpers of Spirits and shamans – in ‘cleansing’ the ‘sleeping’ body. By pecking, they disembowel the body (the remains), at the same time not destroying the bones (in which the soul lives) – thus, enabling a quick and peaceful passage of the soul to the other world.

The burial practices at Çatalhöyük (i.e., removal of cephalic extremity, limb removal, tight flexion) as observed in the archaeological record are often consistent with some manner of flesh removal prior to interment. It seems possible based on current forensic experimental work that the people of Çatalhöyük may have employed vulture excarnation prior to interment. Based on human studies, vultures are unlikely to leave marks on the bone that would be visible 9000 years later. However, some studies on vulture taphonomy of faunal remains have found more characteristic markings on the bone that were indicative of vulture activity. Additionally, it has been found that vultures are very efficient at removing carrion and can leave tendons and ligaments intact, which could lead to the articulation that is visible at Çatalhöyük, especially of smaller elements of the hands and the feet. Flesh removal and only a few days of decomposition would have greatly facilitated the removal of body parts prior to interment and would have allowed the tight flexion seen in the burial positions. There may also have been a practical need to remove soft tissue from a body before interment beneath house floors. Finally, the extensive iconography of vultures during the Neolithic throughout Anatolia suggests a relationship with these birds (Pilloud et al. 2016, 741).

Cranes are also very important to us, hence some communities think that cranes originated from humans or vice versa. This connection is not surprising, since these ‘bird-people’ as tall as us, are present near our settlements, coming and going to unknown spaces (perhaps the other world?) – once a year. These ‘winged people’ like us, can stand on their long legs for a long time and ‘talk’ to each other with wonderful sounds. They often ‘bath’ in the waters around us, and their dance before the ‘merging of bodies and souls’ is incredible. After their souls are ‘recognized’ and then their bodies are ‘joined’, from then on – as in many human communities they will remain together – until the body’s ‘falling asleep’ in this world – separates them. For the rituals of creating larger offspring in humans, shamans also use feathers and even bones (with special preparation) from cranes – in which they ‘trick’ their spirits into allowing easier passage of souls between worlds.

We suspect that much of the appeal of cranes lies in their striking similarities to people. Not only are they bipedal and of a size that approximates a human, standing c. 120 cm high in the case of the Common Crane [Snow et al. 1998:511], but their lifespan is comparable to that of humans, in some cases more than 40 years [Johnsgard 1983:57]. Moreover, their social structure is not unlike ours. They are social birds, forming sizeable flocks outside of the nesting season, but the building blocks of crane society are nuclear families. Cranes form lasting, monogamous pairs, and young cranes have an extended period of juvenile dependency. They tend to move in family groups, and young cranes are easily distinguished from adults, so that this structure is readily observable. Their unusually long, coiled trachea enables cranes to emit a call often described as bugling or trumpeting, and usually perceived as sounding as though it were produced by a musical instrument [Johnsgard 1983]. Perhaps most importantly, cranes dance. The function of the dancing is not well understood, but is clearly social and seems to diffuse tensions. It is performed by breeding pairs, but also by whole groups of cranes throughout the year. When one crane starts, others tend to join in. The dance can also be stimulated by a human imitating it, or even by the approach of a human. All crane species have some form of dance (Rusell and McGowan 2003, 451).

The importance of our younger siblings (animals) is not only for food procurement. They, as I said, help shamans and spirits. Some of them are especially important for the communities and therefore

some of them even live together (some with wolves and some with deer/elk). This hereditary bond between humans and their younger siblings is passed down by some communities through constant passage between worlds. Here, on this side of the 'border'/reality, they create stories about them, and often create their depictions expressed in stone, bone, antler or baked clay. Many communities do this and show their siblings in a variety of ways. That is why many communities think that they have a close common origin with a specific animal (bear, wolf, deer, rabbit, etc.). Often, according to the type of these animals, the communities take the name of the animals and they are known by that name, for example 'the wolves' pack. Thus, according to the demands of the shamans, on special occasions they make small or large figures of people combined with the animal of their community, or a sculpture with a human body and an animal head.

The corpus of ethnographic data refers to east Siberian indigenous people (Nivkhs, Nanai, Udege, Ulchi) that have not received much attention in Anglophone hunter-gatherer literature and in comparison to some other Siberian groups have been less visible in anthropological or archaeological comparative discussions. This revealed a diversity of interspecies engagements in hunter-gathering communities where animals could have been perceived as respected prey, but were also kept as captives or co-existed with humans as companions and possibly pets (Pasarić and Warren 2019, 474).

Many communities make small figurines of mammoths, rhinos, aurochs, bears, wolves, deer, birds, snakes and other animals to lure 'stuck' souls into the settlements. Shamans strive to make these objects because the 'stuck' wandering soul is 'challenged' by all bodies, which for them is an opportunity for embodiment. Hence, it is good for people to carry these items with them all the time, especially when hunting and always in their dwellings. The figurines do not have to be made like the real animal forms, and they may have certain 'ornaments' that will be attractive to the 'stuck' souls. Sometimes figurines are made with a 'double' view, for example of a man and an animal or of two different animals – to make them more attractive to the 'stuck' wandering souls. For some special rituals, especially before hunt, the most experienced shamans ask people to paint in the womb of Mother Earth (in the caves). There, after the strongest animals (mammoth, rhinos, aurochs, bison, deer, etc.) and the most dangerous animals (cave lions, bears, etc.) have been painted, the shamans 'enter' permanent transitions between the worlds – to communicate with the spirits – precisely because of the hunt ahead.

Thus, when a hunter seeks to approach and seduce the invisible counterpart of the animal, its spirit, his ayibii must take on the bodily appearance of an animal, in much the same way as does the hunter himself when he, by taking on the movement and smell of his prey, attempts to seduce it in waking life [Willerslev, 2004]. The ayibii's altered bodily form is also the reason why the spirit tends to be encountered in the shape of a human, because this is how all beings that share the same body are believed to see each other [see Viveros De Castro, 1998]. Still, just as in waking life, the hunter must keep up an element of self-awareness or reflexivity to safeguard his ayibii from being carried away by its animal body. Thus, a hunter described how, during his dreams, he would alternate between seeing snapshots of himself in his ordinary human shape and in the shape of a fox. The reflexive element is also apparent in a small wooden figure that was given to me by a hunter to help me establish contact with spirits in my dreams. The figure, which is said to portray my ayibii during its nightly journeys, has the appearance of

a human, but with the horns of elk. Moreover, it holds a crucifix in its hands, which serves to protect it against evil spirits. He called the figure an 'ioyä', which means 'the one who looks on your behalf', and I was told to put it under my pillow before I went to sleep. Whenever I killed something, I should feed it with fat or blood as a way of repaying it for its services and to make sure that it did not abandon me for another body (Willerslev 2004, 411).

On rare occasions, shamans ask for human depictions to be made as well. As with animals, these sculptures (or figurines) or other representations do not have to be the same as the actual forms. It is desirable that they have a head and a body, as shamans believe that some of the more dangerous 'stuck' souls will be 'lured' into embodying themselves in these bodies/representations. For some communities, however, it is important to perform special, diverse decorations on these sculptures – so that they are even more attractive to the souls. However, there are also communities, which for special occasions create large sculptures of specific people with special significance in this world, whose soul has peacefully passed into the other world. The most experienced shamans in their special rituals sometimes manage to get answers (about things of this world) from these important souls (now already from the other world), who attracted by 'their image' (a specially made sculpture with 'their image') realize communication with the shaman. As I already told, shamans use skulls in the same way.

For the peaceful passage of the soul the 'falling asleep' (natural death) of human bodies has strict rules in all communities. Considering that there are large communities of people, the shamans modified the rules and hence, the rules and rituals are similar (but not same) everywhere. Normally, we return human remains to Mother Earth (bury them). Some communities, before doing this, leave the human bodies to the animals – for them to feed on, as we feed on them, thus cleansing the body/meat from bones and skulls. For this ritual, as I have stated, vultures are the best agents because they easily eat the meat without damaging the bones.

On special occasions, some of the humans who feel that they are approaching 'falling asleep' – voluntarily endeavour sacrifice to their ancestors, thus voluntarily giving themselves up to the carnivorous animals. Other communities, on the other hand, completely leave not only the bodies, but also the bones for the animals – again after the fulfilment of rituals. The communities that bury the bones, after cleaning them from the animals scavenging, place them in fenced or unfenced places in the ground. Sometimes, next to the skeletons, special objects are placed – to protect them from the attacks of the 'stuck' souls, and even objects that they used with the body they used in this world (in case they need them in the other world).

As Hertz remarked in his work based on research in communities in which death is a temporal transformative state, just as the Chukchi of Achaivaiam perceive it to be, the cremation is normally not a final act, nor is it sufficient in itself [Hertz 2004: 42]. Just as with his example of an ancient Indian ritual, where the remains of the cremated body must be collected (ibid.), the close family of Vova must return to Shamanka the following morning. This is what Hertz refers to as the second burial. Hertz calls the cremation the "first burial", which removes the flesh and the identity of the deceased, whereas he wrote that the "second burial" can be recognized because it deals with the bones and gives way to a new identity

for the deceased among the ancestors (*ibid.*: 72, 197). “The ‘second burial’ is furthermore marked by a great feast during which the remains of the deceased are recovered, ritually processed and moved to a new location” [Huntington and Metcalf 1979: 13]. *Entering the sacred space of Shamanka to perform the “second burial” must be done with care. One must step gently and throw a stone where the pyre was in order to scare away any ke’let. The remains of the deceased (the ashes and pieces of bones together with the three stones placed between the poles, which made the foundation of the pyre) are gathered by sweeping them together with alder branches, then they are encircled with a lasso-ring. The lasso is said to “catch the place” of the ancestors. A twig as well as tea, tobacco and other small offerings are placed inside the lasso-ring, and the participants then have tea around the encirclement. The twig represents the souls of the living, who have the last cup of tea with Vova. When tea is finished the twigs are taken home and burned to ensure that none of the participants’ souls remain in the ancestral realm. This is the end of the second burial. At this point the previous body containing the life force of the deceased has been destroyed, the meat has been separated from the soul, the relationship with Vova has been closed with a last goodbye tea party, and he is now free, and should be able to endure his long journey to the ancestral realm* (Lykkegård and Willerslev 2016, 26).

The ‘falling asleep’ of shamans, on the other hand, also means performing special rituals practiced by other shamans. Considering the importance of shamans in both worlds, the ‘cleansing’ of the body from flesh and bones is of particular importance – not forgetting that shamans often ‘change’ and disguise their bodies due to constant attacks by souls in their albeit temporary, but frequent stays in both worlds and on the ‘border’/reality. Furthermore, the power of shamans is immense due to their ability to more easily transition between worlds, and thus the greater ability to take on multiple perspectives. For example, they easily temporarily ‘exit’ their body and enter other bodies – taking the perspective of that body, in the same way that successful hunters hunt. But unlike hunters, shamans can ‘enter’ the other body much faster and much easier, thus often changing their form and therefore, for example: they ‘see’ like an eagle – in search of missing people; they ‘oppose, deceive, or demand something from the spirits and souls’ (only when necessary) by taking the form of a carnivore or constantly changing their form – to alienate them out of the community; etc.

Yukaghir shamanism is not a system of belief but merely a system of techniques for manipulating the environment, and that these techniques, rather than being attributes of shamans alone, are specialized forms of abilities that may be practiced by all members of society to varying degrees, then it follows that we cannot simply judge the legacy of Siberian shamanism by the presence or absence of shamans themselves. Rather, the shamans were just the tip of an iceberg, so to speak, sustained by a much broader and more pervasive set of everyday shamanic practices, such as, for example, dream sexuality with spirits and the mimetic seduction of prey (Willerslev 2007, 35).

This peculiarity of shamans in most communities means that they are not allowed to have offspring (because they will be constantly under ‘attack by spirits and souls’) and usually have to live away from the other people in the community. This is especially true for the greatest shamans – who do the most difficult rituals, considering that most people can do small and easier rituals (becoming ‘shamans by necessity and only for this world’) – such as, for example: hunt; healing; story telling; etc. For these

reasons common people can practice light rituals (especially with the ability to change perspectives) and perform 'shamanic' procedures, and at the same time create offspring and expand the community. Therefore, experienced shamans must not have offspring, but they themselves will choose a person to succeed them in shamanic knowledge and skills.

Like craftsmanship or musicianship, [shamanship] is a talent or inclination as much as an activity and is spread variously among persons who practise it to varying degrees (Vitebsky 1993, 22).

Experienced shamans must also be returned to Mother Earth (buried), under strict rules. As I already mentioned, after the skeleton 'cleansing', in the new shaman's 'dwelling' (grave), special items from his stay in this world must be placed. These are mostly the objects that he used for the rituals, as well as bones and animal skulls that 'helped' him in changing perspectives in the transitions between the two worlds and at the 'border'/reality. These are mostly masks, bones, teeth, horns and skulls of cave lion, bear, fox, eagle, aurochs, bison, deer and other animals. Considering the possibility of constant transitions and changes of shamans in this world and in the other world, all communities know that shamans must not be 'violently put to sleep' (killed). It is strictly forbidden, because then the 'stuck' soul of the shaman has incredible power and creates great difficulties for both worlds.

Excavations at the 12,000-year-old Natufian cave site, Hilazon Tachtit (Israel), have revealed a grave that provides a rare opportunity to investigate the ideological shifts that must have accompanied these socioeconomic changes. The grave was constructed and specifically arranged for a petite, elderly, and disabled woman, who was accompanied by exceptional grave offerings. The grave goods comprised 50 complete tortoise shells and select body-parts of a wild boar, an eagle, a cow, a leopard, and two martens, as well as a complete human foot. The interment rituals and the method used to construct and seal the grave suggest that this is the burial of a shaman, one of the earliest known from the archaeological record. Several attributes of this burial later become central in the spiritual arena of human cultures worldwide (Grosman et al. 2008, 17665)

Therefore, shamans (in most communities) are the most respected and powerful people, they usually don't participate in any of the common village activities, they always get food and everyone is obliged to help them. The same is true when they 'leave' the body they used in this world and when their soul 'returns' from the other world and embodies again. The inability to have direct offspring ('embody in themselves from one world to the other'), on the other hand, means that their skills and knowledge – will be passed on to suitable persons whose direct descent will further be interrupted (due to 'isolation' from the rest of the bodies/souls). Hence, the uniqueness of shamans from other 'bodies' is: in that they always relearn these most important skills in this world – never 'remembering or partially knowing' from past transitions (like other souls). Because of this, the purest 'souls' are embodied in the bodies of someone else or a distant ancestor – who may or may not have been a shaman in this world. So perhaps it can be said that shamans cannot exist in the other world – just as spirits cannot exist in this world. And finally, we can assume that the shaman and the spirit have a certain balance in the existence between the two worlds, that is, what is a spirit in this world is a shaman in the other world and vice versa – what is a shaman in this world is a spirit in the other world.

In sum, animals are people, or see themselves as persons. Such a notion is virtually always associated with the idea that the manifest form of each species is mere envelope (a 'clothing') which conceals an internal human form, usually only visible to the eyes of the particular species or to certain trans-specific beings such as shamans. This internal form is the 'soul' or 'spirit' of the animal: an intentionality or subjectivity formally identical to human consciousness, materializable, let us say, in a human bodily schema concealed behind an animal mask. At first sight then, we would have a distinction between an anthropomorphic essence of a spiritual type, common to animate beings, and a variable bodily appearance, characteristic of each individual species but which rather than being a fixed attribute is instead a changeable and removable clothing. This notion of 'clothing' is one of the privileged expressions of metamorphosis – spirits, the dead and shamans who assume animal form, beasts that turn into other beasts, humans that are inadvertently turned into animals – an omnipresent process in the 'highly transformational world' [Riviere 1994: 256] proposed by Amazonian ontology (Viveiros de Castro 1998, 470, 471).

EPILOGUE

So far, I tried to describe the original ontological model of humanity – from the perspective of a member of some ancient community, at least as old as *H. sapiens*. The basic model described is difficult to apply in detail to different communities in the world. I believe this model is probably even older than the *H. sapiens* – was very likely established much earlier before its emergence – most likely already when fire was brought under control. Regardless of the age of the communities that practise this model (with many corollaries), it is still functional today in a large number of communities on all continents, even in a larger number than we might imagine. Furthermore, from this model the earliest beliefs and religions of the past logically derive, and its traces are hidden even in the most popular religions today. The model across time and space has produced a significant number of variations, so it would be difficult to apply it as a universal approach in anthropological and archaeological contexts. However, its functionality is partially applicable to almost all known cultures around the world and it is easily proven not only by the latest anthropological approaches, but also by archaeological remains.

Although it is an ontological or cosmological model probably practiced by Palaeolithic cultures – which we consider to be hunter-gatherer and/or fisher-forager groups, the model is also applicable to later communities, especially in the Levant in the Pre-Pottery Neolithic, and then in the Early Neolithic – which we consider to be the bearer communities of the so-called 'Neolithic revolution'. It seems fitting that after the Upper Palaeolithic and Epipalaeolithic/Mesolithic, a profound change in human history (seen through the indicators of changes in economy and subsistence strategies) took place, and then (in the Chalcolithic, Bronze and Iron Ages), very accelerated shifts (unlike previous periods) happened, as well as other permanent changes – which will lead to the creation of the 'earliest world's' civilizations. In this paper I have attempted to present the initial model of most ancient cultures from Sub-Saharan Africa to Siberia, from Tierra del Fuego to Alaska, and from Doggerland to Hokkaido and to Tasmania. In the next paper I will try to show that the model not only is applicable in the following 'periods', 'civilizations', 'phases', etc; rather, it has been and continues to be practiced throughout human history – and continues today.

The model, in short, is based on rather simple elements. It is about a world, which is actually composed of two parts (obverse and reverse). We currently live on the 'border' between the two parts (the world now and the here – reality). The other world is the same as this world – but there everything is reversed from here (a certain reflection of the happenings here). It, in a certain way, functions in parallel with this world – but that does not mean that literally the same activities take place there as in this world (it is a pseudomirror of this world). In the model, the category of time does not really exist – it means infinity rather than time in the sense of old and young (time exists only as a category that we use to measure what has gone before and what is to come). Furthermore, death as the termination of life also does not exist (except in the case of violent death or suicide).

The relation of these ontological elements is quite logical and particularly original. Namely, everything originates from a spirit (soul is hierarchically at lower level) and then it materializes. The sky (Father/Spirit) and the earth we live on (Mother Earth/matter) is one and the same world made up of two parts. We live on the 'border' between them (here and now) – on the surface, below is one world and above is another world, or in another direction to the left is one world and to the right is another world. The Spirit created souls and earth created forms. When they unite, they become one world – the soul becomes embodied and it feels, thinks, has a past and a future. When the body expires, the soul leaves it and goes to the other world – where almost the same body is waiting for it – and after leaving the body there – it returns again in almost the same body – here (in this world). Thus, if the rituals are followed, the soul will reincarnate/embodiment and this cycle will keep happening; the absence of time. Thus death and time do not exist (if death terminates life, then life also terminates death).

From this passage: from soul to body and from body to soul and the permanence of the same cycle the entire ontological system emerges. It is based on several basic principles and is exclusively in function of practicing a peaceful passage of the soul between the worlds. The principles (and from them the rituals) are created by shamans (in this world) and spirits (in the other world). If souls/bodies do not follow these principles, great problems are created in both worlds. The embodiment of souls, in itself, allows us to feed on each other – under strictly defined rules. That's why people can eat animals, and animals can eat people – but only according to the instructions of the shaman (people) and the spirit (animals). Hence, hunt becomes one of the most important elements in the system, and hunting – in which I 'kill' him to eat, and conversely I am 'killed' so it can eat – is subject to an exceptional, but hidden moral practice – equality.

From these logical parity in the model are created quite complex passage systems in this world and 'between the worlds' (living and dead, soul and body, etc.); of the perception of oneself and of the other/others; and especially of the possibility of shift/transcendence one's perspective (perception) with the perspective (perception) of the other/others. The perception of oneself and the rest is part of one world. Logically, this world is equal for everyone, but always on the condition that 'norms,' 'rites,' 'rituals,' 'ceremonies,' etc; are respected. In that context, questions about what are 'dwellings and settlements' (especially in archaeology) lose their literal meaning, because we live in one enormous settlement – the world. For these reasons the distinctions of 'dwelling' of the living and 'dwelling' of the dead also lose their literal meaning, and are more a result of practicality ('dwelling' for lineage or

‘grave’ for legacy). In this vast settlement we reside temporarily, in cycles – constantly being born and dying – and from there we ‘temporarily live in dwellings’ made by us (with material from Mother Earth). Hence, the ‘permanence’ of our self-made dwellings is also a matter of practicality.

The significance of animals (our equals) is also deeply rooted in the same model. The rules apply equally to them and to us. Including the basic variables and relations arising from the dualistic system – belonging to the ‘one world for all’ (life and death, man and animal, outside and inside, here and there, etc.) the human mind has created a number of its corollaries based on the cosmological moral norms. The morality of the model, in itself, implies an essential metaphysical underpinning – and hence, everything we do is ‘above us and beyond our understanding’ and is ‘sacred’. The model is completely subject to the ‘sacred’, but, at the same time it is maintained practically – within the framework of physical laws. Hence, the soul is sacred and the body is practical. The relationships that arise from the specified elements, situations and conditions – within the model and later from its corollaries in time and space, often create seemingly ‘unsolvable’ puzzles. One such puzzle is the question of the ‘first religion’ in the Pre-Pottery Neolithic of the Levant, which will be discussed in the second part of this paper.

For we may ask: what is it that returns eternally, which has the power to dance in and out of potency and despair, creation and destruction? It can paradoxically only be the very opposite of death, namely life. Not simply life in its actual present form of Eros, but in an uncanny excess of life, an indestructible insistence of the libido that persists beyond the biological cycle of life and death. So, the Freudian death drive is actually the name for its very opposite, namely life as a virtuality of infinite becoming (Willerslev 2013a, 95).

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THE EARLY NEOLITHIC SITE IN POGRADEC РАНОНЕОЛИТСКИ ЛОКАЛИТЕТ ВО ПОГРАДЕЦ

ABSTRACT

This contribution will present preliminary data and some interpretations from fieldworks at the Early Neolithic site in Pogradec.

The first fieldwork excavation at this site started in 2016 as a test excavation, in order to provide information about stratigraphy, material culture and particularly to obtain radiocarbon dating. The next seasons were focused on settlement structures, the study of material culture and environmental data. Archaeobotanical analysis and the radiocarbon dates of the organic samples are currently being studied. Three buildings in three different stratigraphic levels, built on top of each other, were discovered during the three fieldwork seasons (2016, 2021-2022). The material used for the earliest buildings was heavy burned daub and for the last one the unburned daub. A considerable quantity of pottery was found in the excavated area that is not large. The typical characteristics of the Early Neolithic site in Pogradec were observed in other Early Neolithic sites in Albania and North Macedonia. They are mainly consistent in the construction and architecture of the buildings, the material culture and rituals.

The site lies very close to the touristic area in Pogradec, near the lake shore and among the new multi-story residential buildings that continue to be build. The private houses and the other large buildings have already destroyed the majority of the site. Due to this emergency situation, the project research at the remaining portion of the site was planned to be conducted as a rescue archaeological project. Recently, we have been working with national and local institutions in Albania on a better protection of the remaining site area which is still threatened by modern construction. An international cooperation program among three countries – Albania, North Macedonia and Serbia was developed on protection and promotion of their prehistoric sites in 2022. The Neolithic site in Pogradec was one of the sites selected for this program.

Keywords: *Early Neolithic, excavation, buildings, pottery, cultural network.*

АПСТРАКТ

Овој прилог ќе презентира прелиминарни податоци и некои толкувања од теренските истражувања на ранонеолитскиот локалитет во Поградец.

Првото теренско ископување на овој локалитет започна во 2016 година како пробно ископување, со цел да се обезбедат информации за стратиграфијата, материјалната култура и особено да се добие радиојаглеродно датирање. Следните сезони беа фокусирани на структурите на населбите, проучувањето на материјалната култура и податоците за животната средина. Во моментот се проучуваат археоботаничките анализи и датите на радиојаглеродот на органските примероци. Три градби во три различни стратиграфски нивоа, изградени една врз друга, беа откриени во текот на трите сезони на теренска работа (2016, 2021-2022). Материјалот што се користел за најраните градби бил тешко изгорен лепеж, а за последната бил применет неизгорен лепеж. На ископаниот простор е пронајдено значително количество керамика кое не е големо. Типичните карактеристики на локалитетите од раниот неолит во Поградец беа забележани и во други локалитети од раниот неолит во Албанија и Северна Македонија. Тие главно се доследни во градбата и архитектурата на зградите, материјалната култура и ритуалите.

Локалитетот се наоѓа многу блиску до туристичката област во Поградец, во близина на езерскиот брег и меѓу новите катни станбени згради кои продолжуваат да се градат. Приватните куќи и другите големи згради веќе го уништија поголемиот дел од локалитетот. Поради оваа вонредна ситуација, проектното истражување на преостанатиот дел од локалитетот беше планирано да се спроведе како заштитен археолошки проект. Неодамна, работиме со националните и локалните институции во Албанија на подобра заштита на преостанатата област на локалитетот која сè уште е загрозна од модерната градба. Програма за меѓународна соработка меѓу три земји – Албанија, Северна Македонија и Србија беше развиена за заштита и промоција на предисториски локалитети во 2022 година. Неолитскиот локалитет во Поградец беше еден од локалитетите избрани за оваа програма.

Клучни зборови: *Ран неолит, ископување, градби, културно вмрежување*

INTRODUCTION

The underwater research and test excavations carried out along the shore of Lake Ohrid in Albania has provided new evidence of prehistoric settlements from the Neolithic to the Bronze Age (Anastasi 2018; 2022). The research of both the southern and western part of the lake is currently focused on two Neolithic sites: the Early Neolithic settlement in the southern part of Lake Ohrid – in the town of Pogradec (Andoni et al. 2017; 2020; 2022) and in the Early to Middle Neolithic settlement in the village of Buqeza, known as Lin 3 (Anastasi et al. 2022; 2023). Both sites, including others situated to the north and east of the lake, manifest the importance of the Ohrid Region in the process of neolithization, in addition to the well-known sites in the Korça and Pelagonia basins.

The Early Neolithic settlement in the town of Pogradec (Fig. 1) was discovered accidentally in the early 2000's, when a well was opened near the area known as Buçimas, next to the road Pogradec-Drilon. A considerable quantity of pottery and other finds were discovered in the soil excavated from the well. The characteristics of the pottery and stone tools suggested the potential presence of an Early Neolithic site.

A research program started in 2005 in order to establish the core and the extent of the settlement without intervening into the cultural deposits (Kurti et al. 2005). The small test excavations conducted by the Institute of Archaeology indicated that the extent of the site area was larger than two hectares. The planned follow-up excavations scheduled for the following year (in 2006), unfortunately, were not carried out because a considerable section of the center of the settlement was destroyed by a huge foundation hole dug for the construction of a multi-story building. Additionally, in 2006, it was possible to conduct a small rescue operation on exposed stratigraphic profiles in order to extract samples for radiocarbon dating (Allen and Gjipali 2014, 109). The samples were obtained from the lower layers of the cultural deposit. Two radiocarbon dates obtained by this operation dated the layers to 6000 BC and 5700 BC (Allen, Gjipali 2013, 37-54, Tab. 1; Allen and Gjipali 2014, 40, Tab. 1; Gjipali 2017, 109, Fig. 2).



Fig. 1

The fieldwork at the site started in 2016 as a test excavation and continued in 2021 and 2022 (Andoni et al. 2022). The agricultural field – where the excavations were conducted during these three seasons – is the only area where the archaeological excavation can be conducted, because the rest of the site has been destroyed by the construction of new buildings built after 2000. This field also forms the central part of the settlement defined as such by the surveys and trial trenching of 2005. This plot is a private property and is located next to the multi-story building built in 2006. An international research project joined the third excavation season in Pogradec in September 2022¹. The project was focused on the archaeological heritage of Albania, North Macedonia and Serbia and consisted of research, protection, and promotion of the prehistoric sites of these countries. The main attention in this project was given to the cultural and social interactions of Balkan regions during Neolithic and other periods of prehistory. In addition to other activities, three summer schools were organized: the

¹ The project Common Cultural Heritage: Interregional Research and Educational Practices was a collaboration among the Institute of Archaeology in Albania, Center of Prehistoric Research in North Macedonia and Faculty of Philosophy of Belgrade in Serbia. This project was financially supported by the Western Balkans Fund. The activities of this project involved national cultural institutions, universities, museums, institutes and municipalities of the three countries.

one took place at the Neolithic site Vlaho (Pelagonia, North Macedonia), the next one at the Neolithic site Vinča (Belgrade, Serbia) and the third one at the Neolithic site in Pogradec (in the southeast of Albania). The students were trained by different experts during the three summer schools². The fieldwork research in Pogradec in 2022 obtained significant data about the Early Neolithic site. Remains of three buildings were found during the season of 2022. The data from plant and animal remains are still being studied. The samples are also being processed to obtain radiocarbon dates.

THE EXCAVATION OF TRENCH 1 IN 2016

The test excavation of the site in 2016 provided very significant data about the Early Neolithic building remains and their architecture (Andoni et al. 2017; Andoni 2020, 63-80). The Early Neolithic settlement is found 1 m deep under the modern activities layer. A thick and solid concave structure of red burnt daub was found at depth of 1.40 m from the surface (Fig. 2). The structure is a solid platform slightly concave with deep black burn traces above it. An entire storing vessel broken in small and medium fragments was found lying on this structure. The vessel was empty inside but all the soil inside and around it was collected for archaeobotanical analysis. The remains of a fallen wall of red burned daub were documented on the south side of the trench (Fig. 2). The concave solid structure suggested at the time at least two possibilities: it may have been an oven or a domestic storage area. Due to the limited excavated area, it was not very clear whether the fallen wall at the southern part of the trench was part of the same building. The 2021 archaeological fieldwork aimed to continue the work started in 2016 by extending the area of the excavation next to the trench 1 in order to understand the extension of the building remains made of burned daub.



Fig. 2

² The final component of the Common Cultural Heritage project was the international conference “Prehistory in the Balkans: Common Cultural Heritage.” This event was scheduled in two days (November 25th and 26th) in the city of Ohrid where both students and specialists presented their knowledge on the cultural heritage from Albania, Serbia and North Macedonia. The first day of the conference was dedicated to the student presentations. They presented strategies for the promotion and protection of cultural heritage. Besides sharing their experiences during the summer workshops, they also presented different research related to particular topics concerning prehistory. The presentations of this conference are published in this edition.

THE EXCAVATION OF TRENCH 2 IN 2021

Trench 2 was excavated 1 m away northeast of trench 1, in order to potentially follow the extension of the building found in 2016 and its outline. Underneath the layers formed by modern activity and plowing, a sandy sediment layer partly covers the latest Early Neolithic layer in trench 2. The presence of this sandy layer is most likely related to a shifting outline of Lake Ohrid and nearby rivers. Apparently, these processes affected the last layer of the Early Neolithic. The erosive effects should be verified and studied furthermore by geologists and other specialists.

The remains of the first building were found underneath the sandy sediment layer. Building 1³ consisted of a thick and rectilinear structure made of whitish sandy clay functioning as an unburned or dried daub (Fig. 3). This compact material is a common architectural element used in construction of



Fig. 3

the Early and Middle Neolithic buildings. The main architectural element of this structure consists of the west wall foundation and a part of the fallen walls. The aligned postholes on the wall foundation suggest the presence of lateral reinforcement piles. Some postholes are shallower than others, which

³ It was named Building 1 after we found Building 2.

indicate uneven installation, probably due to repair or renewal of the walls. On the top of Building 1, we found carbonized seeds, small pieces of charcoal and a slight number of small potsherds which were not washed away during the hydro-geological processes. Their presence scarcely demonstrates the activities within the building. The thickness of Building 1 *in situ* was approximately 0.15-0,23 m high.

Beneath this building we detected the remains of another building, named as Building 2, a massive dwelling with heavily burned daub (**Fig. 3**). The uppermost level of daub shows elements of an intentional leveling. These elements were made of compact greenish clay which has been used for plastering and fragmented and loosely disposed lumps of daub which are most likely created on purpose in order to flatten the level for raising possibly a new building. Building 2 consisted of two massive daub levels: the first one as described above destroyed for leveling and the second one is a solid daub composition. The second daub layer had remains of a heavy fire, while the circular daub outlines could suggest the remains of a bin. The daub remains are not ideally horizontal, but slightly slope in the southwestern direction, that could indicate the mound-like character of the settlement. Considering that the Early Neolithic horizon has 3 building levels, most likely the site could have been a small tell with probable center facing northeast of the Building 2. On the northeast side of trench 2, we also found a small pile of stones surrounded by fire remains that could suggest the presence of a fireplace. Beneath these stones and under the second daub level, we documented a thin layer of greenish clay that could be an indication of the floor remains.

Due to heavy rainfall during the fieldwork, groundwater appeared at 1.50 m level and the excavation was interrupted to be continued on the next season.

THE EXCAVATION OF TRENCH 3 IN 2022

The archaeological excavation in 2022 was carried out on the eastern side of trench 2, next to it, in order to follow the extent of Building 1 and check whether the remains of Building 2 extended further in this direction⁴. Our plan was also to reach the virgin soil and look for other possible building remains. Trench 3 was 2 by 3 meters big. The excavation continued in trench 2 (2 x 3 m) which was partially excavated last season. Both trenches 2 and 3 were excavated in the same time until reaching the depth of 2 m from the surface due to the emergence of groundwater at this level. Then, the excavation continued in a small area in trench 2 where virgin soil was reached at a depth of 3 m.

The thin sandy sediment layer – circa 2 cm thick – covering a good portion of trench 3, appeared sooner than in trench 2, only 0.60 m from the surface. The remains of Building 1 extended over a good part of trench 3, immediately below the layer of sandy sediment. There were no additional architectural elements of Building 1, only the thin layer of whitish sandy clay functioning as an unburned daub lying horizontally. Four postholes of different diameters and shallowness, straightly aligned, were documented very close to the southern profile of trench 3 (**Fig. 4**).

⁴ A short preliminary report of the 2022 excavation season is published for the first time in this volume.



Fig. 4



Fig. 5

A pile of red lumps mixed with coarse broken wares was documented under Building 1. Its presence in relation to the building remains is not very clear, but given the archaeological situation in trench 3, it may have been used to fill or level the surface in order to build another building. Underneath this pile we detected building remains made of red burned daub. This massive thick structure is located mostly in northeastern side of trench 3. A layer made of small pebbles was documented only in a small part of the red daub structure. The remains of this building do not give direct evidence of its connection with the remains of Building 2 in trench 2, but it is evident that they belong to the same stratigraphic level (Fig. 5). They might belong to the same building or might be the remains of two separated buildings built next to each other. At the moment, we are considering the remains of it in trench 3 as Building 2. Compact greenish clay was documented under Building 2. This layer may have been used for leveling or as a floor. Also, other layers with added sandy composition were found under Building 2 and the compact greenish layer.

Another deposit of burned daub appeared just above the virgin soil in the northern profile of trench 2. The daub remains are also visible in the profiles of the small trench (1 x 2 m) excavated in the northeastern part of trench 2. The remains of Building 2 and probably of Building 3 are separated by a 0.80-1 m thick cultural layer.

POTTERY

Pottery is better studied in relation to other categories of finds collected during the three excavation seasons. For this reason, we are giving a general overview only of pottery found during these fieldworks. The most common types of pottery consist of the red-colored wares while the black-colored wares are less frequent. Majority of the black-colored vessels have thin black coating, which is quite easy to

loosen from the surface. Vessels made from coarse fabric predominate and are medium and mostly large-sized. The wares are characterized by round forms, typical for the period of the Early Neolithic. Sometimes the fine wares have a carinated profile and a slightly everted rim. The thin fine texture of vessels is represented by small black-colored cups. They are regularly well burnished.

The most commonly represented types of wares are the unrestricted small and big bowls and the neck jars (**Tab. I, 1, 7-12; Tab. II, 3**). The unrestricted bowls (the semi-spherical, conical and ellipsoidal shapes) are the most common types of wares. Other common wares types are the prolonged neck vessels, sometimes slightly everted with short, medium and high neck. Vessels usually have flat bases (**Tab. I, 3**). Only one raised ring base was found until now. The handles mostly represent big knobs, perforated horizontally or vertically (**Tab. I, 5-6**).

The storage vessel found in 2016 represents one of the biggest vessels found here (**Fig. 6**), but the presence of the thick walls of pottery, obtained during the three seasons, suggests that the storage vessels were commonly used at the Early Neolithic site in Pogradec. Few shallow baking pans were also found (**Tab. II, 4**).

Barbotine is the most common surface treatment of vessels (**Tab. III, 1-11**). About fifth of the wares found here have a barbotine-treated surface. This usually occurs on all types of vessels, but most frequently on the medium and large coarse wares. Vessels with barbotine decoration were abundantly used since the establishment of the settlement until its abandonment. Among the vessels with impresso-decoration, we have found only vessels with the fingernail or finger-pinching techniques (**Tab.**



Fig. 6



Fig. 7

III, 13). The impressed motives are dense and organized in vertical rows. Frequently, the impressed treatment on the upper rim of the vessels was made by an instrument. This technique was used as a decoration only for some vessel types. The plastic decoration was made with horizontal linear lines impressed with small cavities. Some wares with plastic round or oval shape have also been found (Tab. III, 12, 14), as well as the grooved decoration (Tab. III, 16). The incised decoration consists of deep parallel lines covering the whole exterior of vessel surface. Only two painted sherds were found during the three excavations seasons. They are part of one vessel which was painted with black dark lines (Tab. III, 15). The interior of some wares was coated with a whitish thin layer. Laboratory analysis of other vessels coated with a similar white layer as those found in Pogradec have shown the presence of fatty residue (Stojanovski et al. 2020, 1-27; Naumov et al. 2021, 373-374), but the wares from Pogradec are not analyzed yet.

Among the ceramic finds were also two figurines, the chimney of a cult house (Fig. 7) and one altar (Tab. III, 17). Other finds consist of animal bone remains, lithic and stone tools.

PRELIMINARY CONCLUSIONS OF THE THREE SEASONS OF EXCAVATION

Regarding the preliminary study of the material culture from the three archaeological campaigns, we come to conclusion that the pottery has the same characteristics from the top to the end of the cultural deposit: in its morphology, typology and decoration. The study of stratigraphy and pottery and also the architectural elements, suggest that the three building remains on different levels of stratigraphy were occupied during the Early Neolithic. Although very few finds were discovered in Building 1, the carbonized seeds found above it, taken as samples for archaeobotanical analysis, will also be used for the dating of this building. They will contribute as evidence about site abandonment.

The excavation seasons in 2016 and 2022 provided that the thickness of cultural deposit in trenches 1 and 2 is 2 m deep and during the 2022 season three building levels were identified built on top of each other, suggesting the tell character of the site with a probable center facing northeast. The two earliest ones were built with red burned daub while the most recent one, the third building, with whitish unburned daub.

Based on the depth of the red daub structure in trench 1 – where the storage vessel was found – and the depth of the remains of Building 2 in trench 2 and 3, they might all be related to the same stratigraphic level. Also taking into consideration their proximity to each other, they could be all parts of the same building.

At the current level of research, the remains of Building 3 were found only in trench 2. This building was the earliest one built on virgin soil. No building remains were found at the same stratigraphic level in trench 1. However, it should be noted that the depth of 3 meters was reached only in a small part of it. Due to the emergence of underground water at a depth of 2 m and the *in situ* presence of the concave structure or Building 2, the excavation in trench 1 continued in a small area (approx. 0.50-0.50 m).

The discovery of utility structures within Building 2 include the possible presence of an oven, big storage vessel, bin, carbonized seeds, and grinding stones suggest an intensive economic activity in the domain of processing cereals. These archaeological evidences should be confirmed further by the archaeobotanical and bone remains analyses, radiocarbon dates and other studies, and also by continuing the archaeological excavations at the site.

The erosive effects of the sandy sediment were also evident through the very limited finds of archaeological material and the erosive traces on Building 1 (trenches 2 and 3). The shifting outline of Lake Ohrid or the floods of nearby rivers could have influenced the abandonment of the site or its displacement elsewhere.

THE SOCIAL AND CULTURAL NETWORK OF THE EARLY NEOLITHIC SITES AROUND LAKE OHRID

The large quantity of pottery obtained from the three fieldwork seasons, ritual objects and architectural construction remains provide important evidence of the social and cultural network of the community of Pogradec and the surrounding area during the Early Neolithic.

The unrestricted bowls and the necked jars, the most typical types of vessels used in Pogradec, occur as well with same characteristics in the pottery of Rajca I (Gjipali 1997, 23-56; Gjipali 1999, 29-77) and Rashtan (Gjipali 1995, 17-53), located only few kilometers in the north of Pogradec. The barbotine decoration styles in Pogradec are very similar to those in Rajca. The quantity of wares decorated with barbotine in each settlement constitutes 1/5-1/6 among all the other vessels. On both sites, altars and house models of the similar typology were found. In terms of decoration techniques, vessel types and some aspects of their technology, the pottery of Pogradec and also of Rajca is very similar to that of Burim (Prendi, Andrea 1981, 15-49; Bunguri 2010, 31-69) in the northeast of Albania and with that of Barç (Lera 1993, 5-31) in Korça basin. The similarities are shown in the use of the large number of decorated wares with barbotine and impresso-decoration, the very limited number of painted wares, the carinated forms of wares and the red and dark burnished pottery. The pottery of Pogradec does not have big similarities with that at Vashtëmi and Podgorie in Korça basin (Andoni 2017, 20-28). The Early Neolithic sites in Korça basin preferred the restricted bowls, while in Pogradec the unrestricted bowls and elongated neck jars were very frequent. The decoration technique of wares such as the plastic applications, barbotine, finger-pinched and incised decoration were the main forms for decorating the pottery at the Early Neolithic site in Pogradec, while these decoration techniques were used less in Podgori and Vashtëmi. The painted decoration was the main preference for the vessels in the Korça basin.

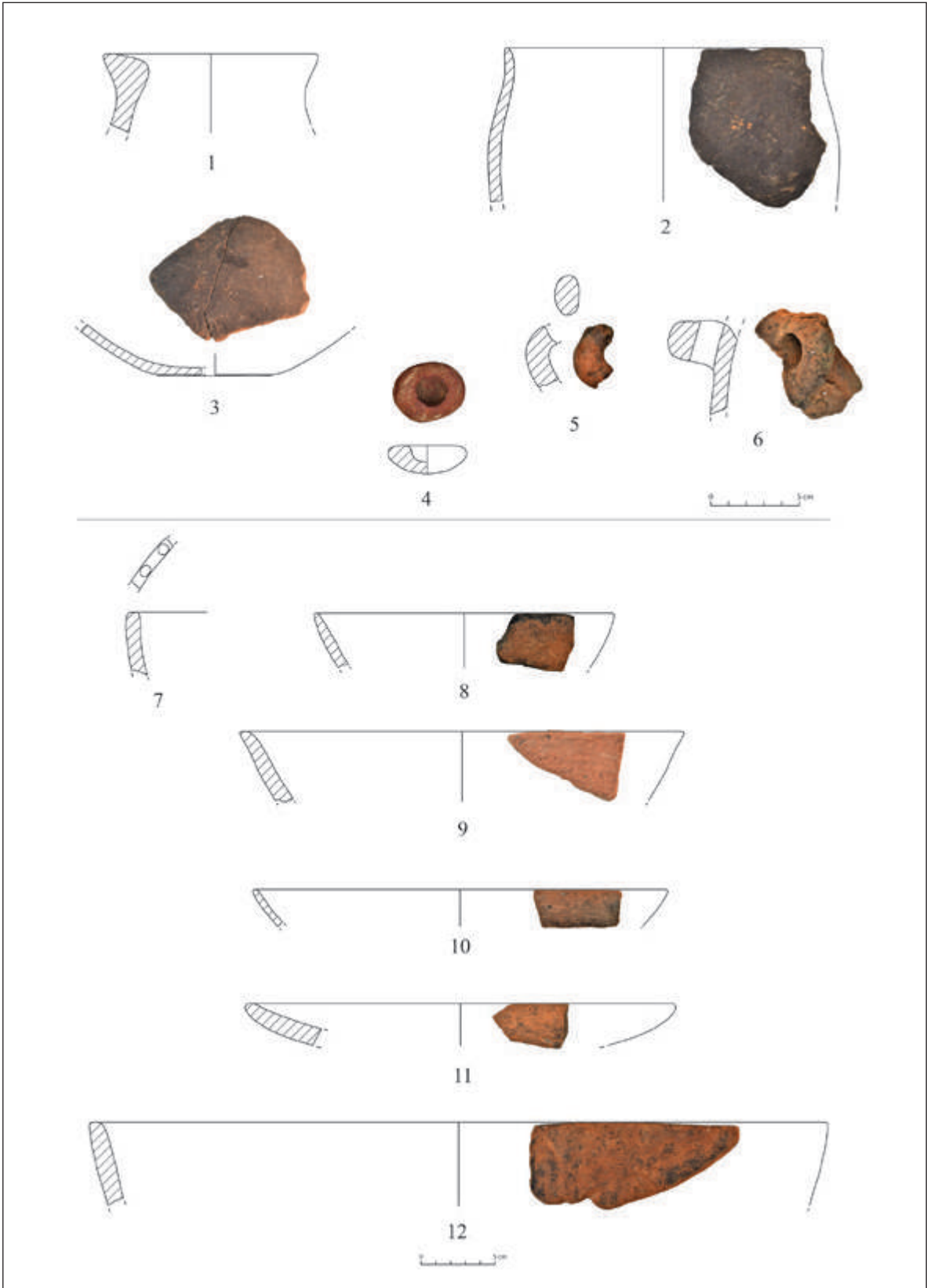
The pottery of the Early Neolithic settlements in Pogradec, Rajca, Rashtan and Burim look similar to those of settlements of the same period on the eastern side of Lake Ohrid.

The pottery assemblages from Zlastrana (Kuzman 2016, 26–28, Tab. I–III) and Dolno Trnovo (Naumov 2016) are similar to those found in the western part, but they vary in terms of applied decoration techniques: at Zlastrana the impresso--technique was widely used for decorating the wares whereas at Dolno Trnovo, beside the abundant presence of barbotine wares, the white-on-red painted wares have also been found. The white-painted decoration wares are still unrevealed in Pogradec⁵, but one white-painted vessel has been found in Rajca, as well as potsherds painted with dark color on red (Gjipali 1997, 35, Tab. VIII, 1-4).

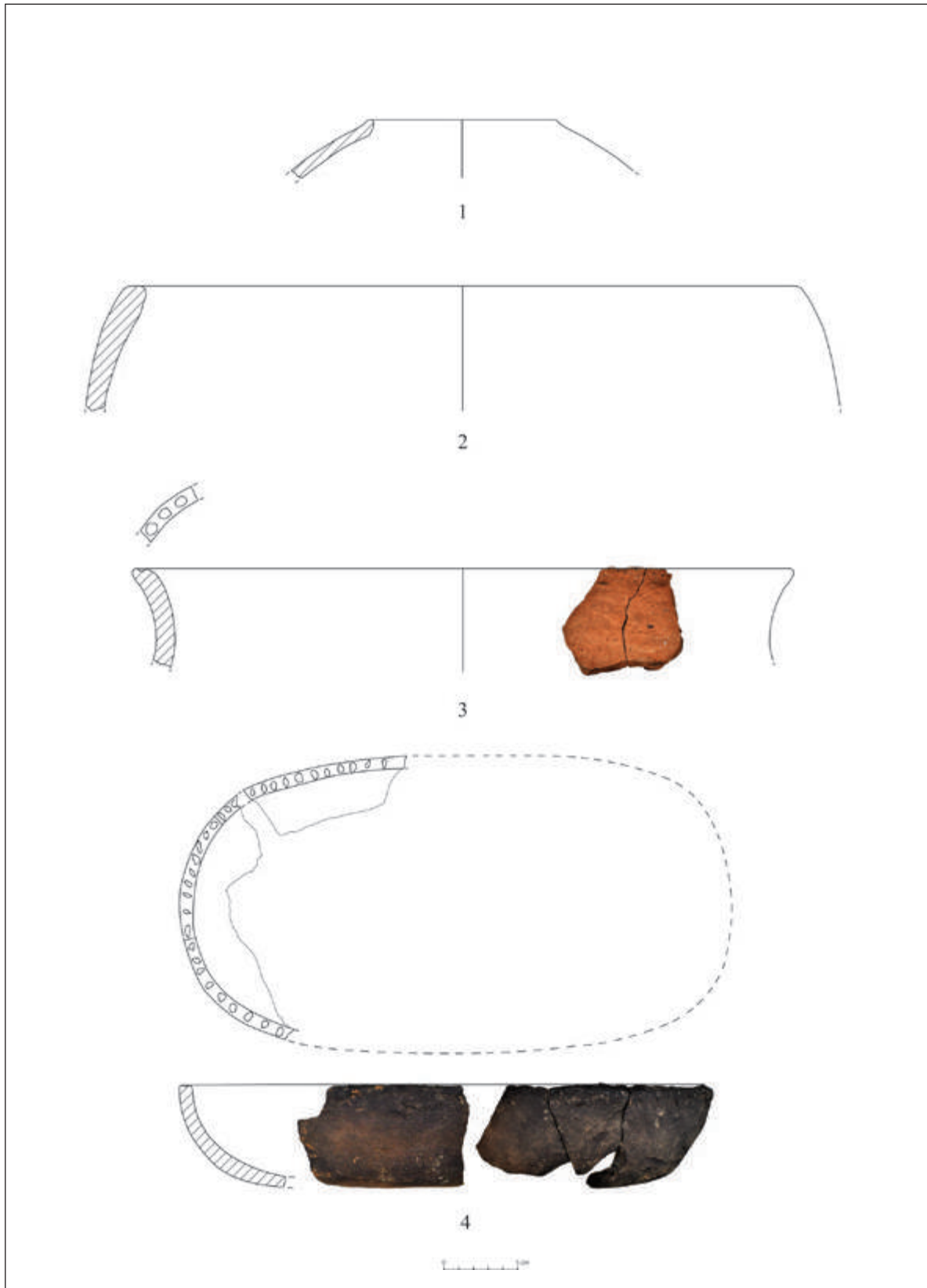
According to the preliminary study so far, we come to the conclusion that the Early Neolithic site in Pogradec has many similar characteristics with the Early Pelagonian Neolithic during its developed stage. Architectural features and the ritual objects such as figurines, altars and the house models provide an intensive network between these regions. The similar use of ritual practices through the evidence of ritual artifacts and the symbolic phenomenon of constructing buildings on top of each other and probably the intentional burning of dwellings after their abandonment (Naumov 2013, 78-81; Naumov et al. 2018, 35-56; Naumov et al. 2021, 376-378; Naumov 2022; 87-89) are the most significant evidences of close and continuous interactions between the communities of these regions. In terms of social practices, choices of pottery production and architectonic features for construction, the Early Neolithic community in Pogradec established a more dynamic communication with Early Neolithic communities in Pelagonia than those in Korça basin – according to the data we have so far from the Early Neolithic settlements in Korça basin.

The forthcoming archaeological researches in Pogradec will further enrich the data gained so far about the internal organization of the site and the productive activities of its community. Once this data will be available, we will present them in another occasion.

⁵ Only two potsherds painted with black dark lines that look like parts of the same vessel have been found so far (see above).



Tab. I



Tab. II



Tab. III

ILLUSTRATIONS

Fig. 1. Map of the Early Neolithic settlements in Albania.

Fig. 2. Trench 1. The remains of the building 2.

Fig. 3. Trench 2. The remains of the building 1 and building 2.

Fig. 4. Trench 3. The remains of the building 1.

Fig. 5. Trench 2 and 3. The remains of the building 1.

Fig. 6. Trench 1. The storage vessel.

Fig. 7. The chimney of a house model.

Tab. I. Unrestricted small and big bowls and neck jars.

Tab. II. Storage and cooking vessels.

Tab. III. Decoration vessels techniques mentioned in the text.

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WHAT IS HIDDEN IN THE DUNG? A CASE STUDY OF AN ARCHAEOBOTANICAL SAMPLE FROM BUILDING 2 AT THE NEOLITHIC SITE OF VRBJANSKA ČUKA

ШТО СЕ КРИЕ ВО ИЗМЕТОТ? СТУДИЈА НА СЛУЧАЈОТ НА АРХЕОБОТАНИЧКИ ПРИМЕРОК ОД ГРАДБА 2 ВО НЕОЛИТСКИОТ ЛОКАЛИТЕТ ВРБЈАНСКА ЧУКА

ABSTRACT

The processing of archaeobotanical samples can bring to light many different types of finds apart from plant remains. Such a find can be fragmented remains of animal dung or even entirely preserved pellets originating from diverse animal species. Several studies were conducted with the goal to investigate the methods suitable for the study of such remains as well as their relationship to the plant remains in the same samples. Through their analysis it is possible to tackle the topic of the nutrition and foddering of domestic animals in the past, which is an essential part in understanding agricultural systems. The sample number 50, which was collected from Early Neolithic levels at the site Vrbjanska Čuka, contained very large quantities of sheep or goat pellets among other archaeobotanical material. These remains helped us bring up for discussion topics like the use of dung as fire fuel, animal nutrition and the use of agricultural by-products. The further investigation and more advanced analysis could bring more data and let us delve into these topics with more depth.

Keywords: *Dung, Neolithic, Prehistoric agriculture, Archaeobotany, Pelagonia*

АПСТРАКТ

Обработката на археоботанички примероци може да изнесе на виделина многу различни видови наоди, освен растителни остатоци. Такво откритие може да бидат фрагментирани остатоци од животински измет или дури и целосно зачувани пелети кои потекнуваат од различни животински видови. Беа спроведени неколку студии со цел да се истражат методите погодни за проучување на таквите остатоци, како и нивната врска со растителните остатоци во истите примероци. Преку нивната анализа можно е да се допре темата за исхрана и сточна храна на домашните животни во минатото, што е суштински дел во разбирањето на земјоделските системи. Примерокот број 50, кој беше собран од ранонеолитските нивоа на локалитетот Врбјанска Чука, содржеше многу големи количества пелети од овци или кози покрај другиот археоботанички материјал. Овие остатоци ни помогнаа да поставиме теми за дискусија како што се употребата на измет како огнено гориво, исхраната на животните и употребата на земјоделски нуспроизводи. Понатамошното проучување и понапредната анализа би можеле да донесат повеќе податоци и да ни дозволат да ги истражуваме овие теми со поголема длабочина.

Клучни зборови: *Измет, неолит, прееисториско земјоделство, археоботаника, Пелагонија*

INTRODUCTION

The remains of dung are commonly preserved in archaeological context even though they are not always retained and recognized as such, particularly when no sediment flotation strategy is implemented. Research of these remains can bring a lot of valuable data concerning many topics. Obviously, the diet and health of animals which produced the dung can be investigated through the study of coprolites (Akeret et al. 1999; Kenward et al. 2013; Kühn et al. 2013; Jakobitsch et al. 2023) and valuable information on the environmental conditions in which the animals lived can also be obtained with research of plant remains found in dung (Marinova et al. 2013). Additionally, it is important to note that various past human activities incorporated the use of dung, such as construction of buildings and architectural objects, fertilization of soil or making and maintaining fire, as observed in ethnographic work (e.g., Anderson and Ertug-Yaras 1998; Braadbaart et al. 2020; Miller 1984; Moreno-García and Pimenta 2011; Rhode et al 2003).

Dung is most often found in waterlogged deposits (Jakobitsch et al. 2023; Kühn et al. 2013) or in extremely dry contexts (Marinova et al. 2013). It is only rarely found in dry sites (Linseele et al. 2013) since it needs to be in a charred state, but it should not have turned into ash. Mineralized coprolites are also sometimes encountered (Linseele et al. 2013). The use of dung in dry sites can actually be traced with the study of plant remains, since it is one of the most important taphonomic pathways of botanical material found at archaeological sites (e.g., Charles 1998). This is not always straightforward and experimental work has been crucial to understand how seeds and other plant parts can survive in the animal dung after passing through the digestive tract (e.g., Dunseth and Fuks 2019; Hastrof

and Wright 1998; Miller 1984; Miller and Smart 1984). It was concluded that a very large number of identifiable seeds can be found in the fresh dung. Since dung remains are most commonly encountered in the archaeobotanical samples, mostly specialists in this field focused on them and tackled topics such as taphonomy of plant remains at archaeological sites (Charles 1996; Miller and Smart 1984; Valamoti 2013; Valamoti and Charles 2005; Wallace and Charles 2013) and plant-based animal diet in the past (Fuks and Dunseth 2020; Jakobitsch et al. 2023).

This paper will synthesize some of the most prominent research concerning dung in archaeology and bring forward the most important conclusions in several paragraphs. Further, it will incorporate one case study which focuses on a single sample very rich in dung remains from an Early Neolithic site in North Macedonia named Vrbjanska Čuka. The context, contents and possible conclusions based on the study of this sample in consideration with published research concerning use of dung will be presented. Since the material in focus here originates from a burned context and was preserved by carbonization, the whole paper will have special focus on taphonomy of charred archaeobotanical material and consider practices of using dung as fuel in more depth than other activities. Another goal of this paper is to assess the taphonomic role of dung use as a source of seeds in the archaeobotanical samples from Neolithic sites in the region under study.

THE USE OF DUNG: ETHNOGRAPHIC INSIGHTS

The collection and use of dung was most probably a frequently occurring activity among the hunter-gatherer societies, at least since the use of fire, and dung remains are therefore encountered at Palaeolithic sites (Braadbaart et al. 2020; Rhode et al. 2003). Later in the Neolithic and even younger periods, when the domestication of animals occurred, it undoubtedly continued to be a common practice until our days (Charles 1998). Ethnographic studies helped understand the value and use of dung among modern societies with a non-industrial economy. The collection of dung could have been performed in various ways, differing between the dung of wild or domestic animals. Ethnographic studies show that in non-migratory societies where domestic animals are held in villages the dung is normally swept from the floors of enclosures where animals are kept and stored in a pile somewhere nearby or it could have been collected as soon as the animal dropped it and used fresh for certain activities (Moreno-García and Pimenta 2011). Nomadic pastoralists also gather animal dung, since they often inhabit treeless landscapes (Rhode et al. 1992)

The ethnographic observations demonstrated that in many indigenous communities dung is valuable as building material, fertilizer and fire fuel (Moreno-García and Pimenta 2011; Shahack-Gross 2011). Fresh dung can be applied on sub-constructions in order to build ovens, threshing surfaces, beehives, enclosures for keeping domestic animals and so on, and it is sometimes used to plaster walls and floors of domestic spaces. Oftentimes, dung can be mixed with other available resources, such as ashes, clay, water and so on, and then this mixture is smeared on construction surfaces (Moreno-García and Pimenta 2011; Shahack-Gross 2011). As Shahack-Gross (2011) wrote in her overview of dung research in archaeology, various modern groups of people who use dung as building material also practice

burning it inside houses and enclosures for animal keeping in order to repel insects and other vermin, such as snakes and scorpions.

Dung has been and still is an important source of manure for agricultural fields. It can be applied to fields, orchards or gardens in several ways. Sometimes it is collected and left to mature before spreading it on the ground, but animals could have been left to graze in the fields after the harvest and spread the dung themselves (Moreno-García and Pimenta 2011). It can be burned before use and produced into an inorganic fertilizer, but it can be used in its organic form without burning as well (Shahack-Gross 2011). Dung from different animals is also handled differently. As Moreno-García and Pimenta (2011) noted, among the agro-pastoralist communities in northern Morocco dung from cattle and goats is mixed in order to produce a fertilizer, since goat dung is too potent and could ruin the crop plants.

Dung is a highly valued source of fire fuel even in the regions where wood is readily available (Moreno-García and Pimenta 2011; Spengler 2019). Dung burns completely, steadily with a low flame and it does not release a lot of carbon, in comparison to wood (Sillar 2000). It is an excellent fuel source due to its high lignin content. Experimental burning of fresh cattle and sheep dung in open-air conditions reached temperatures as high as 630°C, maintaining temperatures above 400°C for 2-3 hours after ignition. Closed cooking installations may even yield higher temperatures (Matthews 2010). Most commonly domestic animals dung is used for this purpose as it is easily accessible. The dung collected for the purpose of fire making is normally dried and subsequently stored, but can also be used right after collection (Reddy 1999; Shahack-Gross 2011). Dung from bigger animals like cows, horses, donkeys and pigs is normally transformed into cakes and that from sheep and goats is oftentimes just collected, stored and later used as pellets (Shahack-Gross 2011). The process of making dung cakes may include the incorporation of additives such as cereal processing by-products including chaff and straw, versatile plant remains or dung from other animals (Reddy 1999).

Various researchers noticed that in certain societies specific activities which require fire, such as beehive smoking or firing of ceramic, always rely on dung as fuel even though these people use other types of fuel for making fires for other purposes (Moreno-García and Pimenta 2011; Sillar 2000). Very commonly dung is used for making fires in cooking installations (Anderson 1996; Hastrof and Wright 1998; Portillo et al. 2017). Certain properties of dung burning are favored over other types of fuel for these activities, and certain communities produce specific types of dung cakes for different purposes (Charles 1998). For example, Anderson (1996) states that raw dung and lightweight dung cakes produced in summer serve as kindling for starting fires, while the dense, compact varieties, which are more challenging to ignite, provide sustained, slower-burning heat. Also, in certain cases, stored dung was several years old, with some cakes dating back up to fifteen years (Anderson 1996). All the aforementioned ethnographic observations concerning dung collection and subsequent management highlight the intricate taphonomic processes involved. They demonstrate that a single dung burning event can involve a complex mixture of dung from various seasons, animals, husbandry practices, and even different years.

THE ANALYSIS OF ARCHAEOLOGICAL DUNG AND IMPLICATIONS FOR THE TAPHONOMY OF ARCHAEOBOTANICAL MATERIAL

The consideration of the use of dung as fuel being a way of introducing the plant remains to archaeological sites spans over 40 years. Contemporary research has shown that recognizable plant remains can endure the process of being consumed by animals and later burned as fuel (Dunseth and Fuks 2019; Hastrof and Wright 1998; Miller 1984; Miller and Smart 1984). Several experimental studies have been performed where dung, either in form of cakes or pellets, was burned and it was proven that the burning can result in the production of charred plant remains. Miller's (1984) early work in Iran highlighted dung-derived plant remains as significant contributors to archaeobotanical assemblages, based on ethnographic observations and corroborating archaeological evidence (Miller 1984; Miller and Smart 1984). This seminal work expanded the debate beyond the community of archaeobotanists, challenging interpretations of certain prehistoric archaeobotanical assemblages (e.g., Miller 1996). It proposed four conditions which point to the possibility of dung being used as fuel in the past, and the possibility that plant remains were brought to the site this way: (1) The site occurs in an environment where wood for fuel might have been less abundant; (2) Dung-producing animals were present in the area, or were kept at the site; (3) The assemblage of charred material contains burned pellets or dung fragments and/or seeds from plants that could have been eaten by dung-producing animals; and (4) The archaeological context of the samples suggests a primary hearth deposit or secondary dumping of hearth contents (Miller 1984; Miller and Smart 1984). Many researchers still agree on these premises even though the first one is oftentimes disregarded based on many ethnographic studies (Charles 1998; Moreno-García and Pimenta 2011; Shahack-Gross 2011; Spengler 2019). Obviously, other possible interpretations of a charred seed assemblage could be suggested even when these four conditions are met.

A study by Michael Charles (1998) proposed three novel archaeobotanical approaches to examine internal variations in plant remains on a sample-by-sample basis which help determine the dung-derived plant remains. In more detail Charles adds the need to analyze: (1) The ecology of non-crop species, providing insights into when and where these taxa were growing; (2) Investigating the behavior of non-crop seeds concerning crop processing to determine if they originate from the same stages of crop processing; and (3) Assessing the relative proportions of crop species and plant parts (grain and chaff) to understand their preparation and use for human or animal consumption.

More recent research on the taphonomy and identification of dung-derived archaeobotanical assemblages includes several experimental studies focusing on macroscopic plant parts in sheep/goat dung (Valamoti 2013; Valamoti and Charles 2005; Wallace and Charles 2013). Indicators of dung-derived plant remains, in general, include the relative absence or deformation of cereal grains, split or roughened glume bases, fragmentation, and the presence of plant species favored by livestock. In 2005 Valamoti and Charles conducted experiments to see if plant remains (einkorn grain/chaff and seeds of wild plants) originating from goat dung can be identified after charring by applying ethnobotanical and experimental methods. This research aimed to assess the extent of the deformation of plant remains after passing through animals' digestive tracts and allow archaeobotanists to determine whether the

plant remains they encounter might represent fodder rather than human food. To conduct their experiment, they fed cereal chaff and figs to sheep. Their findings indicated that while the grains were entirely digested, glume bases were occasionally recognizable but could not be classified to a species level. Conversely, smaller and harder seeds such as figs or *Chenopodium album* were preserved, with the possibility that their presence in archaeological assemblages could be attributed to dung burning as a possible source.

Wallace and Charles conducted a similar project in 2013. They fed a known diet to sheep and applied archaeobotanical methods to observe the patterns in the dung pellets. Their study focused on the impact of mastication and animals' digestion on the plant remains and some clear patterns were observed in the results. First, cereal material (einkorn and hulled barley grain/chaff) does not normally survive digestion and is rarely found in the analyzed dung, which is an observation not completely in accordance with what Valamoti proposed. A possible explanation for this disparity is that since sheep in this experiment were fed much less chaff, less chaff was preserved; or that this reflects a difference in mastication and digestion systems between goats and sheep. Second, tubers were never recovered in any samples. Lastly, a lot of seeds of various wild species survive digestion and are easy to identify, probably due to their small size and/or protective coating. The most dominant wild species was *Chenopodium album*, even though it was not consumed in such great quantities. Both this research focuses on sheep/goat dung, while the survivability of seeds and plant parts varies among herbivore species whose dung could have been used for fuel and therefore the need for more research is evident (Dunseth and Fuks 2021; Spengler 2019).

In the same year Valamoti (2013) published a paper specifically focused on how to distinguish digested from undigested cereal chaff remains in the archaeobotanical assemblages. The experiment was carried out on pellets from a goat which was fed a controlled diet and it shows that dung can contribute glume bases in archaeobotanical assemblages and that these glume bases may be distinguishable from those derived from wheat dehusking by-products used as fuel. Nevertheless, they seem to be present in quite small quantities after the pellets were charred. Based on their findings, the only consistent feature shared by both charred and uncharred digested einkorn glume bases found in dung is their rugged appearance. This characteristic, discernible at both a macroscopic level and in scanning electron micrographs, holds promise for potentially identifying digested glume bases versus undigested ones in archaeological specimens. More data involving different charring methods and the examination of other animal species is necessary to validate and expand these results.

The use of dung as a fuel source undoubtedly complicates the interpretation of archaeological findings related to crops and weeds. However, it also presents an opportunity to investigate livestock diets. Analyzing archaeobotanical samples from the Bronze Age site of Abu Salabikh using this approach, Charles (1998) demonstrated how burned dung-derived plant remains can provide insights into past fuel utilization, the scope, mobility, and seasonality of livestock herding, as well as the utilization of crop products and by-products for both animal and human consumption. More recently, methods focusing on different types of remains, such as micromorphology, palynology, parasites, phytoliths, and other proxies, are employed to study the components of dung remains themselves (Dunseth et al.

2019; Dunseth and Fuks 2021). In a recent paper, Dunseth and associates (2021) did a methodological comparison of three archaeobotanical proxies – seeds, pollen, and phytoliths, and geoarchaeological sedimentary analysis to compare dung pellets and the sediments in which they were found. This innovative approach offers a novel means of assessing the contribution of plant remains derived from dung in archaeobotanical assemblages. Further, this study emphasizes the potential of multi-proxy archaeobotanical investigations focused on individual dung pellets. The number of preserved seeds in dung pellets was generally low but small or hard-coated seeds did survive. No domestic grain or chaff was recovered inside them. Charred pellets do not retain pollen, whereas uncharred ones do and can provide information about the seasonality. Phytoliths alone are not as effective at identifying taxa, but they contribute to a more comprehensive understanding of animal feeding habits by identifying leaf and stem remains, including some from domestic cereals that were overlooked in seed and pollen analyses. In terms of herding practices, the data was quite informative, revealing a pattern of spring-time free-grazing on wild vegetation, supplemented with chaff and/or hay from domestic cereals for an early Islamic site in Israel (Dunseth et al. 2019; Dunseth and Fuks 2021).

THE CASE STUDY: DUNG REMAINS FROM VRBJANSKA ČUKA SAMPLE 50

The context

The finds from an archaeobotanical sample originating from Early Neolithic levels at a site in North Macedonia named Vrbjanska Čuka will be presented here. It is a tell site located in the Pelagonia Valley, where numerous tells are scattered pointing to continuous occupation in the Early Neolithic (Naumov 2016). Pelagonia is surrounded by many mountains and the most dominant river close to the sites is the Crna Reka which had many tributaries in the past. The site of Vrbjanska Čuka is located in the flatlands towards the north of the valley near the city of Prilep (**Fig. 1**). It is one of the biggest Early Neolithic tell sites in this region and covers an area of around 3.6 hectares dominating the flatlands with a few more tells surrounding it (Naumov et al. 2021a). The radiocarbon dates indicate that the Neolithic settlement was first established around 6000 BCE and that it was occupied for about 300 years (Naumov et al. 2021a).

The stratigraphic deposit at Vrbjanska Čuka reaches 3.5 m in height, with three building phases all falling into the end of the Early Neolithic in terms of Balkan chronology. The settlement was enclosed by a ditch and was densely inhabited. A remarkable preservation of architectural remains has made it possible to identify many buildings with massive daub walls and multiple floor levels, and also clay architectural features for storing and processing crops like storage bins, grinding areas, ovens, granaries and hearths. The building from which the sample under discussion originates is one of the largest buildings in the Early Neolithic in the whole region – Building 2 (**Fig. 2**). It belongs to the earliest occupational phase at the site and it contained architectural features like ovens, bins and grinding areas. The archaeobotanical sample was collected as charred organic matter trapped between superimposed bins in the northwest corner of the building where remains of intensive burning were detected. These

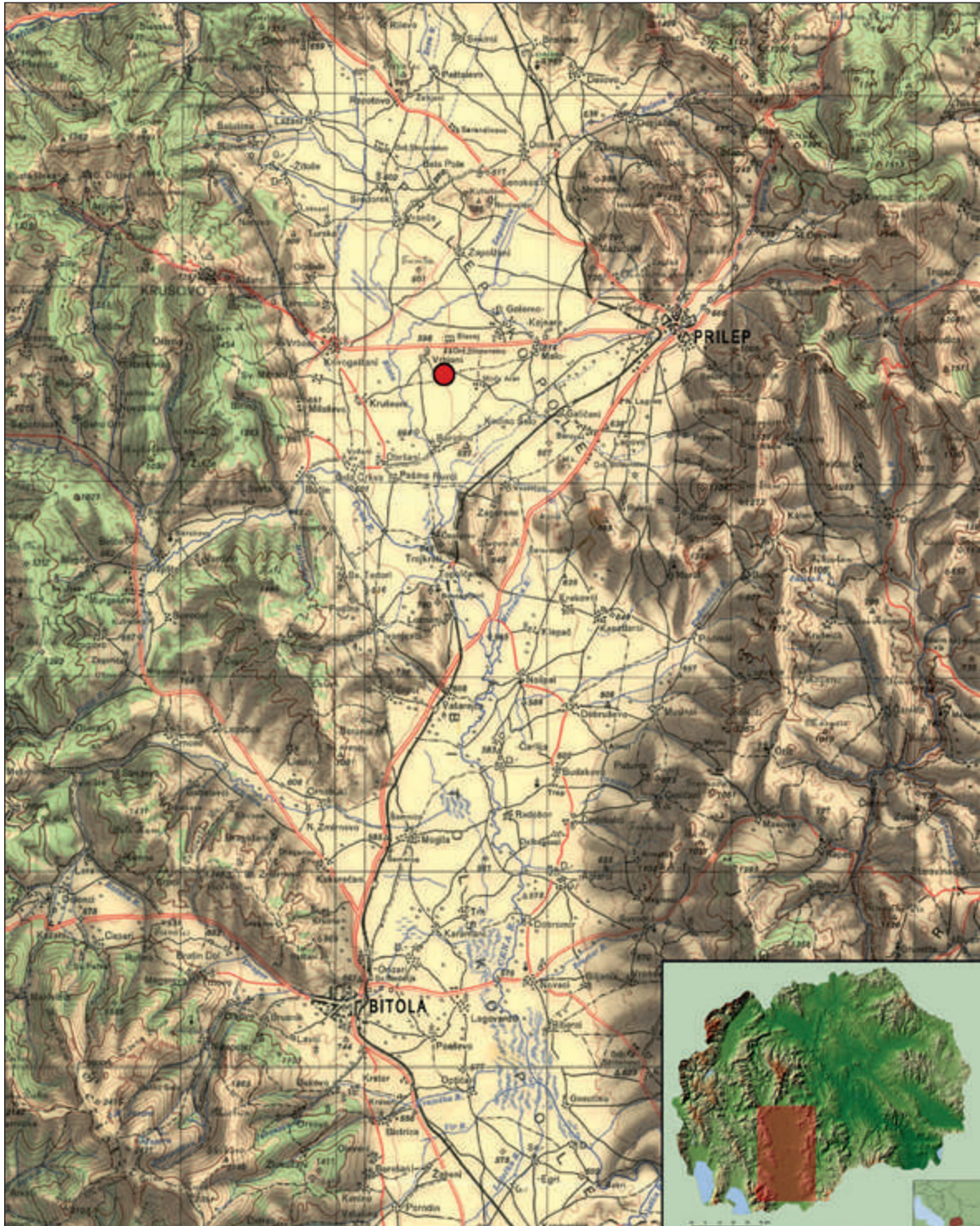


Fig. 1

charred remains were disposed in an area in front of a large oven, rectangular bin, two oval bins and a hearth, but also a dozen of grinding stones have been recorded nearby these clay installations (**Fig. 2**). The encountered situation indicates a space intended for preparation of food (Naumov et al. 2018).



Fig. 2

The Sample

The sample 50 was collected in the excavation campaign of 2021, and it consisted of 15 liters of soil. It was processed with the wash-over method (Kenward et al. 1980; Steiner et al. 2015) and light fraction was separated into 2 mm and 0.35 mm fractions, respectively (see Antolín et al. 2022). The 2 mm fraction was analyzed fully and the 0.35 was subsampled since it was too large for complete analysis. The results given in table 1 represent estimations based on multiplication of total number of finds in the subsample by the number with which the sample was divided. The heavy fraction was screened for the possible plant and dung remains and these were added to the total number of finds.

Dung remains	
Goat/sheep pellets	59
Dung fragments	120
Crops	
<i>Hordeum distichon/vulgare</i> grain	23
<i>Hordeum distichon/vulgare</i> chaff	64
<i>Triticum dicoccum</i> grain	2
<i>Triticum dicoccum</i> chaff charred	127
<i>Triticum dicoccum</i> chaff mineralised	63
<i>Triticum monococcum</i> grain	12
<i>Triticum monococcum</i> chaff	1197
<i>Triticum Timopheevii</i> chaff	85
<i>Triticum</i> sp. chaff	462
<i>Lens culinaris</i> seed	24
<i>Pisum sativum</i> seed	102
Indeterminata	2
Weedy species	
<i>Carex</i> sp.	63
Caryophyllaceae	1
<i>Chenopodium album</i>	10710
<i>Dipsacus</i> sp.	1
<i>Fragaria/Potentilla</i>	1
<i>Linaria arvensis</i>	2
<i>Lycopus europaeus</i>	84
<i>Melilotus</i> sp.	105
<i>Plantago lanceolata</i>	1
Poaceae	2793
<i>Polycnemum arvense</i>	252
<i>Polygonum convolvulus</i>	63
<i>Rorippa</i> sp.	1
<i>Rumex</i> sp.	84
<i>Scleranthus annuus</i>	1
<i>Setaria</i> sp.	714
<i>Stachys</i> sp.	1
<i>Thymelaea</i> sp.	1
<i>Verbena officinalis</i>	252
<i>Veronica</i> sp.	63
<i>Vicia</i> sp.	361
Perennial woody plants	
<i>Cornus mas</i>	7
<i>Corylus avellana</i>	1
<i>Prunus</i> sp.	82
<i>Rosa</i> sp.	2
<i>Rubus</i> sp.	864
<i>Sambucus</i> sp.	98

Table 1

Speaking of wild species, perennial woody plants also made quite a contribution. By far the most abundant were the seeds of brambles (*Rubus*) represented by several hundreds of remains, followed by prunes (*Prunus*) and elder (*Sambucus*) represented by almost a hundred remains. Plant remains of cornelian-cherry (*Cornus mas*), rose (*Rosa*) and hazel (*Corylus avellana*) were encountered only

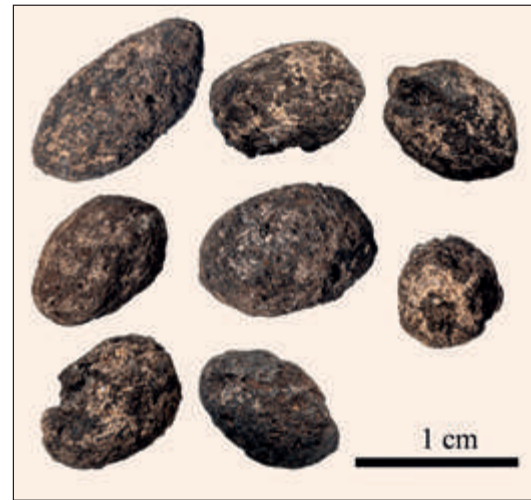


Fig. 3

The sample contained a large number (59) of complete goat/sheep pellets (Fig. 3) which made it stand out and induced a more thorough analysis of the sample and the topic under discussion here. Besides the fully preserved ones, 120 of fragmented pellets and smaller pieces of identifiable dung were also recovered. They were all preserved by charring. The surface of all the pellets was observed under a stereomicroscope in order to identify plant remains stuck in the matrix, and also the interior of the ones which were broken was observed. Unfortunately, no seeds or other plant remains were visible. Five pellets were broken apart but this did not release any visible plant remains.

Apart from the dung pellets, this sample contained plenty of organic remains of botanical origin. Almost 20,000 plant remains were recovered. The dominating category are the wild or weedy plants, and among them the most abundant species is fat-hen (*Chenopodium album*) with 10,710 remains. Other species with small and durable seeds present in large quantities are small-seeded grasses (in the genus *Poa*), wild millets (in the genus *Setaria*), vervain (*Verbena officinalis*), field-needleleaf (*Polycnemum arvense*), and small-seeded legumes (*Melilotus*). Additionally, large-seeded legumes in the genus *Vicia*, commonly called vetches, were recovered in a very large number (361 seeds). Seeds of multiple other species were present, but in smaller quantities (Table 1).



Fig. 4

in low numbers (**Table 1**). All of the mentioned species were easily recognizable and they retained their shape well even after charring, but not a single one of the vetches had the outer coating (testa) preserved (**Fig. 4**).

Remains of crop plants were present in a considerable amount. They were mostly represented by chaff remains and were preserved in a charred state commonly easy to identify to the species level. The chaff of einkorn (*Triticum monococcum*) dominates, but chaff of emmer (*Triticum dicoccum*), barley (*Hordeum distichon/vulgare*) and Timopheev's wheat (*Triticum timopheevii*) was also present (**Table 1**). A thing to note is that 63 out of 190 of emmer glume bases were preserved in a mineralized state, and this is not a common mode of preservation at this site as most of the remains come in a charred state. Apart from cereals, crop plants were also represented by two pulses, lentils (*Lens culinaris*) and peas (*Pisum sativum*).

DISCUSSION

When the sample 50 is considered with the conditions proposed by Miller (1984) it undeniably points to the use of dung as fuel among the Early Neolithic communities at Vrbjanska Čuka. Plenty of charcoal in the archaeobotanical samples generally points to availability of wood (Antolín et al. 2020; Antolín et al. 2021; Sabanov et al. 2022), but as many researchers agree, this does not necessarily mean the communities did not use dung for the same purpose (Moreno-García and Pimenta 2011; Spengler 2019). The presence of suitable dung-producing animals at the site is confirmed by archaeozoological studies. In the material from Vrbjanska Čuka more than 90% of animal remains belong to the domesticated species (namely sheep, goat, cattle and pig) (Naumov et al. 2021a) whose dung is suitable for the production of dung cakes or they produce pellets which could have been collected and used as fire temper. Further, both the recognizable dung and the seeds of plants which would have been eaten by livestock (like fat-hen, wild millets, small-seeded legumes etc.) were discovered in this sample and throughout the site (Antolín et al. 2020; Mazzucco et al. 2022; Naumov et al. 2021a; Sabanov et al. 2022). Finally, speaking of the context of the deposit, sample 50 most probably represents the primary burning location upon food preparation, but could (less likely) also represent secondary deposition as refuse after cleaning the hearth. Very high concentration of organic charred remains, the overall composition of the contents of the sample, and the position inside the house are the reasons to believe so. When the use of dung as fuel is confirmed, we can say that tasks like dung collection and preparation of dung cakes must have been a part of daily life of the people. This signifies that animals were closely integrated in the settlement and most probably stalled somewhere close by. Dung was possibly used as specialized fuel in activities like food preparation, but analysis of more samples from contexts connected to cooking are needed to enlighten this issue.

The wild species in the sample indicate presence of grasslands, wetlands and shrubbery, and many are very palatable and often eaten by animals like goats or sheep. Fat-hen is a plant with tasty seeds and leaves edible by humans and animals. Besides in this sample, it was encountered in large numbers in other samples from Vrbjanska Čuka, and at other sites in the region where archaeobotanical studies were carried out (Naumov et al. 2021a; Naumov et al. 2021b; Naumov et al. 2022; Mazzucco et al. 2022; Sabanov et al. 2022). It is mostly interpreted as a weed or intentionally gathered plant for human consumption. Nevertheless, it is plausible that some of these seeds were consumed by domestic animals and that at least a portion of them found their way into the assemblage through the

process of dung burning. Same goes for other weedy plants, like millets, grasses and small legumes (very commonly eaten by most domestic animals). The animals could have been fed the weedy plants which were collected from the crop fields as fodder, but could have also been taken to pastures in the surroundings of the settlement. Letting the animals graze in the fields after harvest could be beneficial for the soil fertility.

When edible plants are encountered on archaeological sites they are most commonly considered to have been gathered as human food. Nevertheless, as was proven in the case of figs, small and hard seeds of some edible fruits might survive in the digestive tract of animals (Valamoti and Charles 2005) and their presence does not necessarily indicate human consumption. For example, very abundant seeds of plants in the genus *Rubus* (like blackberry or raspberry) have very hard structure and most probably could endure the process of digestion. Since goats are known to graze on such shrubs commonly (see for example Moinardeau et al. 2020) they could have very likely entered the assemblage through dung burning. The vetches showed up in unexpectedly large amounts for this site, and could also represent fodder remains. Throughout history, and also today, it was common to feed animals vetches and they readily consume them (Zohary and Hopf 2000: 116-120). However, at this point no studies were conducted on the morphological changes of legume seeds and pulses as they are digested by ruminants, so we are unable to discern if they could originate from dung.

Speaking of crop remains, since most glume bases and grains could easily be classified there are indications that they have not passed through the digestive tract of animals, as was proposed by previously mentioned studies (Valamoti 2013; Wallace and Charles 2013). The chaff could have been used as fire temper and the grains could have accidentally fallen into fire upon meal preparation. As was noted by ethnographic studies (Reddy 1999), production of dung cakes oftentimes included addition of cereal processing by-products which could surely result in plenty of well-preserved chaff being burned. Nevertheless, dung from other animals apart from sheep and goats could have been used (since cows and pigs are identified among archaeozoological material) but there is no study to show how the digestion of these animals would influence the remains. The large number of mineralized emmer glume bases is very uncharacteristic for this site and raises the need for more consideration. It has been proposed that mineralization is connected to the digestive tract of humans and animals, due to high content of phosphates and nitrates in the dung (Linseele et al. 2013). It is mentioned how such preservation can be encountered especially on sites in continental climatic zones, and some examples can be seen on sites in neighboring Bulgaria (Linseele et al. 2013; Marinova 2007). The presence of such a high number of mineralized emmer glume bases might indicate that they originate from dung and that emmer chaff (or whole spikelets) was used as fodder. Additionally, stone tool use-wear analysis and archaeobotanical insight into the presence of certain weed species clarified the harvesting methods at Vrbjanska Čuka and it was proposed the harvesting was done by cutting the crop plants low on the stem by a sickle (Mazzucco et al. 2022). This suggests that upon the harvesting of the crops long straw was gathered, which could have been used as fodder as well. Foddering indicates that domestic animals were held in enclosures, at least for some periods of the year. The use of dung as fuel (and potentially for fertilization and construction) and the collection of weeds and crop processing by-products for fodder, demonstrates a strong interrelation of different agricultural activities connected to herding and crop cultivation.

CONCLUSIONS

This case study shows that many conclusions can be drawn based on analysis of only one archaeobotanical sample. First, we can state with certainty that the goat/sheep pellets, and potentially dung cakes produced from dung of larger animals, were used as fire fuel in the Early Neolithic at Vrbjanska Čuka indicating close integration of animals in the settlement (i.e., sheep and goat must have been kept at the site, at least for a part of the year). Considering the implications concerning the management and diet of the domestic animals some points can also be raised. It is possible that chaff of cereals (namely emmer), wild plants and weeds collected in the fields of crops were given to the animals as fodder, but domestic animals could also be left to graze in the crop fields after harvest and in the surrounding pastures, shrubbery and wetland areas. Another important matter which the study of this sample brought up is related to the taphonomy of plant remains at the site. Considering that many experimental studies show how small and hard-coated seeds of wild plants have a very high chance of surviving the digestive tract of goats and sheep, and subsequent charring as the dung is used to light and maintain fire, the possibility that occurrence of certain plant species is due to dung burning is fairly high. Species like fat-hen, bramble, wild millets, vetches and so on, do not necessarily point to the human consumption or presence of such weeds in crop fields, and therefore, when these topics are discussed, special care must be taken.

Even though only a preliminary analysis of dung pellets was performed, their mere presence in the sample gives a lot of information. Important inferences regarding everyday practices like dung collection, fire tempering and animal management were tackled, and necessary issues for future interpretation of archaeobotanical remains were brought up. Nevertheless, we shall delve deeper into their study and do a more thorough microscopic observation with the production of thin sections, or by engaging with specialized laboratories for phytolith or parasite analysis. Since other samples at Vrbjanska Čuka and more sites in the Pelagonia valley also contained dung pellets, contextual analysis and inter-site comparisons will bring valuable information as well. Hence, we would like to use the concluding sentence of this paper to emphasize the importance of taking sediment samples for archaeobotanical analysis, not just because of the interest in plant management strategies, but because of all the evidence that is hidden in the sedimentary deposits that are excavated at archaeological sites.

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ILLUSTRATIONS

Fig. 1. Map of Pelagonia valley with red point indicating the position of Vrbjanska Čuka (figure taken from Naumov et al. 2021).

Fig. 2. The trench at Vrbjanska Čuka after excavation in 2019 with several Neolithic buildings and architectural features inside them (ovens, bins, grinding areas) outlined in colour. Building 2 is outlined in red (Figure taken from Naumov et al. 2021).

Fig. 3. Several well preserved goat or sheep pellets recovered from the archaeobotanical sample 50.

Fig. 4. Vetches originating from the archaeobotanical sample 50.

Table 1. The contents of the archaeobotanical sample 50. Numbers represent the total estimations of remains from all the fractions of the sample.

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THE ARCHAEOLOGICAL SITE OF VLAHO IN PELAGONIA AND THE RESEARCH RESULTS FROM THE FIRST HALF OF 2023

АРХЕОЛОШКИОТ ЛОКАЛИТЕТ ВЛАХО ВО ПЕЛАГОНИЈА И РЕЗУЛТАТИ ОД ИСТРАЖУВАЊАТА ВО ПРВАТА ПОЛОВИНА НА 2023 ГОДИНА

ABSTRACT

There were two fieldwork seasons at the archeological site of Vlaho in 2023 and this paper encompasses those performed in May and June, but also the ongoing radiocarbon, archaeobotanical and archeozoological analysis. The excavation was performed in the Trench 5 i.e. area continuously explored since 2021 and provided entirely new insight into the architecture of this Early Neolithic settlement. There are ten buildings and two ditches recorded in this season, as well as a number of structures and channels related to them. Besides excavations, fieldwork in first the half of 2023 also considered geophysical scanning of the unsurveyed parts of Vlaho, but also on two more Chalcolithic sites in its vicinity. Along with the fieldwork research, the documentation of finds was also performed, while the radiocarbon, archaeobotanical and archeozoological analysis were done afterwards i.e. after the

provision of samples from the excavation. They furthermore contribute to the early dating of Vlaho around 6400 calBC and emphasize the variety of domesticated plants and animals present in different stages of this Early Neolithic settlement.

Keywords: Pelagonia, Neolithic, excavation, geophysical survey, laboratory analyses, architecture

АПСТРАКТ

Во 2023 година имаше две археолошки кампањи на локалитетот Влахо и овој труд ги опфаќа оние извршени во мај и јуни, но и тековната радиојаглеродна, археоботаничка и археозоолошка анализа. Ископувањето беше изведено во Сонда 5, односно просторот континуирано истражуван од 2021 година и даде целосно нов увид во архитектурата на оваа ранонеолитска населба. При овие истражувања регистрирани се десет градби и два рова, како и голем број структури и канали поврзани со нив. Покрај ископувањата, теренската работа во првата половина на 2023 година вклучи и геофизичкото скенирање на неистражените делови на Влахо, но и на уште две халколитни локалитети во неговата близина. Паралелно со теренското истражување беше извршено и документирање на наодите, а потоа беше направена радиокарбонска, археоботаничка и археозоолошка анализа, односно после обезбедувањето примероци од ископувањето. Тие дополнително придонесуваат за раното датирање на Влахо околу 6400 г.п.н.е. и ја нагласуваат разновидноста на доместицираните растенија и животни присутни во различни фази на оваа ранонеолитска населба.

Клучни зборови: Пелагонија, неолит, ископувања, геофизички истражувања, лабораториски анализи, археоботаника

The multidisciplinary research of the Vlaho site has been initiated in 2020 and is continuously being carried out in order to obtain more thorough data on the Neolithic settlement located 1.4 km southeast of the village of Živojno in Pelagonia (**Fig. 1**). These studies consider excavation of several test and contextual trenches positioned in different parts of the site, as well as the geophysical, geoarchaeological, archaeobotanical, archeozoological and radiocarbon analyses (Наумов и др. 2021; Наумов и др. 2022; Naumov et al. 2023; Sabanov et al. 2023). The research results demonstrate that this settlement was active between 6400 and 6000 BC and was surrounded by ditches in several different events. Its inhabitants lived in buildings made of unfired, semi-fired and fired clay, they made pottery, figurines, house models, altars, stone tools, grinding stones, weights and sling shots, and herded and consumed cattle, sheep, goats and pigs, as well as wheat, barley, peas, lentils, etc.

In that direction, research was performed in the first half of 2023, given that in the second half of the year rescue excavations were carried out at the damaged parts of the site (Наумов и Насух 2023). Besides the excavations, geomagnetic scanning and radiocarbon analyzes were done, while the studies of the organic remains of plants and animals are ongoing. The excavations were performed within the

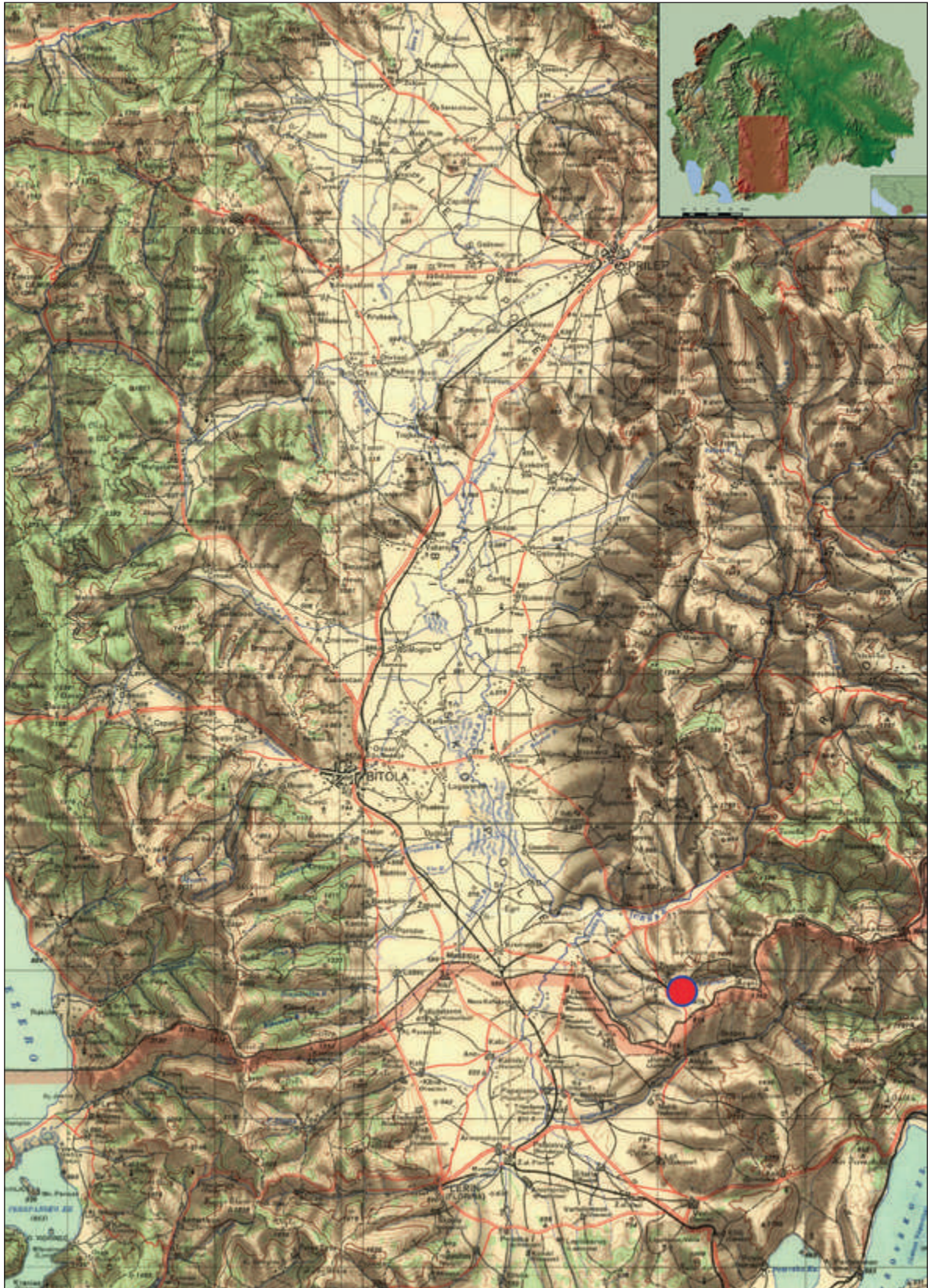


Fig. 1



Fig. 2

Trench 5 in May and June 2023, which was expanded to 15x10 meters in this campaign (**Fig. 2**). The trench consisted of six quadrants (I2-I4; J2-J4), placed according to the established square grid in the southern periphery of the site, which made it possible to investigate this part of the Neolithic settlement and its final stages. Such an approach in 2023 provided a thorough insight into the chronology, architecture and material culture of the settlement before it was abandoned.

The main direction of the field research at the Vlaho site in the first half of 2023 was to expand the trench in order to obtain more information about the recorded buildings and ditch in 2022, and thus a more detailed knowledge about the architecture, material culture, diet and the activities in the last stages of this Neolithic settlement (**Fig. 3**). In addition to the previous studies, a lot of new data was also obtained during this archaeological campaign, especially regarding the variety of Neolithic buildings and ditches. Their presence was recorded in several layers, so it points to the complexity and dynamism in the execution of these architectural units. Therefore, the review of this year's research will be more focused on the individual constructions and their features, especially in the domain of the uppermost layers. They will be presented separately in categories (buildings, structures and ditches), and then processed in a stratigraphic context, thus an attempt will be made to clarify their temporal and spatial relationship.

ARCHITECTURE

In the course of field research at the Vlaho site in 2023, the remains of 10 buildings, 3 structures, 2 pits and 2 ditches with multiple phases were documented (**Fig. 4a**). They further confirm the potency and variety of architectural elements used by the inhabitants of this Neolithic settlement, as well as certain building features unusual for the Macedonian Neolithic. In that direction, all architectural units and their relationship with construction technologies in the Balkans and the Near East will be elaborated separately.



Fig. 3

Building 17

The remains of this building were detected with the opening of the quadrants, i.e. immediately after the recent plowed layer. In fact, elements of this building were ascertained in 2022, when the remains of several post holes were observed on the remains of Building 12, which is why it was named Building 13. The evidenced remains of Building 17 cannot be related with certainty to be part of Building 13, so they are recorded as two separate buildings.

Building 17 is composed of several constituent elements documented in quadrant I-3 (**Fig. 4b**). It regards the posts, plaster from the floor and daub from the wall for which there is a possibility that they are from one building, considering that they are included in one unit. Namely, the seven post holes (SU 59) are dug into semi-fired daub from the leveled walls of an older building and form a corner of a structure that continues in the northern cross section of the archaeological trench. Within this space, remains of clay plaster were discovered, which is mostly used for the floors of Neolithic buildings



Fig. 4

(SU 76), while in the northern cross section, just above the floor, there is a layer of yellowish daub (SU 77) common for the buildings of the Vlaho site. This building, or perhaps a smaller structure, is cut in the eastern part by the ditch (SU 57), which will be discussed below. Thus, only a small part of Building 17 was recorded i.e. its southwestern corner, while its northern part remains to be further investigated with the future expansion of the trench.

Building 18

This object represents a relatively new feature in the Macedonian Neolithic, considering its shape and architectural characteristics. It is a shallowly dug oval elongated building of which several post holes, a floor and a fired wall have been recorded (**Fig. 4b**). The contours of Building 18 were observed right after the clearing of the recent plowed layer in quadrant I-4, which after excavation confirmed an elliptical shape in the northwest-southeast direction. The oval dug outline i.e. the walls (SU 69 and 79) expand in the northwestern part, so that the second half of this building enters the northern cross section and will be further investigated by expanding the trench. It can be noted that the dug area is very shallow (about 20 cm), which indicates that the walls were made of daub, but without supporting pillars and posts. In the northern part of the discovered building, the remains of a burned daub (SU 43 and 53) were found that had fallen into the building's outline, which indicates that they were part of it (**Fig. 5**). It is interesting to point out that these are the only remains of fired daub among buildings registered this year, which confirms that this practice was rare in Vlaho compared to that of Neolithic tells in the Pelagonian plain.

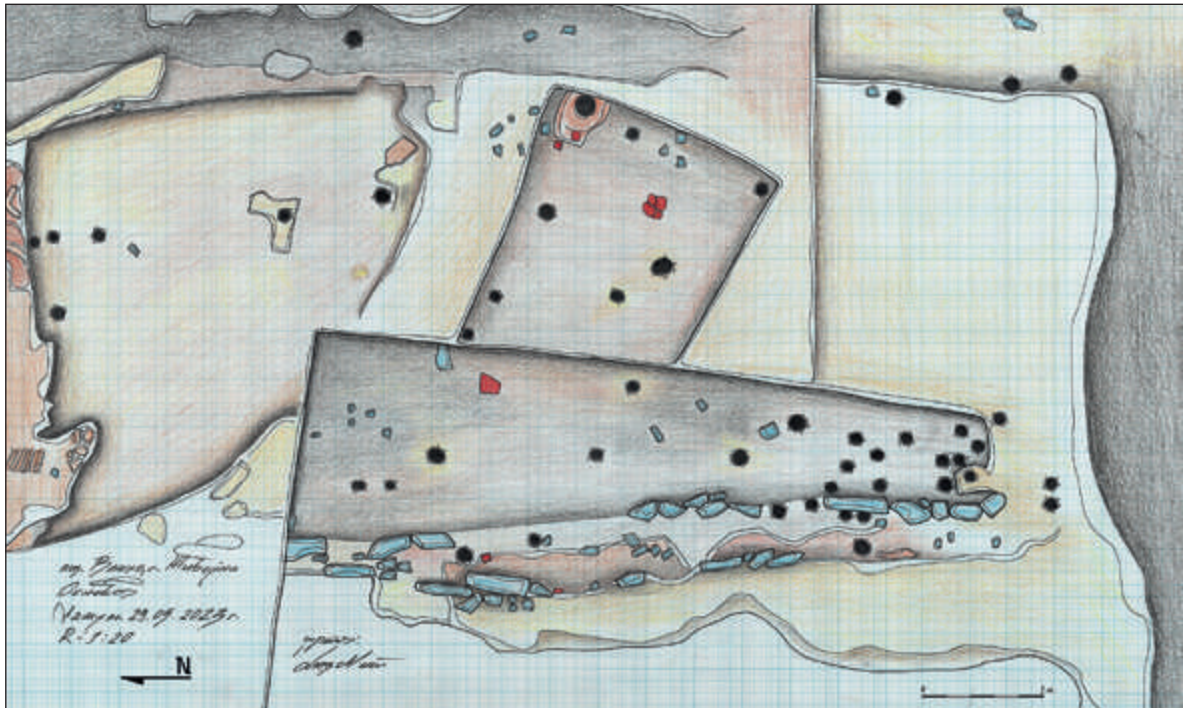


Fig. 5

Considering that no foundations of posts were found in line with the walls, nor their imprints on the plaster, it can be assumed that during the construction of this building, mudbrick was used as a technical novelty, not very common in the Macedonian Neolithic. Unfortunately, the fallen walls of the fired daub were too damaged to reveal the outlines of daub bricks. It can also be pointed out that elements of fire were not detected within this building, so the burning of its walls was controlled. Also, the remains of an unfired plaster wall (SU 61 and 64) were discovered within its space, so this burning was not uniform. All pieces of daub lay on a floor level made of whitish clay plaster (SU 63 and 124), which confirms that it is a building that may even belong to the pit houses type, common for the Early Neolithic Balkans (Китаноски и др. 1980; Bonga 2020; Greenfield et al. 2014).

A layer of loose soil (SU 55) was also registered between the floor and the pieces of daub, which represents a natural deposit of accumulated dust and decomposed organic material after the abandonment of this building. It is important to point out that in the investigated part of Building 18 there are six smaller posts (SU 70) and one pillar (SU 65), which clearly indicates that they probably enabled better statics of the roof. In any case, this object deserves more attention and its full research in the future, considering that it is connected with the earliest forms of Neolithic architecture in Europe ascertained in several localities south of Pelagonia (Kotsakis 2018; Karamitrou-Mentessidi et al. 2013).

Building 19

This building is positioned below Building 17 in quadrant I-3 whose posts are actually dug into the collapsed and leveled daub walls of Building 19 (Fig. 4b). It is placed on the same level as Building 12 studied in 2022, but the insight on the north cross section of the ditch SU 31 demonstrates that it is separated from it, i.e. it was founded after the digging of this ditch that cut Building 12. Probably during the leveling of Building 19, the fallen wall of Building 12 was used as a substruction, which is why it looks as if these buildings are part of one object. However, this practice of leveling the already fallen walls of older houses and using them as a base for the floor is a common occurrence in the Neolithic of the Balkans, and especially on the tells in Pelagonia, so this context of Vlaho is not surprising (Симоска и Санев 1975; Симоска и Кузман 1990; Naumov et al. 2021). Unfortunately, due to intensive plowing, the elements of Building 19, as well as Building 17, have been largely damaged so that only a few remains of the floor, posts and wall have been preserved.

The floor is composed of several pieces of thin whitish plaster (SU 74) layered on the fallen daub, into which six posts (SU 75) are dug. A layer with a deposit of soil created by the decomposition of organic remains and accumulated dust (SU 73) is right above them. As in most buildings in Vlaho also in the Building 19, the walls are made of semi fired yellowish daub (SU 48 and 58), but the thin layer of daub (SU 42, 44, 45 and 49) should be emphasized which is placed on top of the overlaid fragmented daub in the substruction. This substructure, as well as the leveling of the floor and later of the daub for the foundation of Building 17, were performed above the ditch SU 31, which confirms that Vlaho was inhabited even after its formation. In that sense, the stable and compact leveling of Building 19 was a good basis for the establishment of Building 17.

At this moment it is difficult to say what the function of these buildings was, considering their specific position onto ditch SU 31, but also because of their damage from the younger and smaller ditch SU 57. It is interesting that on the south side of ditch SU 31 there is also a foundation of a building on it (Building 25, which will be discussed below), so it can be considered that this was a common practice of Vlaho and the filled space of the ditches was still used for the construction of buildings.

Building 20

In the northeast corner of quadrant I-4, a small part of the remains of what tentatively represents Building 20 was discovered. Given that these remains were discovered in a smaller area, it is not possible to determine the size of this building, but there are some parts documented that indicate the existence of a building (**Fig. 5**). Building 20 consists of a floor made of whitish plaster (SU 82), in which a post is embedded (SU 68) and covered with a layer of sooth (SU 67). Next to this concentration of sooth, a small part of a wall (SU 66) was discovered, which may be a part of a structure within the framework of this building, and on which the wall of unfired daub (SU 60) fell. It represents one of the buildings that are positioned highest in the stratigraphy of the site, that is, one of the last phases of living in the Neolithic settlement, which is why it was largely damaged by plowing. With the eventual further expansion of the trench to the east and north, it would be possible to discover other parts of Building 20 and see how it relates to other buildings from these final stages of the settlement.

Building 21

South of Building 20 and Building 18, in the border area between quadrants I-4 and J-4, a rectangular dug space was discovered, which is also a novelty in the Macedonian Neolithic (**Fig. 4b**). It is not related to a pit or a canal because this architectural unit has the constituent elements of an object or structure, and therefore named as Building 21. As in the case of Building 18, it is a smaller object dug into a level used for walking (SU 139), which contains several floors, structure, posts, etc.

In the uppermost area, that actually indicates the contours of this building, there is a sooth level (SU 86), below which there is a floor composed of whitish plaster (SU 90). Remains of a smaller clay bin (SU 91) were also discovered on this floor, unfortunately was completely dismembered during later construction activities (**Fig. 5**). After documenting and removing this floor and structure, a layer with a deposit of organic remains (SU 105) was discovered, actually deposited on top of an older floor level (SU 99). A massive post (SU 100) was dug into it and probably held the roof structure. As one went deeper into this structure, a new layer with a deposit (SU 109) was discovered, under which an older floor was present (SU 108) with seven posts dug into it (SU 110), as well as an almost completely preserved but fragmented vessel discovered on its surface (SU 115).

The recorded contexts in Building 21 indicate that this building, although smaller in its dimensions, was intensively used and confirms its constant repairing, but also the presence of as many as three

levels of floors. As in the case of Building 18, this one also has no posts that held the base of the walls, nor were there any remnants of daub that would eventually fall inside the building after its collapse. However, the presence of posts in the floors themselves indicates that this building had some kind of roof and possibly walls that were not made of daub. The remains of a bin and an almost completely preserved vessel give the possibility that some domestic activities were carried out in it, which points to the function of this object as a workshop or smaller building.

Building 22

Below the SU 139 level, in which Building 21 was excavated, there are remains of Building 22, recorded primarily in quadrant J-4 (**Fig. 4b**). Because the goal in this phase of the research was to preserve Building 21 as an uncommon feature in the Macedonian prehistoric archaeology, only a part of Building 22 was discovered. Given that the space SU 139 was used for walking and which is partly composed of remains of semi fired daub, it can be considered that it was established from the fallen and leveled walls of Building 22. It is very likely that the semi fired daub SU 87 and 92 are part of the same walls because they overlap with the outline of a rectangular building. A layer of deposit (SU 135) formed by decomposed organic material from posts was discovered beneath. Some of them were found at the very southeast corner of Building 22, which indicates that they could be a part of the common building for the Pelagonian Neolithic i.e. with walls of daub plastered around wooden posts.

The posts are dug into a floor of compacted yellowish mortar (SU 101) which is different from the previously mentioned features of the tell architecture in Pelagonia. It is interesting that this floor is interrupted or cut and next to it there is a row of grinding stones discovered in 2022, which during this campaign was found to actually continue in two rows to the south and to the north (SU 33 and 123). The question is whether they are dug in or are part of Building 22 because they are placed parallel to the eastern wall of this building. It remains unclear whether they are there in some relation with trench SU 31 or SU 93, or whether they have an independent function.

It is interesting that next to this row of grinding stones and round pebbles in the southern part there is a concentration of posts (SU 126), as well as a layer of fired daub between them (SU 127), including soot and ash on the east (SU 149). This verifies the complexity of Building 22 and the possible interventions that could have been made in it. It is definitely necessary to remove Building 21 in the future in order to continue recording the remaining parts of Building 22, which would determine its relationship with the fascinating structure of a double row of stones.

Building 23

This object is positioned in the southwest corner of the archaeological trench and occupies almost the entire quadrant J-2 (**Fig. 4b**). As in the case of Building 22, Building 23 contains similar elements that are common for the tell settlements in the Pelagonian plain. The contours of the preserved floor

indicate a building with a rectangular base which continues beyond the western and southern cross sections of the trench, so that it has larger dimensions (**Fig. 6**). The floor (SU 88) is composed of a compact semi fired plaster, similar to that of Building 22. On the eastern and northern edges of the floor, nine dug posts/pillars (SU 121 and 131) were recorded on which the walls of semi fired daub were modeled, and whose remains were discovered in smaller numbers (SU 118). In several places of the floor, larger areas with soot were discovered, especially in the western half (SU 97), which indicates certain domestic activities or burning in this part of the building. This is also confirmed by the circular clay bin (SU 104) most likely intended for storing or grinding grain.

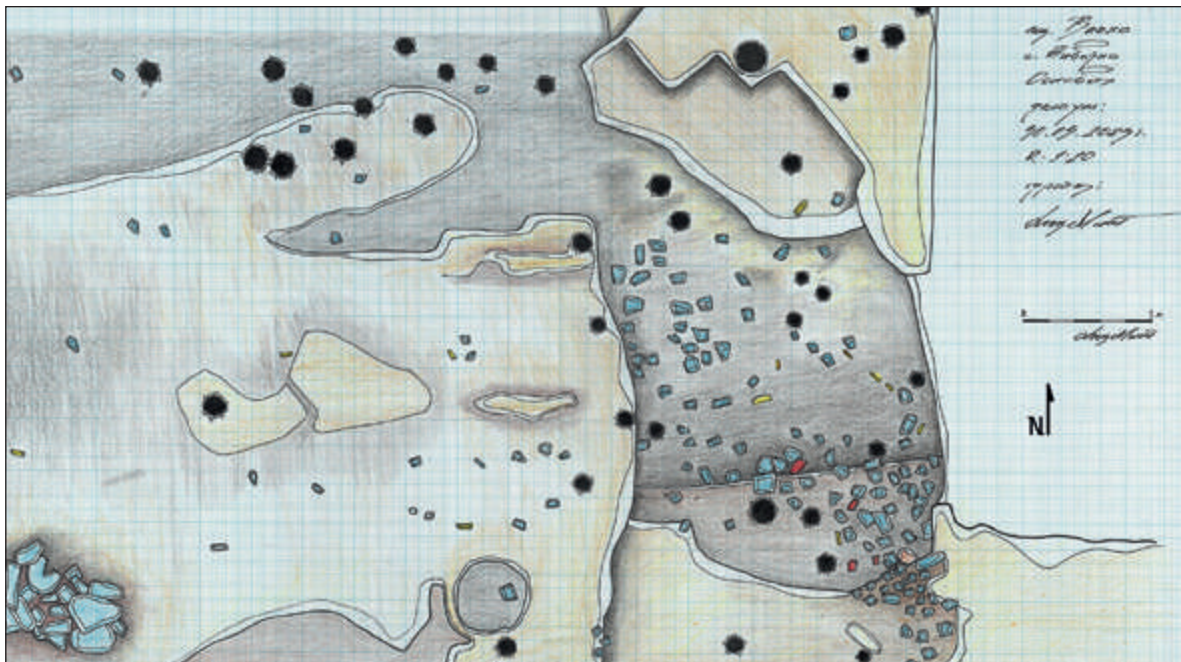


Fig. 6

In addition to that is the concentration of grinding stones and round stones in the southwest corner of the quadrant (SU 136), which point to the processing of resources and food preparation in this part of Building 23 (**Fig. 7**). It considers a larger amount of grinding stones of different types (standard and with perforation in the middle), as well as stones that, due to their shape, were probably intended to be modeled in grinding stones. However, these objects were not placed in this area at once in such a large number, but on the contrary, they were deposited on several occasions, which also confirms the restoration of the floor in several stages, present between some rows of stones. Such a concentration of several grinding stones in one place and in several architectural phases is present at the sites of Veluška Tumba and Vrbjanska Čuka, where almost identical contexts were discovered (Naumov 2022; Naumov et al 2018).

If the constituent elements of Building 23 are regarded, it can be proposed that this unit contains the usual features of Neolithic architecture in Pelagonia and beyond. In this way, this building departs from the previously described objects discovered at Vlaho (as in the case with Building 22) and further emphasizes the variety of architectural techniques applied in this Neolithic settlement. Regarding Building 23, the



Fig. 7

presence of a dug in rectangular space in its northern half was evidenced, that has a southwest-northeast direction (SU 106). This phenomenon was not investigated due to lack of time and remains to be excavated in the next archaeological season, which will determine whether it is part of a structure from the last Neolithic phases, a grave or simply a leveling of several materials used for the floor of Building 23.

Building 24

The group of non-standard objects, i.e. structures, includes one tentatively named Building 24 because its character and function cannot be determined with certainty. It is a unit that has been recorded between Building 23 and Building 25 and partly contains architectural elements, but also has atypical features (Fig. 4b). Its eastern wall was dug almost at the very border with the Ditch SU 93 and the rampart of Building 12 (SU 94), the western wall borders the floor of Building 23, the southern wall enters the rampart of Building 25 (SU 96), while the northern one has a massive pillar. This pillar to-

gether with most of the posts discovered in various places of the building (SU 120) indicate that they had a bearing character, probably of what would have been a roof. No remains of the fallen roof and walls are present, although a deposit of dark soil (SU 103) may be the result of decomposed organic remains associated with the posts and possible straw from the roof.

Apart from this context, several layers of deposited material were discovered in Building 24, such as compacted soil (SU 116) and sooth (SU 114), disposed on the yellowish plaster floor (SU 141). Several posts (SU 144) were also dug into the floor and along with those evidenced in the deep layer of sooth could be part of some supporting structure or a lighter roof. The presence of smaller and larger stones in its interior (SU 128 and 160) is particularly interesting (**Fig. 7**). They are placed in three levels diagonally across the building in a northwest-southeast direction, but their role remains unclear. In any case, Building 24 to a certain extent has a similar character and position to Building 21. The future comparison of these objects with similar ones in the Balkans and Near East, could provide some explanations for their possible function given the relatively small dimensions they have.

Building 25

As in the case of Building 19, the remains of Building 25 are positioned above the Ditch SU 93, i.e. SU 31. The building is established on its southern part i.e. in quadrant J-3 and continues in the area beyond the southern cross section (**Fig. 4b**), although it is cut by the digging of a channel (SU 102). Parts of semi fired clay (SU 95) were discovered from this building, which were probably flattened together with those from Building 22 during the leveling of a later object on top of it (from which the posts SU 122 were dug). In the western part, the Building 25 is cut by Building 24, which indicates its younger age and that was also erected after the construction of Ditch SU 93. In the test trench that aimed to make an insight into the stratigraphy of this ditch, it can be noticed that after the thick layer of daub from the wall of Building 25 (SU 95), there are several layers of sherds (SU 163) and what is most likely a sunken floor (SU 169) of this building which may have functioned as a pit dwelling. In the final stages of the settlement, the wall of Building 25 was leveled (for which there are also visible traces) and, as in the example of Building 19, it was joined with those of the adjacent buildings in order to create a foundation for the next phase of living, i.e. for a new construction.

Building 26

The last recorded object in this year's spring time research is Building 26, of which a small part of the southwest corner was discovered in quadrant I-2 (**Fig. 4b**). It also has the features of the houses common for the Neolithic tells in Pelagonia. It consists of dug channels for walls (SU 147 and 152) in which there are posts (SU 151 and 153). There is tightly compacted greenish clay and plaster (SU 158) onto the walls, and on top of them a layer with a large amount of sooth (SU 142), which indicates a major fire in and around Building 26. It is important to note that no remains of semi fired or fired daub associated with this building were registered, so it remains to be defined whether they were removed before the formation of the later structures. Since most of this structure is located behind the northern cross section of the trench, it remains to be explored in a future archaeological campaign.

The review of buildings found in spring of 2023 in Vlaho can be completed with this unit, which also indicate the richness and variety of architectural techniques applied in the last stages of the Neolithic settlement, while its stratigraphical disposition will be elaborated in the concluding part of this paper. The area between Building 23 and Building 26 should also be pointed out here in which no other buildings were registered, except for the remains of fragmented plaster (SU 129 and 138), sooth (SU 130 and 140) and posts discovered in 2022 and 2023 (SU 134). They definitely indicate the remains of architectural features, but which, at least at this stage of the research, cannot be connected with the outlines of any objects, nor with those already recorded. With the expansion of the trench, data may also be obtained for this part of the settlement, which also certainly abounds with many buildings, if the quantity of objects ascertained in this trench are considered, but also in the test trenches from 2021 and 2022. In regard to the architectural features, the ditches should be highlighted as they present a constructional action with a specific function within the settlement.

Ditch D

One of the characteristic features of the Vlaho site are the massive semicircular ditches that are spread throughout the entire settlement in a concentric sequence. As result of geophysical scanning, 13 such ditches were registered and recorded according to the Latin alphabet (Наумов и др. 2021). Therefore, the archaeological trench in Vlaho is opened in an area where one of these ditches can be recorded and explored, in this case named as Ditch D. Its position is in the central part of the trench, that is, within quadrants I-3 and J-3, and has a width of 2.25 m (**Fig. 4b**). It surprises with its complexity, which further confirms the settlement dynamics of the Neolithic population that lived in this place.

Ditch D is not the result of only one collective activity, because digging such a trench requires the involvement of a large part of the community, but several interventions were recorded during the period of its usage or filling. Namely, during the time when this unit was used as a ditch, there were four modifications on it, while after that, buildings from the last Neolithic phases in this settlement were established above it (**Fig. 8**). Building 19 and Building 25 were placed on top of this ditch, with Building 19 being cut after its use by a smaller ditch (SU 57), which, although narrower than Ditch D,



Fig. 8

follows its direction. After the stratigraphic units related with the digging and leveling of Buildings 19 and 25, several more interventions in the ditch follow. As this ditch was surveyed in 2022 and 2023, its sections are numbered as SU 31 (northern half) and SU 93 (southern half). Cross sections were made in both of them in order to record the stratigraphy above and inside, but also to define the width of this ditch, which in the central part is 2.25 meters. Therefore, the test trench was also made in the southern part, where the contents present inside and above the ditch were provided.

Right below the remains of the daub from Building 25 (SU 95), there are buried pieces of semi fired daub (SU163) from the substruction for this building. Beneath them is the Ditch D (SU 93), in which a smaller pit (SU 57) was found on the eastern side. The younger phase of this ditch (SU 168), cuts the concentration of stones (SU 160), actually related to that of Building 24 (SU 128) and indicates an older substruction before this building was established. This phase of the ditch is dug into the remains of semi fired daub (SU 159), which may belong to some structure positioned under the Building 22. Right beneath these features there is another phase of the ditch (SU 167) in which there are no other features, except in the eastern part under the daub SU 159 where a concentration of sooth (SU 162) is evidenced. Most likely this unit is related with a hearth dug into compact soil (perhaps a deposit, walking level or sterile soil - SU 161). To the west of it there is a larger area of dark sooty soil (SU 166), which is disposed until a concentration of sandy soil with small pieces of fired daub (SU 165). SU 166 can also represent the fourth i.e. the first phase of the Ditch D as it remains unclear whether there are other layers below it due to the excavation of the test trench reaching this depth. It is planned to continue the excavation of this trench in the next archaeological campaign and to record whether the trench is deeper or if there are older architectural layers under these stratigraphic units.

Considering the phases of the Ditch D and the contexts above it, they are also visible in the northern cross section that was made with its excavation and the definition of the stratigraphy of Building 17 and Building 19. Namely, in this cross section, apart from the evident layering of the objects on it and the digging of the smaller ditch SU 57 between Building 17 and Building 18, the four phases of this massive ditch can be observed. They are clearly visible and stand out due to the various nuances of soil that was naturally deposited in it or was deliberately filled due to the use of the space above the Ditch D. This confirms the intensive use of this ditch, but also the suitability of this place for the later establishment of buildings in the final stages of the Neolithic settlement.

Other ditches and channels

Apart from the Ditch D, which belongs to the group of massive semicircular enclosures throughout the Neolithic settlement, Ditch SU 57 was also mentioned as it represents the last such intervention within the architectural space. Nevertheless, there are few other ditches, for which it is currently not possible to confirm whether they are smaller ditches, because they are next to the cross sections of the archaeological trench. The channel next to the eastern cross section and those around Building 22 should be asserted, consisting of several layers of sooth and ash (**Fig. 4b**). As for the one near the eastern cross section, it may be part of a smaller ditch into which sooth, ash and construction ma-

terials were continuously dumped (SU 81, 82, 83, 84 and 85) or it is a building with several stages of reconstruction and burning of the floor because this set of layers ends almost at the same level where the Building 21 ends. This cannot be defined at this moment as these layers occupy a small part of the current archaeological trench and are parallel to the eastern cross section, so in order to determine its character it is necessary to expand the area of research.

At the end of the southern and eastern walls of Building 22, there are two dugs, SU 102 i.e. SU 111 in the older phase of the southern part and SU 113 in the eastern part. It remains unclear whether these are the channels that defined the dimensions of Building 22 and functioned as a walking surface, or whether they are part of some kind of ditches that cannot be seen at this moment because they spread in the direction of the cross sections. It is interesting to note here that SU 113 is placed in the same line as the unit of layers SU 81 - 85, but there is a small part of compacted soil between them which was a space for movement around Building 21. Whether an older phase under this set of layers and SU 113 was part of a channel or ditch remains to be determined after the expansion of the trench.

In the context of the ditches, another one should be highlighted and recorded during the geophysical scanning and which was expected to be evidenced in the trench. It regards one of the double rectangular ditches that also cover the entire settlement and that changes its direction from east to west in the area belonging to the northern half of the trench. However, despite the detailed and careful excavation of all recorded layers, no elements from this ditch were discovered. Perhaps the geomagnetic signals point to an area north of the trench, which is why the ditch could not be detected, or perhaps it is much deeper than the layers excavated in 2023, belonging to the last stages of the Neolithic settlement. In any case, by expanding the trench and excavating the earlier layers of the settlement, the presence of these rectangular ditches and their stratigraphic relationship will be determined.

GEOPHYSICAL SCANNING

This year's research at the Vlaho site, also included geomagnetic prospection in the parts that were not previously scanned. Most of the Neolithic settlement has been scanned, so that only the northern peripheral part of the site remained to be completed, as the eastern part where the large semi-circular ditch was detected has already been completely destroyed by the digging of coal mining bulldozers (Наумов и Насух 2023). This endangered state of the site was an additional reason to completely scan the remaining preserved and unfortunately damaged parts. The scanning was also performed at two other potentially endangered prehistoric sites, Golako and Leščica, both at only 200-300 meters from Vlaho, and the results from their research will be included in another paper (**Fig. 9**).

As it was scheduled after the geomagnetic survey in 2022, Vlaho was to be scanned this year as well. Nevertheless, due to the damage and destruction of some areas of the site, unfortunately this could not be done in its eastern part, while the northern periphery was scanned in areas that were not damaged. The damage to the northern periphery of the site with several wide roads made by the bulldozers makes it impossible to fully scan and connect all areas of Vlaho. However, the scanning



Fig. 9

of the parts that were not damaged provided new data and contributed in the knowledge about the complex character of this site.

The geophysical scanning was performed in an area of 250x150 meters in the northern part of the site, which made it possible to perceive entities separate from those recorded during last year's scanning. Namely, several ditches were also detected in this area, but they are not connected to the unit of the dozen semi-circular and rectangular ditches in the Neolithic settlement (**Fig. 10**). The set of three deep but shorter ditches in the northwestern part are of particular interest. They do not surround any space and were dug next to each other as if to separate this northwestern part from the rest of the site. North of them there is an area where the burials were discovered, but the scanning did not display any signals, except for a few rectangular anomalies in the northwest-southeast direction, which may represent buried graves.

In front of this set of three ditches, there is a larger one and its function is also not clear. To the southeast of it, signals related to buildings were detected, one of which has a rectangular shape and particularly large dimensions. It should be noted here that a test trench was made near this part in 2021 where sherds of Bronze Age pottery were discovered (Наумов и др. 2021). Such fragments, along with those from the Neolithic, were discovered all over the surface in this part of the site, so the possibility for remains of a small Bronze Age settlement or another type of settlement or farm should not be disregarded. To the east of this unit, there are elements of the massive ditch, ascertained



Fig. 10

also in 2022 and undoubtedly continued towards the northern part of the site, with turning to the west in this area (Наумов и др. 2022). Unfortunately, these features related to the massive ditch and the remains of buildings are unclear due to the surface damage done by bulldozers. It remains in the future to excavate this area and with the application of multidisciplinary archeology to record the contents that are present there.

LABORATORY ANALYSES

In addition to fieldwork research at Vlaho, the laboratory analyzes of the organic remains in the detected stratigraphic units were also performed during 2023. They are a part of the multidisciplinary research applied in the study of this Neolithic settlement. Archaeobotanical, archaeozoological and radiocarbon analyzes provide knowledge on the exact chronology of the establishment and temporal occupation of the settlement, also on the diet and economy of its inhabitants, and the natural environment that surrounded it. The current knowledge from these analyzes largely complements the data obtained during the field excavations, but also provides completely new perspectives for this significant site. In that direction, this year's research additionally emphasized the special importance that Vlaho has in the process of Neolithization, but also in the domain of Macedonian archaeology.

Several radiocarbon analyzes have been made so far for Vlaho, which provided the main chronological framework of the Neolithic settlement. They indicate the site occupation in the period between 6400 and 6000 BC, which also makes it one of the earliest Neolithic sites in Europe (Naumov et al. 2023). However, in spite of these important data, even more precise dating of the site is necessary, which would provide modeling of the existing dates and chronological sequence for the Neolithic settlement. For this purpose, two animal bones from the earlier layers were selected this year, with the intention of comparing their chronological relationship with the samples that have been analyzed so far i.e. the cereal grains.

The samples that were selected for this year's dating belong to sheep and cattle i.e. pig, discovered in SU 14, in 2021 i.e. the sooth layer of Building 2. It is also one of the oldest buildings in the settlement, which was especially important to date. There is another building under it, so it is expected that in the future even older or at least synchronous dates will be obtained for the earliest layers of this site. The samples were taken for radiocarbon analysis at the ETH University in Zurich, where some of the previous analyses were performed (Naumov et al. 2023).

It is interesting that the results related to the study of these samples largely coincide with those that were previously the subject of analysis (**Fig. 11**). Namely, sample ETH 132740 has a date with a laboratory age of 7486 BP and a standard deviation of +/- 26 years. Calibration of this date indicates the period between 6434 and 6334 calBC, which corresponds to the earliest dates at this site and confirms the presence of domesticated sheep in Pelagonia as late as the 64th century BC. Sample ETH 132741 is closely related with the previous one and gives almost identical results. Namely, its laboratory age is approximately 7479 BP with a standard deviation of +/- 26 years. After the calibration of this date, a possible period between 6421 and 6331 calBC was obtained, which is almost the same as that of the sheep sample. This demonstrates that the cattle, that is, pigs, were incorporated into the economic life of the first Pelagonian farmers in almost identical time.

In regard to the appearance of domesticated species in Pelagonia, it is necessary to point out the latest knowledge obtained from the archaeobotanical analyzes performed on the organic remains from

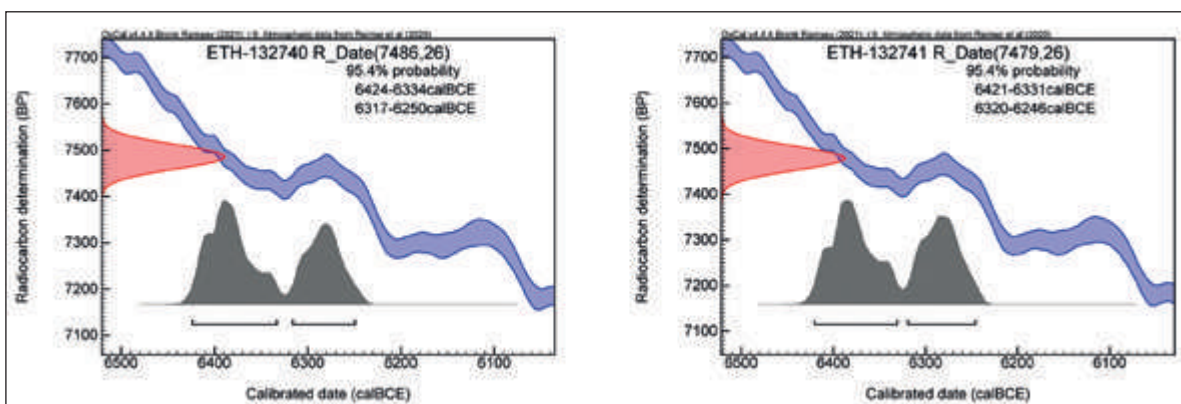


Fig. 11

Vlaho, Vrbjanska Čuka and Veluška Tumba (Antolín et al. 2020; Antolín et al. 2021; Sabanov et al. 2022; Sabanov et al. 2023). Namely, at the very beginning of the Neolithic, five species of cereals and their multiple variations, two types of leguminous plants, as well as potentially two oil crops were consumed in this valley. Considering this large number of crop species, but also smaller diversity than in Southwest Asia, Greece and Bulgaria, it was proposed that farmers in this region adapted their crop agricultural practices according to environmental conditions but cultural preferences could have also influenced these processes (Fig. 12). The chronological determination of some of these Pelagonian crops should be particularly highlighted, such as the peas and lentils, which are currently the oldest directly dated remains of these species in Europe, and not less important is a grain of barley characterized as one of the earliest crop remains on this continent (Sabanov et al. 2023).

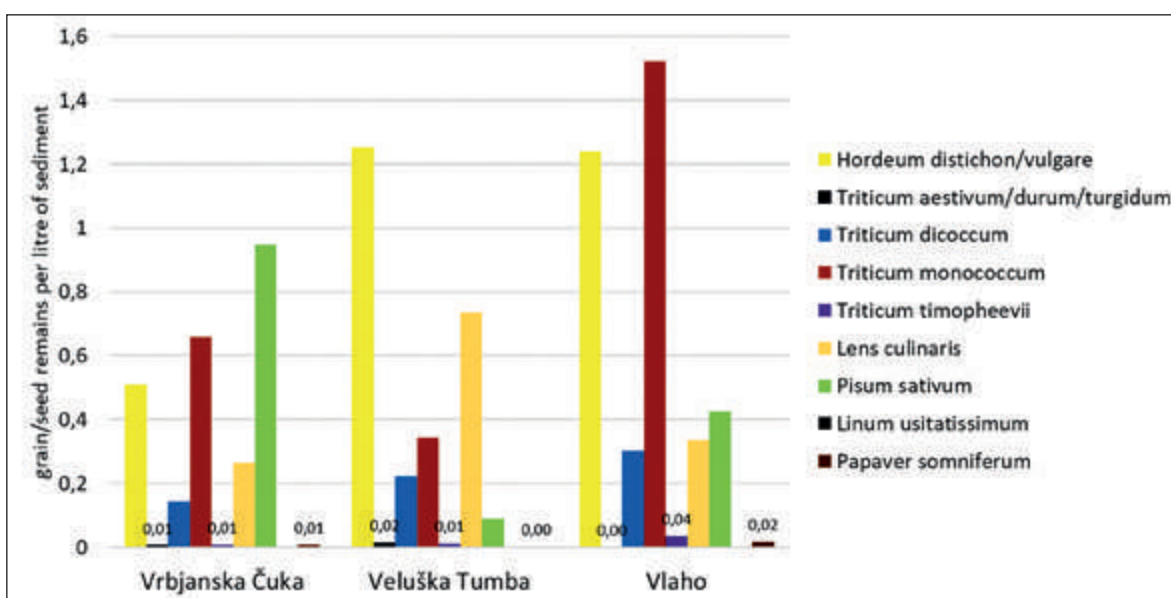


Fig. 12

It should be emphasized as well that the dated barley was discovered in the Building 3, which is younger than Building 2, where the remains of bones of sheep and cattle i.e. pig, were discovered. Given that the se animal samples are earlier than those of barley, it can be expected that future dating of agricultural plants from this building could indicate even older cultivation in Pelagonia. This does not mean that in other parts of the Balkans there are no synchronous or earlier plant remains, but they have yet to be discovered and dated. In any case, current knowledge places Pelagonia in the Neolithization map as one of the earliest attractive regions for the incorporation of agriculture in the Neolithic Europe.

CONCLUSION

The fieldwork and laboratory research of the Vlaho site and its architecture, material culture and organic remains further confirm the already established knowledge about its specific character and the particular importance it has in the early processes of Neolithization in the Balkans. It can be

correspondingly seen in terms of buildings, pottery and cereals discovered and studied during 2023. Considering the chronology of the site the new dates from animal bones furthermore indicate the 6400 CalBC as the approximate period of establishing the Neolithic settlement. This dating is closely related with the one from the group of sites in Central and Western Macedonia in Greece where the revision of the chronology indicates 6500 calBC as approximately earliest date of Neolithization in this region (Reingruber et al. 2023). This also places Vlaho among the earliest Neolithic settlements established in Europe, particularly if domesticated plants are considered (Sabanov et al. 2023).

As for the architecture in Vlaho, the presence of dug in buildings in this Neolithic settlement during the excavations was unexpected, although only few are also known in other Neolithic settlements in Pelagonia. They have different shapes and sizes, from small rectangular ones to oval shaped and medium sized. Such types of buildings have also been discovered approximately fifty kilometers south of Vlaho, in the site of Mavropigi in Central Macedonia in Greece. These objects have more amorphous shapes, but indicate their fairly early presence in Europe. Even more the pottery of Mavropigi and Vlaho have specific similarities, especially the impresso pottery, which contain different and numerous variants of decoration (Reingruber et al. 2023). This was especially evident during the rescue excavations in the eastern outskirts of Vlaho, when many sherds of impresso pottery were discovered (Наумов и Насых 2023). In terms of architecture, it should not be disregarded that the appearance of smaller dug in structures (pit dwellings) is particularly common among Early Neolithic sites in Greece, Serbia, Bulgaria and Macedonia, such as Paliambela, Revenia, Mavropigi, Pešterica, Blagotin and Poljanica (Kotsakis 2018; Maniatis and Adaktylou 2014; Karamitrou-Mentessidi et al. 2013; Greenfield et al. 2014; Китаноски и др. 1980; Тодорова 1993).

Hence, the presence of this type of buildings in Vlaho should not be surprising, although their presence in other Early Neolithic sites in Pelagonia has not been confirmed, except in the case of Pešterica and an atypical object unearthed in Vrbjanska Čuka (Китаноски и др. 1980; Naumov et al. 2018). Of course, this does not mean that only dug in buildings are present in Vlaho as the buildings with semi fired and fired daub walls, placed in a rectangular outline were also discovered. In some of them, food preparation structures are also present, so it can be confirmed that this Neolithic settlement also contains the buildings common in Pelagonia, but in a much smaller number than they are present in Vrbjanska Čuka, Veluška Tumba, Optičari, Topolčani, etc. (Китаноски 1977; Kitanoski 1989; Симоска и Санев 1975; Симоска и Кузман 1990).

In terms of the architectural stratigraphy it is worth to assert that the buildings detected in 2023 belong to different layers. Some are part of synchronic events, but the majority can be set in five different layers in an approximate depth of 0, 50 m (**Fig. 13**). The latest would be the dug in features right under the ploughed layer, such as Building 24 and smaller ditches SU 57 and 111. The last settlement structures made of semi fired daub in this part of the settlement are Building 17 and Building 25, but damaged by the agricultural activities performed on the surface of this site. In this layer also the Building 20 can be considered and particularly the wall of a construction as a part of it. Beneath this architectural layer there are four structures, but some cut previously by the Ditch D. These constructions are detected throughout entire trench and continue beyond its cross sections and they are made of semi fired daub

or have dug in layout (pit-dwellings), such as the Building 18, Building 19, Building 21 and Building 23. Also the channel SU 81 is present in this layer, but its relationship with these constructions cannot be determined.

The earliest recorded architecture in 2023 research is related with Building 22 and Building 26 merely constructed with unfired and semi fired daub. In this level also the channel SU 113 is present which has been cut by the later one i.e. SU 111. Surely, with the future excavation of the Trench 5 there are more buildings to be expected beneath these architectural layers, particularly if the height of cultural stratigraphy from test trenches and geoarchaeological coring is regarded i.e. 1, 36 and 2, 40 m (Наумов и др. 2021; Наумов и др. 2022). In these layers of the 2021 test trench several buildings were detected, with some established onto the solid sandstone bedrock.

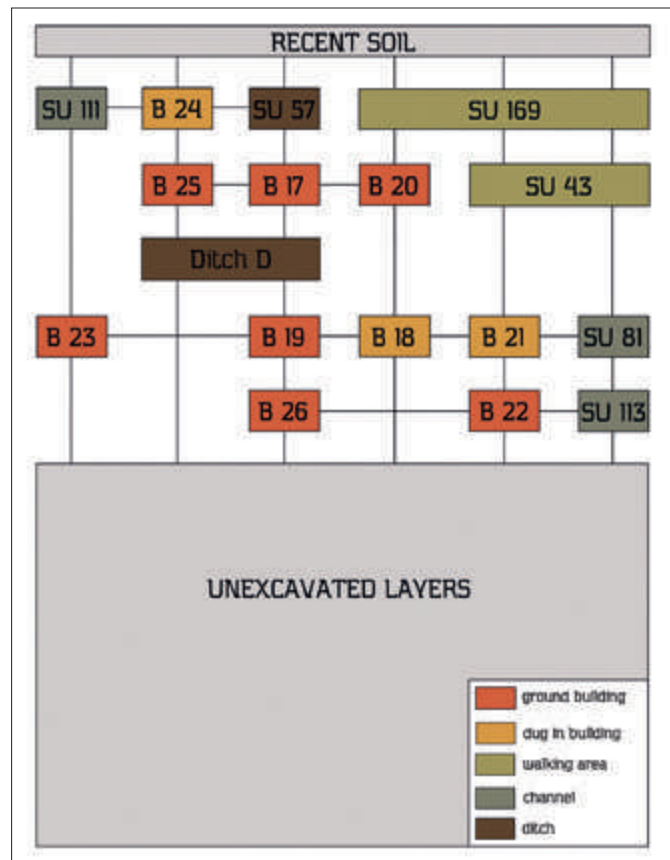


Fig. 13

From the provided overview of the architectural stratigraphy in the Trench 5 it can be concluded that there is a dense disposition of buildings in each layer and that there is no preference to particular technology. The semi fired daub was employed almost in all detected phases, while the dug in buildings were present in the later levels, but missing in the earliest detected in 2023 (which does not mean that they do not exist in the lower unexcavated layers). The presence of fired daub is scarce and only evident in the Building 18, but distinctly different in terms of burning when compared to the one used among the tells in the flatland parts of Pelagonia (Naumov et al. 2018). The future daub analysis will provide more information on these different technological features and whether they are related to the control of the fire or with the type of clay used for constructing walls.

Regarding the architecture, ditches can also be included, which represent a constructive action that has a specific function related to the settlement. The geophysical scanning of Vlaho confirmed the existence of a dozen such ditches. Although it is currently difficult to address the specific function of the ditches, their continued research indicates the spatial and stratigraphic character they may have had in relation to the settlement. In that direction, during this year's excavation of Trench 5, the Ditch D has been also investigated, which had four phases and buildings placed on it after its filling.

If the data from the rescue research of the two peripheral ditches (K and L) in September and October

2023 are also considered, then it can be noted that they have a different stratigraphic relationship and diverse filling after their primary function (Наумов и Насух 2023). There are buildings onto Ditch D, and so far no remains of thrown fired daub have been discovered in it. Such smaller pieces were discovered in the Ditch K, while in Ditch L they are much larger, and actually the ditch was covered in a certain part by a single layer of pieces of daub, stone and grinding stones. This confirms the different treatment of these ditches, and in addition to the information from the excavations, additional radiocarbon analyzes of the remains inside will point to possible chronological differences, especially if the different stratigraphic belonging is considered.

This kind of treatment of the ditches during their filling, but also after that, is also present in other sites where these architectural elements have been registered. The construction of buildings after the filling of the ditch was also recorded in the Early Neolithic settlement near Govrlevo, while the deposition of fired daub in them was also evidenced at the sites in Bulgaria (Fidanoski 2015; Bacvarov et al. 2016). This confirms that there are specific activities associated with the filling of the ditches, which allows further study of the social or symbolic elements behind this treatment of the ditches. Their filling during several events also indicates the possible long-term use of these massive constructions within the settlement, which were of particular importance for the community, considering the great effort and labor was invested in the creation of the ditches.

The complexity of the Vlaho ditch system was confirmed by this year's scanning of the remaining parts of the site, where it can be seen that their performance and most likely their purpose is not unified. This further points to the special character that this site has and, in some way, sets it apart from many others investigated so far in Pelagonia and beyond. In addition to that, the dating of the remains of cereals, pulses, sheep and cattle, i.e. pigs, highlights them as one of the earliest domesticated forms in Europe. This emphasizes the necessity for a thorough research and for a protection of this site from possible damage, which unfortunately was recently done in the northern and eastern parts of Vlaho (Наумов и Насух 2023). Considering the scientific capacities of this Neolithic settlement, much can be expected from the future research, both in terms of fieldwork, finds studies and the laboratory analyses.

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ILLUSTRATIONS

Fig. 1. Map of Pelagonia with indicated position of Vlaho.

Fig. 2. View from West towards the Vlaho site (photo: Hristijan Talevski).

Fig. 3. Trench 5 – view from Southwest (photo: Goce Naumov).

Fig. 4. Ortophotographic model of Trench 5 (a) with indication of recorded features in 2023 (b) (photo: Hristijan Talevski; editing: Goce Naumov).

Fig. 5. Plan with the position of the Building 18 and Building 21 along with the channels SU 81, 111 and 113 (drawing: Aleksandar Mitkoski; editing: Goce Naumov).

Fig. 6. Plan with the position of the Building 23 and Building 24 (drawing: Aleksandar Mitkoski; editing: Goce Naumov).

Fig. 7. Concentration of grinding stones and cobbles in the Building 23 (photo: Goce Naumov).

Fig. 8. North cross section of the Ditch D (photo: Goce Naumov).

Fig. 9. Map with the results from the geophysical survey of Vlaho, Golako and Leščica (illustration: Marcin Przybila).

Fig. 10. Map with the results from the geophysical survey of Vlaho (illustration: Marcin Przybila).

Fig. 11. Calibrated C¹⁴ dates of animal bones from SU 14 in Building 2 (illustration: Irka Hajdas).

Fig. 12. Bar plot representing numbers of grain/seed remains/L sediment from Vlaho, Vrbjanska Čuka and Veluška Tumba (illustration: Amalia Sabanov).

Fig. 13. Stratigraphic disposition of buildings and ditches in Trench 5 (illustration: Goce Naumov).

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MAGAREĆI MLIN – THE OLD AND THE NEW IN THE RESEARCH OF THE NEOLITHIC

МАГАРЕЌИ МЛИН – СТАРОТО И НОВОТО ВО ИСТРАЖУВАЊЕТО НА НЕОЛИТОТ

ABSTRACT

Multi-layered archaeological site Magareći Mlin is known for its rich layer dated to the Early Neolithic since its first excavations in the mid-1980s. Over the past several years, additional analysis of the recovered material provided extremely valuable data on the chronological span of the site, indicating Mesolithic occupation, but also one of the earliest Early Neolithic milk consumptions. Due to the richness of data that could be obtained through physical and chemical analysis, excavations of the site have been resumed. Here presented are the results of the excavation of an Early Neolithic pit in 2023, suggesting a much larger size of the Neolithic settlement than previously suggested.

Keywords: *Early Neolithic, multidisciplinary research, excavations, North Serbia*

АПСТРАКТ

Повеќеслојниот археолошки локалитет Магареќи Млин е познат по својот богат слој датиран од раниот неолит уште од неговите први ископувања во средината на 1980-тите. Во текот на изминатите неколку години, дополнителната анализа на пронајдениот материјал даде исклучително вредни податоци за хронолошкиот распон на локалитетот, што укажува на мезолитска окупација, но и на едно од најраните конзумирања на млеко во раниот неолит. Поради богатството на податоци кои можеа да се добијат со физичко-хемиска анализа, се продолжи со ископувањата на локалитетот. Овде се претставени резултатите од ископувањето на јама од раниот неолит во текот на 2023 година, што укажува на многу поголем обем на неолитската населба од претходно предложената.

Клучни зборови: *ран неолит, мултидисциплинарни истражувања, ископувања, Северна Србија*

INTRODUCTION AND THE IMPORTANCE OF THE SITE

Originally excavated in 1985–1989, the site of Magareći Mlin in the Bačka region of Vojvodina (Serbia) has since yielded valuable evidence of the presence of Mesolithic foragers beyond the Danube Gorges (Živaljević et al. 2021), the settlement of the first Neolithic farming communities (Porčić et al. 2020; 2021), including the earliest evidence of dairying in the region (Stojanovski et al. 2020; Balasse et al. 2021). Given its great potential for the understanding of various aspects of the Mesolithic-Neolithic transition, the site was revisited almost 40 years after the initial excavations. Within the Project “The Last Hunters and the First Farmers of the Bačka Region”, initiated in 2022 by the Sombor City Museum and the Biosense Institute, in partnership with the Faculty of Philosophy in Novi Sad, a new phase in the exploration of Magareći Mlin began. This multidisciplinary project included geomagnetic surveys, geoarchaeological coring, drone surveying and mapping, archaeological excavations of selected features, and the analysis of the collected archaeological and bioarchaeological material. In this paper, we present the preliminary results of the 2023–2023 research campaigns, with a special emphasis on an Early Neolithic pit feature excavated in 2023.

SITE BACKGROUND AND PREVIOUS RESEARCH

The site of Magareći Mlin is located c. 5 km southeast of the town of Apatin in Bačka, Serbia (**Fig. 1**). It is situated on a tall, U-shaped alluvial terrace formed by the meandering of the Danube, sloping down towards a marshy oxbow lake which was part of an active river flow in the past. During the 1985–1989 excavation campaigns, led by V. Leković from the Provincial Institute for the Protection of Cultural Monuments, more than 260 m² were explored, yielding evidence of occupation during the Early Neolithic, Copper Age, Middle and Late Bronze Age, Iron Age, Late Antiquity, and Medieval periods (Leković 1988; Trifunović 1997; Janković 1998; Lakatoš 2009; Bugarški 2014). The focus of our research is on the Early Neolithic contexts (mostly connected to the Starčevo cultural area), as indicated by the settlement in the central part of the terrace, estimated to have encompassed an area of 450 by 60 m. Here, three semi-subterranean dwellings and six associated rubbish pits have been discovered, as well as numerous coarse, fine, and white painted pottery fragments, chipped and ground stone tools, figurines, animal bones, and mollusc shells (Leković 1988; Stanković 1992).

More recently, the archaeological and bioarchaeological collections from 1985–1989 excavations, curated at the Sombor City Museum, have been subjected to several analyses within the ERC Project BIRTH (<https://www.ercbirth.com/>). In addition to the previously established chronological sequences, the osteological analysis and radiocarbon dating of human and animal bones from a context designated as “the layer above the loess” have confirmed the sporadic presence of Mesolithic hunter-gatherer communities during the mid- and late 8th-millennium cal BC (Živaljević et al. 2021). Given the paucity of recorded Early Holocene sites beyond the Danube Gorges, this occurrence provided unique opportunities to explore the nature of the Mesolithic-Neolithic transition in this particular context. Regarding the latter, in addition to the previously obtained radiocarbon dates (Tasić 1993; Pinhasi et al. 2005), the new dates on animal bones from the Starčevo features have shown that the Early Neolithic sequence at Magareći Mlin spanned approximately between 6000 and 5700 cal BC



Fig. 1

(Porčić et al. 2020; 2021). New insights into the lifeways of the first farming communities in the region were obtained by archaeozoological analysis, indicating that subsistence strategies mainly involved cattle farming, supplemented by sheep and goat farming, and to a lesser degree hunting, fishing and gathering. Cattle mortality profiles and the measurement of intra-tooth variation in nitrogen ($\delta^{15}\text{N}$), carbon ($\delta^{13}\text{C}$) and oxygen ($\delta^{18}\text{O}$) isotope ratios enabled a reconstruction of calf birthing and wean-

ing patterns, with important implications for the better understanding of the availability of milk for human consumption (Stojanovski et al. 2020; Balasse et al. 2021). Finally, the organic residue analysis of pottery vessels from Magareći Mlin provided the first unambiguous evidence of dairying, with ruminant dairy fats detected in 62% lipid-bearing shards at the site (Stojanovski et al. 2021). The obtained results, including the established long temporal sequence, insights into the various episodes of occupation, subsistence practices, and the environmental conditions in prehistory, gave new impetus and a promising direction for further research.

CURRENT RESEARCH

After almost 40 years, the fieldwork at the archaeological site Magareći Mlin resumed within the multidisciplinary project “The Last Hunters and the First Farmers of the Bačka Region: the mapping and protection of the Magareći Mlin site”. The project is led by the Sombor City Museum and the Biosense Institute, University of Novi Sad, together with the Faculty of Philosophy, University of Novi Sad, and it is supported by the Ministry of Culture of the Republic of Serbia, and the Municipalities of Apatin and Sombor. The return to the field was also inspired by the numerous important results that the excavated material yielded, which are significant for our understanding of both the Mesolithic - Neolithic transition outside of the Danube Gorges, as well as for the spatial distribution and organization of the Early Neolithic settlement. The aim was merely to locate the further distribution of the Early Neolithic occupation, to collect new data with modern techniques and clear contexts, and to start the procedure of the legal registration of this important site by better defining its borders.

SURVEY (GEOMAGNETIC SURVEY AND GEOARCHAEOLOGICAL CORING)

The first fieldwork season took place in 2022, and it was focused on field prospection. It combined two methods for the detection of underground structures, combining geomagnetic survey accompanied with geoarchaeological coring, in order to cover large areas by non-destructive or minimally destructive methods. Both methods were complementary in the determination of archaeological structures, their distribution, and a preliminary insight into their preservation under the plough horizon. The geomagnetic survey was conducted by the Provincial Institute for the Protection of Cultural Monuments, covering a surface of over 15 hectares. Although still partially under evaluation, the results show unexpectedly high potential. Numerous anomalies can be defined as archaeological structures. Apart from the unidentified structures, two groups of anomalies can be attributed to either burnt archaeological features, ranging from 1 m to 4 m in diameter, or structures that could be described as most probably different types of dug-out features, ranging in size between 1 m and 4 m, most commonly represented by pits of circular shape. These anomalies were detected throughout the site. A more precise chronological span and the origin of these anomalies could not be suggested. Together with anomalies attributed to archaeological features, two separate small-size water channels have been documented. They are located in the northwest to southeast direction, pass through the site, and were probably connected to the major river flow in the vicinity at one point. They indicate a complex natural environment and landscape use, probably through different phases of site occupation.

Anomalies retrieved from the geomagnetic survey were additionally tested by geoarchaeological coring. A short augering campaign was conducted at the site to confirm the documented anomalies as archaeological deposits and provide additional data such as the thickness of archaeological remains, *in situ* structural remains, and potentially retrieving any remains of material culture. Core depth ranged from 60 to 300 cm with numerous anomalies confirmed as archaeological deposits. One of the cores indicated a thickness of ca. 210 cm of archaeological debris. Material retrieved from the cores, as well as surface collection indicated that the multi-layer site extends throughout the landscape, indicating occupation both in prehistoric and historic times.

EXCAVATIONS

The 2023 field campaign was conducted in the area previously surveyed by geomagnetic methods and geoarchaeological drilling. The focus of the campaign was on excavating two distinct geomagnetic anomalies. The larger one was circular in shape, ranging over 4 meters in diameter. Geoarchaeological coring indicated over 2 meters of archaeological deposits. This structure was excavated within Trench 1, and according to the retrieved material, it could be dated to the Late Bronze Age (Gava cultural group). The second anomaly was much smaller in diameter, located ca. 17 meters north-east from the larger one, and was excavated within Trench 2. The plough horizon was removed by an excavator, revealing a darker, circular shape, with around 2 meters in diameter. Material that was detected right away corresponds to the Early Neolithic Starčevo cultural sphere. Excavation indicated a more rectangular shape of the pit, reaching around 1.2 meter in depth (Fig. 2). Excavated material consisted mostly of pottery



Fig. 2

and animal bones, with a concentration of broken, heavily burned parts of daub kiln floors, mixed with a layer containing large (up to several centimeters) calcium concretions. This type of remains found layered within the pit most probably indicated that it was used as a rubbish pit. Despite the character of the excavated structure, these results are very valuable for the understanding of the chronological and spatial span of the site, indicating a much larger area occupied in different periods of prehistory.

STRATIGRAPHY

The Neolithic pit did not have complex stratigraphy, and the infill was excavated in 7 separate stratigraphic units. First stratigraphic unit (SU) was located just underneath the plough horizon which was removed mechanically. Numerous pottery and animal bone fragments were recorded right away. Several pottery fragments had barbotine-type of decoration, indicating that the youngest layer of the pit was used in the Early Neolithic. SU1 contained the largest concentration of animal bones within the pit, with numerous large fragments of whole and broken bones. Further descriptions of collected material and their illustrations are presented in separate chapters. SU2 (**Fig. 3**) was located right underneath SU1 and contained a large number of broken pieces of heavily burnt daub fragments of kiln flooring, ranging in size up to 10 cm. It seems that they were disposed of within the pit after their removal from a primary location. Within the daub pieces, a bone awl was found. SU3 is the sediment



Fig. 3

surrounding the daub concentration, and SU4 is the layer underneath the daub concentration, containing numerous concretions, reaching dimensions of up to 10 cm in length. SU5 is a grayish layer that is covering the whole pit. One chipped stone artefact was found within. After removing SU5, a darker 40 cm by 50 cm area (numbered as SU6) was discovered. This stratigraphic unit was cut into SU7 - a grayish, loose sediment that was deposited on the bottom of the pit, covering its whole surface. The large antler tool was found within SU7, right above SU8. SU 8 was a very small cut (post hole?), with dimensions of 20 cm by 7 cm cut into the bottom of the pit.

Stratigraphic units documented within the pit correspond to three probably short-lived phases of use of the disposal pit. Earliest phases are represented by the small cuts and the deposition of more unified layers covering the whole surface of the pit (represented by SU5 to SU8). Middle phase of use is the period of deposition of the burned daub pieces, represented by SU2. The youngest phase of use is the deposition of SU1 that contained numerous pottery fragments and the most remains of animal bones within the pit.

THE POTTERY ASSEMBLAGE

The most numerous are fragments of coarse pottery decorated with impressions made by pressing a sharp and thin instrument (**Fig. 4**). Additionally, the presence of relief impresso (plastic wheat-grain

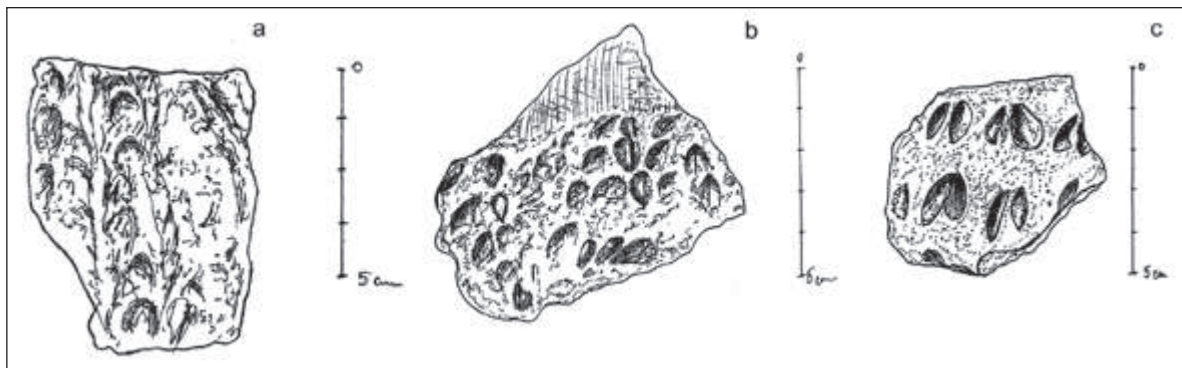


Fig. 4

motif) has been recorded (Bogdanović 2004; Vuković 2013, sl. 1). Such “pinching” could have been done with a tool made of pointed bone or wood. The motif of plastic wheat-grain motif dominates as a variant of impresso decoration, with a significant representation of organized and unorganized barbotine (**Fig. 5**). The smaller number of fine pottery fragments are mostly dark brown or reddish in color. The preliminary insight into the pottery assemblage recovered in the 2023 field campaign corresponds in typology and ornaments to other early Neolithic sites investigated since the 1980s (Leković 1988, 79–80).



Fig. 5

FAUNAL REMAINS

The bones from the Early Neolithic pit were analyzed using the reference collection of the Laboratory for Bioarchaeology, Department of Archaeology, Faculty of Philosophy, University of Belgrade, and relevant atlases (e.g. Schmid 1972). When possible, the mammal bones were measured following Von den Driech (1976), and the fish bones following Radu (2003).

The faunal assemblage consisted of 252 identified specimens, namely mammal remains (cattle *Bos taurus*, cattle/aurochs *Bos* sp., domestic pig *Sus domesticus*, sheep *Ovis aries*, red deer *Cervus elaphus*, roe deer *Capreolus capreolus*, wild boar *Sus scrofa*, dog *Canis familiaris*, fox *Vulpes vulpes*, and unidentified large and small ruminants), with a small number of micromammal (rodent) and fish bones (carp *Cyprinus carpio*, catfish *Silurus glanis*, beluga sturgeon *Huso huso*) and mollusc shells (Roman snail *Helix pomatia*, vineyard snail *Caucasotachea vindobonensis* and freshwater mussel *Unio* sp.)

(Table 1). Among mammals, most numerous were the remains of cattle, represented by minimum two individuals. The prevalence of cattle bones was also documented in the assemblage from the previous excavations of Magareći Mlin (Stojanovski et al. 2020, Table 1), and at some of the other Early Neolithic sites in the region (Clason 1980; Radmanović et al. 2015; Ethier et al. 2017), although their contribution was far from uniform, often secondary to caprines (Lazić 1988; Orton et al. 2016; Grujić 2022). However, unlike the assemblage from previous excavations and from other coeval sites, where caprine remains constituted a significant portion of the faunal material, the Early Neolithic pit excavated in 2023 yielded a single bone which could be attributed to sheep. This discrepancy could be due to the small sample size; in addition, some of the bones of undetermined small ruminants (*Ovis/Capra/Capreolus*) could have originated from sheep and goat. Given the small number of identified specimens, pigs were fairly well represented in the sample. In addition to a small number of dog remains, the presence of this species was also attested by several bones with gnawing marks.

	TAXON	NISP	NISP %	W (g)
Mammalia	dog (<i>Canis familiaris</i>)	2	0.9	24
	fox (<i>Vulpes vulpes</i>)	1	0.4	0
	wild boar (<i>Sus scrofa</i>)	2	0.9	73
	pig (<i>Sus domesticus</i>)	5	2.2	35
	red deer (<i>Cervus elaphus</i>)	4	1.7	243
	roe deer (<i>Capreolus capreolus</i>)	2	0.9	27
	cattle (<i>Bos taurus</i>)	12	5.2	523
	cattle/aurochs (<i>Bos sp.</i>)	3	1.3	242
	sheep (<i>Ovis aries</i>)	1	0.4	0
	sheep/goat/roe deer (<i>Ovis/Capra/Capreolus</i>)	6	2.6	57
	undetermined ruminants (<i>Ruminantia indet.</i>)	6	2.6	107
	undetermined mammals (<i>Mammalia indet.</i>)	187	81.0	559
	TOTAL	231	100	1890
Micromammalia	Rodentia indet.	2	100.0	0.6
	TOTAL	2	100	0.6
Pisces	beluga sturgeon (<i>Huso huso</i>)	1	12.5	0.6
	carp (<i>Cyprinus carpio</i>)	3	37.5	2.7
	catfish (<i>Silurus glanis</i>)	2	25.0	7.6
	undetermined fish (<i>Pisces indet.</i>)	2	25.0	0.5
	TOTAL	8	100	11.4
Vertebrata	Vertebrata indet.	1	100.0	0.5
	TOTAL	1	100	0.5
Mollusca	Roman snail (<i>Helix pomatia</i>)	2	20.0	24.5
	vineyard snail (<i>Caucasotachea vindobonensis</i>)	6	60.0	9.0
	undetermined gastropods (<i>Gastropoda indet.</i>)	1	10.0	0.1
	freshwater mussel (<i>Unio sp.</i>)	1	10.0	0.1
	TOTAL	10	100	33.7

Table 1

Despite small sample size, and few identified specimens, the remains of wild animals exhibit considerable taxonomic diversity. The occurrence of red deer, roe deer, wild boar and fox indicates that hunting took place alongside farming. More precisely, the presence of both wild and domestic pigs and cervids suggests that the Early Neolithic inhabitants of the Magareći Mlin settlement were subsisting in floodplain forest clearings. On the basis of tooth eruption stage, one wild boar mandible

was estimated to have belonged to a 18–24 month old individual (*cf.* Carter & Magnell 2007), i.e. it suggests that the capture occurred in the autumn/winter season (between September and March) (*cf.* Stanković et al., 1991). In addition, on the basis of their size, three specimens were identified as *Bos* sp., i.e. they could have originated from aurochs.

The wetland environment of the site, and the proximity to the Danube, certainly afforded good conditions for fishing. A small number of fish bones recovered from the pit originated from carp and catfish (species typically inhabiting slow currents and stagnant waters), and beluga sturgeon (which used to migrate to the Danube from the Black Sea each spring and autumn). Carp and catfish remains commonly occur in Early Neolithic faunal assemblages in the region, albeit in small quantities (*cf.* Bökönyi 1974; 1984; Clason 1980; Blažić 1992; 2005; Radmanović et al. 2014; Stojanovski et al. 2020). Nevertheless, although fishing seemed to have been of secondary importance among the early farming communities (perhaps a seasonal or opportunistic activity), its contribution is certainly obscured by taphonomic loss and recovery techniques. The size of caught specimens from Magareći Mlin indicates that these activities required specialized skills and ethological knowledge. The estimated total length (TL) of catfish, calculated from the measurements of the pectoral spine and first vertebra (*cf.* Radu 2003), was c. 124 and 114 cm respectively, whereas one carp parasphenoid bone originated from an individual whose TL was estimated to c. 54 cm. Even more significant in this respect is the occurrence of beluga sturgeon, the largest species in the Danube. Sturgeon whirlpool fishing had been a long-lasting tradition among the Mesolithic and Early Neolithic communities in the Danube Gorges (c. 9500–5500 cal BC), with some of the largest caught specimens measuring almost 600 cm in TL (Živaljević 2017). However, apart from the site of Donja Branjevina, about 25 km southeast from Magareći Mlin, sturgeon remains were generally absent from Early Neolithic sites in the upstream, Middle Danube area (Živaljević, *in preparation*). As previously mentioned, their absence could have been related to particular subsistence strategies (more oriented towards farming), taphonomic loss, or recovery methods, given that the environment provided ample opportunities for such activities. Namely, apart from the Danube Gorges whirlpools, the fisheries on the Danube in the vicinity of Apatin were documented as the most lucrative sturgeon fishing spots in historical times (Šimunović 1995). Although the current archaeozoological evidence from Magareći Mlin is limited, it suggests that these large species were successfully caught (at least occasionally) in the Early Neolithic as well.

Sporadic mollusk remains found in the pit could have been deposited naturally; however, there is also evidence of their use in human diet or as fish bait from a number of Early Neolithic sites in the wider region (e.g. Clason 1980; Lubell 2004a; 2004b; Stojanović and Obradović 2016).

In sum, the majority of faunal remains deposited in the pit can be interpreted as remnants of food preparation and consumption. The fracture on one cattle humerus and a cattle/aurochs radius could have resulted from bone marrow cracking, whereas butchery marks were visible on a wild boar mandible, ruminant pelvis, and several large and medium-sized mammal bone fragments. Some of the remains of large fish also exhibited traces of processing. Short, parallel cut marks on the catfish pectoral spine close to the articulation suggest that the fish was decapitated prior to cooking or thermal preparation (*cf.* Brinkhuizen 1989, Afb 9.7.). A small number of large mammal and one fish bone were burnt, i.e.

10 specimens were carbonized, and 2 calcined. Apart from food remains, the assemblage from the pit also included red deer antler fragments which could be interpreted as manufacture waste, as well as two fragmented osseous artefacts – a perforated antler composite tool and a bone awl, discussed in more detail below.

CHIPPED STONE AND OSSEOUS ARTEFACTS

In addition to pottery fragments and animal remains, the Early Neolithic pit feature also yielded one chipped stone artefact (**Fig. 6**) and two osseous artefacts.



Fig. 6



Fig. 7

Of particular interest is a fragmented antler tool (**Fig. 7**), found at the very bottom of the pit, in SU7. The artefact was made from shed antler, with the burr and the pearling completely preserved, and the partially preserved basal beam and brow tine. Close to the burr, it bore a partially preserved circular

shaft hole, about 15 mm in diameter, which was made by gouging from both sides. The brow tine bore traces of cutting, whereas the basal beam had a fragmented fan-shaped working edge. Sporadic traces of black and reddish colour – most likely remnants of certain organic matter – were visible on the perforation, on the working edge of the beam, and at the end of the preserved part of the brow tine. Such perforated artefacts made from shed antler are usually identified as hammers or mattocks and were possibly associated with woodworking and generally with activities taking place beyond the settlement. Similar objects were found at the Early Neolithic sites of Starčevo-Grad and Divostin (Vitezović 2010; 2011; 2014). Red deer commonly cast their antlers in February-March (Schmid 1972); nevertheless, they could have been collected at any time, and the artefact itself could have had a long history of use.

The other osseous artifact from the pit was a fragmented awl (**Fig. 6**), made from longitudinally split long or metapodial mammal bone. The basal part/handle of the tool had been broken. The surface of the remaining part was polished. Its cross-section closer to the basal part was rectangular, becoming more oval and narrowing down towards the finely made, polished, and sharp tip. The tip bore no traces of intensive use, which suggests that the awl had not been used to a significant degree, or perhaps that it had been resharpened. Such tools have been found at a number of Early Neolithic sites in the region, and they were probably used in leather, hide, or plant fibre working (Vitezović 2010; 2011).

CONCLUDING REMARKS

Despite the new, small-scale field investigations, the site of Magareći Mlin is already showing prospects for further investigation of the Early Neolithic in the Carpathian basin. The much large size of the site, archaeological deposits from both Early Neolithic as well as the Late Bronze Age are indicating intense settlement activities. Pending results of ongoing investigations such as the geomagnetic prospection, geochemical analyses of sediments, and absolute dates, the site Magareći Mlin will continue to spark interest within the archaeological community.

ACKNOWLEDGMENTS

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ILLUSTRATIONS

Fig. 1. Position of the Magareći Mlin archaeological site in NW Serbia. The base map is available under the CC4.0 at the *U.S. Geological Survey*. (Credit: J. Pendić). Map adaptation K. Penezić.

Fig. 2. Early Neolithic pit after excavation. Photo: V. Uzelac.

Fig. 3. Early Neolithic pit. Stratigraphical unit 2 containing deposited burned daub kiln flooring pieces. In the western part of the stratigraphic unit, a bone awl was found (seen in the picture). Photo: V. Uzelac.

Fig. 4. Pottery fragments with impresso motifs. Drawing: V. Uzelac.

Fig. 5. Pottery fragments with barbotine ornaments. Photo: V. Uzelac.

Fig. 6 Animal bone awl from Stratigraphic unit 2, and chipped stone artefact from Stratigraphic unit 5. Photo: V. Uzelac.

Fig. 7. Antler tool from Stratigraphic unit 7, in situ (left) and after cleaning (right). Photo: V. Uzelac.

Table 1. Taxonomic composition of the faunal assemblage from Feature 1, Trench 2/2003 (an Early Neolithic pit), expressed by the number of identified specimens (NISP) and weight (W).

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COCEV KAMEN: A BUILDING IN THE ROCK ЦОЦЕВ КАМЕН: ГРАДБА ВО КАРПА

ABSTRACT

In the past couple of decades, the site of “Cocev Kamen” has stirred much controversy in the archaeological community and the general public. The lack of modern, systematic studies at this site left plenty of room for speculations, unscientific claims and even tampering with the archaeological remains. This study is one of the outcomes of a brief rescue campaign at this site, the goals of which were to determine the true character and chronology of “Cocev Kamen”. It presents the results of the 3D scanning of the rock shelter known as “Golema Pešt”, the largest of the natural cavities that dot the surface of “Cocev Kamen”. First, it reports on the shape, size and distribution of the individual rock carvings on the walls and floor of the rock-shelter, and then it proposes a possible reconstruction and interpretation of these remains. In the end, a suggestion is made as to the likely date of these rock-carvings, based on the known facts about the chronological phases represented at “Cocev Kamen”.

Keywords: “Cocev Kamen”, rock-cut architecture, 3D scanning

АПСТРАКТ

Во изминатите неколку децении, локалитетот „Цоцев камен“ предизвика многу контроверзии во археолошката заедница и пошироката јавност. Недостигот од модерни, систематски студии на овој локалитет остави многу простор за шпекулации, ненаучни тврдења, па дури и за манипулации со археолошките остатоци. Оваа студија е еден од резултатите на кратката спасувачка кампања на овој локалитет, чија цел беше да се утврди вистинскиот карактер и хронологијата на „Цоцев Камен“. Во него се претставени резултатите од 3Д скенирањето на засолништето во карпа познато како „Голема Пешт“, најголемата од природните шуплини што ја прекриваат површината на „Цоцев Камен“. Прво, дава сознанија за обликот, големината и распространетоста на поединечните карпести резби на сидовите и подот на карпестото засолниште, а потоа предлага можна реконструкција и интерпретација на овие остатоци. На крајот се дава предлог за веројатното датирање на овие карпести резби, врз основа на познатите факти за археолошките фази претставени на „Цоцев Камен“.

Клучни зборови: Цоцев Камен, карпестата архитектура, 3D скенирање

INTRODUCTION

The site of Cocev Kamen has been long since known to local historians and archaeologists (Simić 1914, 141-233). However, until a couple of decades ago, this site was hardly ever mentioned in the archaeological literature. More specifically, it first came into the focus of the wider public in the mid-2000s, albeit for the wrong reasons. At that time, an enthusiastic group of amateur archaeologists and devotees of this site started a campaign in which Cocev Kamen was promoted as an ancient observatory and sanctuary of an unknown age (Masson 2007, 299-310; Masson and Aleksovski 2007, 7-20). Regrettably, this group did not shy away from disturbing and rearranging the archaeological remains at this site. These illegal activities led to two brief rescue campaigns between 2011 and 2014, and then once again in 2018, followed by the ongoing systematic excavations (Donev 2018, 86-97; Sinadinovski and Donev 2021, 136-202; the rescue excavations lead by the late J. Stankovski have not been fully published, Stankovski and Temelkovski 2018, 47-58).

The main cause of the controversies surrounding Cocev Kamen are the numerous rock-cut features that cover almost the entire surface of this impressive outcrop. Their sheer number, variety and seemingly unintelligible layout have given rise to a wave of untamed speculations about their function, meaning and date. These claims have been promptly rebuffed by expert scholars, but this was not followed by any alternative interpretations of these remains (Milevski and Dimitrovska 2011, 5-19; Stankovski and Temelkovski 2018, 52-53). Indeed, without an accurate and comprehensive record of the surface of the rock, any attempt at understanding these rock-cut phenomena is bound to fail. Their large number and often inaccessible positions have prevented researchers from making any conventional records or grasping their layout and pattern intuitively. The only viable way of documenting this site is to use digital technologies, photogrammetry and 3D scanners in particular, which unfortunately are still inaccessible to most archaeologists working in this region.

During the rescue campaign of 2018, we were given the opportunity to bring a 3D scanner to Cocev Kamen for a day and record one part of this rocky outcrop (Courtesy of Gojčo Stefkovski, the sponsor of the rescue campaign of 2018, and Goran Sanjev from the Archaeological Museum of North Macedonia). It was decided to scan the so-called Golema Pešt, a spacious cavity on the eastern face of the rocky outcrop. Inside this rock-shelter, there are numerous rock-cut features that seem to form a meaningful whole. The goal of this paper is to make a detailed description of the rock-cut phenomena, as observed on the 3D scans and photographs, and offer a tentative interpretation of their layout and function. Unfortunately, the dating of these remains, to many, the most tantalizing aspect of Cocev Kamen, will stay a desideratum and it will continue to stir controversies among archaeologists and the general public.

THE ENVIRONMENTAL AND ARCHAEOLOGICAL CONTEXT OF COCEV KAMEN

The characteristics of the natural setting and the archaeological remains at the foot of the rocky outcrop and in its nearest surroundings have been discussed in details elsewhere (Donev 2019, 86-97). What follows is a very concise description of the environmental and archaeological background of Cocev Kamen, which will serve to provide the reader with some basic orientation.

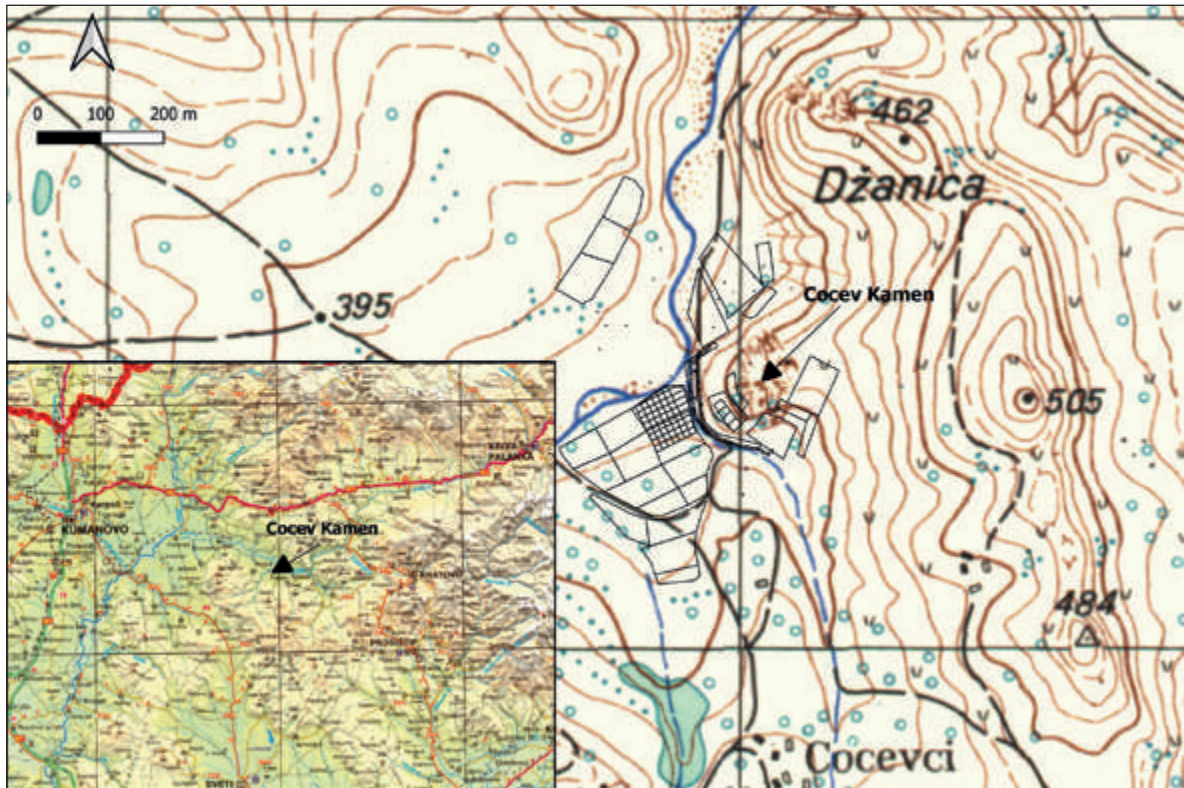


Fig. 1

The site of Cocev Kamen is located in the Middle Kriva Valley, roughly 20 km to the west of Kratovo and only two kilometers east of the site of Golemo Gradište near Konjuh (Fig. 1). Cocev Kamen is an irregularly shaped outcrop, with a relative height of 60 meters and an area of nearly 0.5 ha at its base (Fig. 2). It is made of andesite, a soft rock created by the cooling and hardening of pyroclastic flow.



Fig. 2

It does not require a particularly advanced skill or technology to cut this rock. Nearly every house in the nearby village of Šopsko Rudare is built of large andesite blocks, quarried and carved by the local inhabitants.

Cocev Kamen and the surrounding landscape were created during a long process of denudation of the soft volcanic substrate (Milevski and Dimitrovska 2011, 8). In fact, this rocky outcrop has survived in its present shape because of its greater solidity compared to the surrounding sediments that were washed away by erosion. The early photographs of this site do not show any major changes to the rock over the past century. Nevertheless, its surface is vulnerable to physical and chemical disintegration, as well as vandalism, underlining the urgent need to document it and preserve it.

The fertile fluvial deposits at the foot of Cocev Kamen were surely one of the main attractors of permanent settlement at this site (Donev and Sinadinovski 2021, 35-58). This type of geologic substrate is rare in an area dominated by volcanic sediments, andesites and ignimbrites. In 2018, Cocev Kamen and its immediate surroundings were surveyed systematically (Donev 2018, 86-87). Over 4,000 fragments of surface pottery were collected by polygons, grid units and shallow test-pits. The study of this material is far from complete, but it did not take long to realize that Cocev Kamen is a multiperiod site. Preliminary observations have identified phases of permanent occupation that date to the Middle Neolithic, the Late Eneolithic, the Late Bronze Age, the Iron Age and Late Antiquity (cf. Stankovski and Temelkovski 2018, 53). The micro-locations of this settlement changed from period to period, usually shifting between the foothills and the terraces on the rocky outcrop, but the connection between the two remained strong in all periods of occupation. This implies that, in theory, the rock carvings could have been created in any of the periods represented in the surface record. Worse still, it is fully conceivable that each of these periods left their imprint on the surface of the rock, creating a palimpsest of rock-carved features that is nearly impossible to disentangle.

THE LOCATION OF THE SCANNED AREA AND THE METHOD OF ANALYSIS

Golema Pešt is the largest of the numerous natural cavities of Cocev Kamen (**Fig. 3**). It dominates the eastern face of the rocky outcrop. The walls of the smaller and somewhat deeper cavity below do not show any traces of carving. The opening of Golema Pešt is approximately 23 meters wide and almost nine meters high. The interior of this cavity gradually narrows towards its back. Its maximum depth is seven meters. The usable floor area measures at least 120 square meters. Despite its spaciousness, Golema Pešt is fully exposed to the elements and, in its natural state, could offer little more than a temporary shelter for people and livestock.

Golema Pešt is not directly accessible from the main entrance into the complex. The path to this cave starts from the eastern foot of the outcrop, past the lower cavity and follows a long flight of stairs carved in the rock, which lead to Golema Pešt. This stairway continues all the way up to the small plateau on the top of the outcrop. It provides the only access, both to Golema Pešt and this plateau. Originally, it might have been possible to reach the inhabitable southwest terrace of the outcrop from Golema

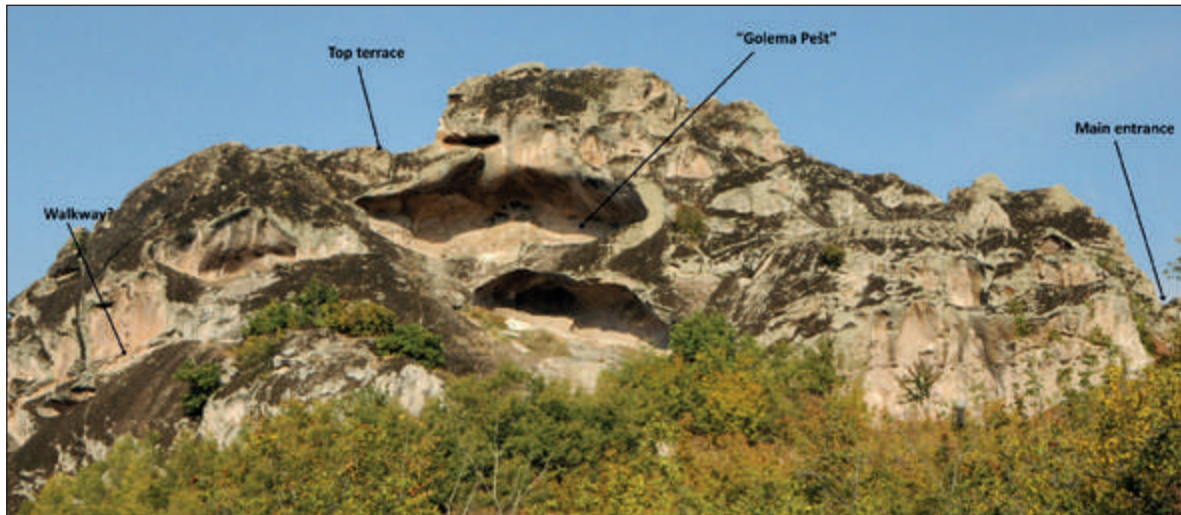


Fig. 3

Pešt, but only by a walkway resting on wooden rafts (Figs. 2 and 3). Thus, the area of interest did not communicate directly with neither the area by the main entrance in the north nor the southwest terrace.

The 3D scanning and the basic processing of the data collected was carried out by the company GeoWild Mak. The instrument used was a terrestrial laser scanner Leica ScanStation2. This particular instrument does not have the ability to make 360° rotations and it cannot record the surface on which the tripod is fixed. The interior of the shelter was recorded with a sub-centimeter precision, from two points next to the outer wall. The company contracted to do the laser scanning also agreed to carry out the preliminary data-processing. They produced a point cloud map of the interior with over 3 million points and a mesh model at a reduced resolution for general display.

There is much room for improvements of these documents. The point cloud certainly needs further cleaning from redundant points and fuzzy edges. The circular holes that mark the positions of the tripod, as well as other surfaces that stayed outside the scanner's range, were left unfilled. These are not particularly complex operations, but they do require specialized software and respectable computing power (See for e.g., Stylianidis and Remondino eds. 2016). Despite these deficiencies, this point cloud proved extremely useful for the study of the interior of the rock-shelter. Not only were all known carved features mapped precisely to the centimeter, but a score of new carvings was discovered. These were either made on inaccessible positions, high on the walls of the cave, or were abraded to a point at which they are barely recognizable to the naked eye. It is particularly convenient that basic versions of the 3D modelling software allow users to measure distances and angles between individual points in the cloud. It was thus possible to explore the point cloud in great details and record features that are otherwise inaccessible. In the end, we managed to map and measure nearly 90 rock carvings, both on the floor and on the walls of the cave.

Prior to the 3D scanning, photographs were taken of all visible details on the surface of the rock. These photographs proved equally helpful, because they allowed us to verify some of the uncertain

phenomena outlined in the point cloud and distinguish between carved features and blank spots. They also provided coverage of the surfaces that stayed beyond the range of the 3D scanner. This material and other photographs from Golema Pešt can be used to put a skin on the mesh model and create a photo-realistic 3D model of its interior. This combination of 3D laser scanning and photogrammetry has become a routine procedure in modern archaeological research (Howland 2018, 19-33).

Because of the size and complex layout of Cocev Kamen, experts in digitization have recommended using photogrammetry to document the entire complex and all individual rock carvings. This is definitely a cheaper alternative, which does not lag behind 3D scanners in precision and has the advantage of recording natural color and 2D phenomena in general (Galeazzi et al. 2014, 353-365). However, the downside with photogrammetry is that it cannot draw the contours of rock carvings as sharply as the 3D scanner (Cf. Koch and Kaehler 2010). This applies particularly to shallow or abraded features, but in general the outlines of all photo-documented carvings are blurred, thus reducing the accuracy of the measurements. In the case of Cocev Kamen, an additional difficulty is the pale grayish color of the rock, which when exposed to direct sunlight renders all carved phenomena barely visible.

DESCRIPTION OF THE ROCK-CARVED FEATURES

Although our starting position is that the carvings on the walls and floor of Golema Pešt form a meaningful whole, for an easier orientation, it is useful to divide the interior of the cave into a southern, central and northern wing. This division reflects the clustering of the individual carvings (**Fig. 4**). We shall first describe the features carved on the floor, and then those on the walls, starting from the southern wing.

The rock-shelter is entered from its southern wing. The point cloud includes the uppermost segment of the stairway that leads to the cave (**Fig. 5**). In total, six steps can be observed. They are between 70 and 80 cm wide and not more than 20 cm high. Two circular holes (H1 and H2), possibly carved at a later stage, can be observed on the surface of the last step. They are spaced only 25 cm apart and measure 30 cm across. If these had been postholes, they would have partially blocked the entrance to the cave.

The southern part of Golema Pešt is a quarter circle in layout. Its floor is 30 to 40 cm higher than the floor of the central section and it gradually rises towards the southern wall of the shelter. There are two roughly parallel rows of postholes in the southern part of the cave (**Fig. 5**). Both rows are located to the left of the entrance. The northern row comprises four circular holes, (H4-H7) spaced between 30 and 50 cm apart. Their diameters do not exceed 20 cm. The second row is located 1.5 meters to the south and two meters from the southern wall of the shelter. It comprises three circular pits (H8-H10), each with a diameter of 30 cm and spaced at regular intervals of 0.5 meters. A shallow, semi-circular carving, H3, is visible 1.3 meters to the west of H2. It is unclear if this hole was left unfinished or if its top has been abraded.

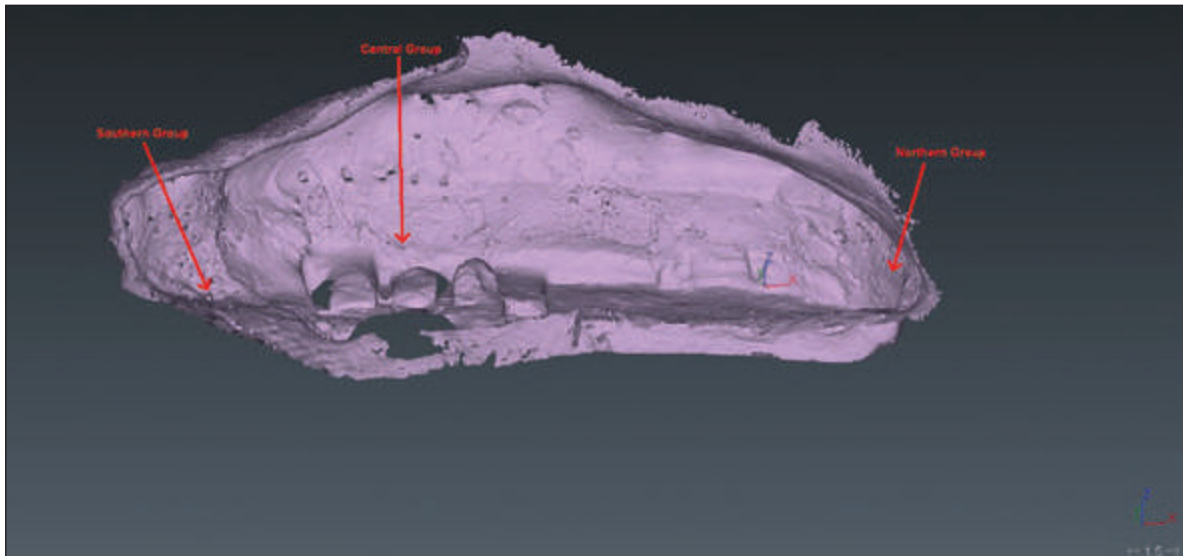


Fig. 4

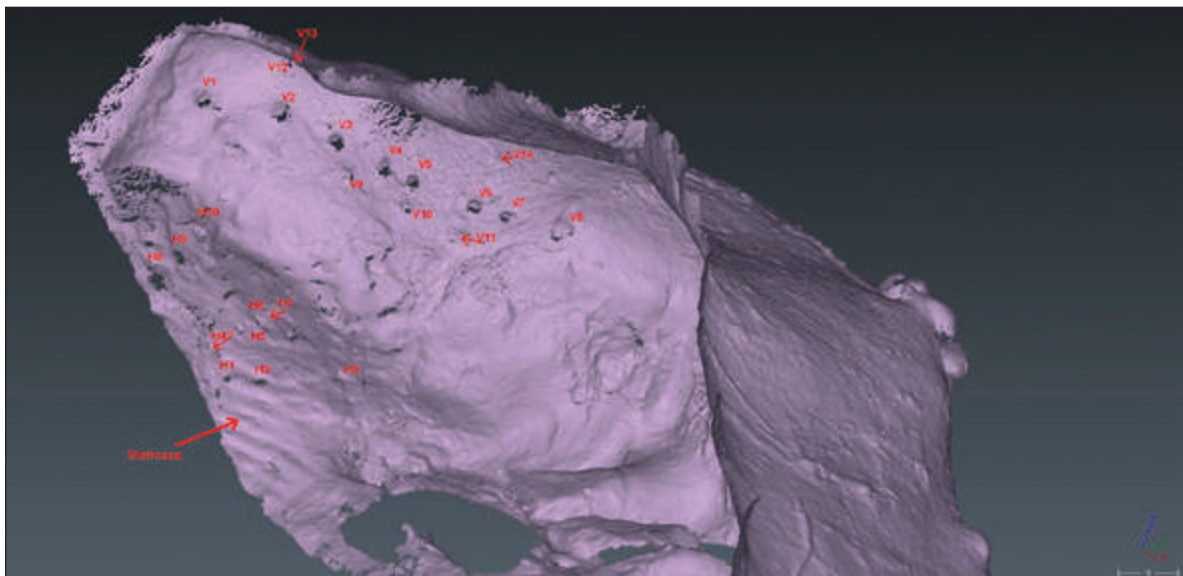


Fig. 5

The rock-cut features on the walls of the southern wing are likewise organized in rows at three levels (**Fig. 5**). Most of these recesses have a peculiar cross-section. They are shaped like sub-rectangular niches with an arched top and are always deeper in their lower halves. These recesses have been variously interpreted, but we are inclined to see them as supports for horizontal beams or putlog holes.

The middle row is the most articulate one and includes the greatest number of recesses. With the exception of the two terminal niches (V1 and V8), the other six are organized in pairs. The holes that form pairs are carved less than 30 cm apart, whereas the spacing between two pairs varies between 50 and 60 cm. Due to erosion, the exact dimensions of these niches cannot be always established with certainty. On average, they are 30 cm wide and between 35 and 45 cm high.

The terminal recesses in the middle row, V1 and V8, spaced 75 and 60 cm from their nearest pairs, are shaped differently. These are essentially double niches. The southernmost one has a deep base, whereas its upper half is so shallow that it is barely recognizable. Because of this, it looks more like a ledge than a niche. It is divided into two unequal parts by a thin cross-wall that was not hewn away. Unlike most of the niches that face east, towards the entrance to the cave, this recess faces north. The northernmost feature is likewise a double niche, but in this case, the two niches are carved one on top of the other. This and the neighboring pair of niches (V6 and V7) face towards the central part of the cave.

The lower row consists of three recesses, positioned 20 to 25 cm below the middle row (V9-V11). They are smaller than the niches in the middle row and have rounded cross-sections. Like the group of smaller postholes, they measure less than 20 cm across. Two of these holes are positioned directly below the fifth and the sixth recess from the middle row, whereas the southernmost one was carved below the interval between V3 and V4.

The group of recesses in the upper segment of this wall are not organized in a row (not visible on **Fig. 5**). The reason for this deviation was the rugged surface of the southern wall. Two roughly circular holes (V12 and V13) are positioned one above the other, about 66 cm above V2. The third recess in the upper section of this wall (V14) is placed 75 cm above V6. Like the recesses in the lower row, these features have diameters smaller than 20 cm.

The central part of the scanned area is the center-piece of the cave interior (**Fig. 6**). This is a roughly square area, measuring 7 by 7 meters. The ceiling of the cave is over eight meters high, or almost twice the height of the ceiling in the southern wing. The original floor in this area of the cave was significantly modified and leveled. It is about 30 cm higher than the floor in the northern wing.



Fig. 6

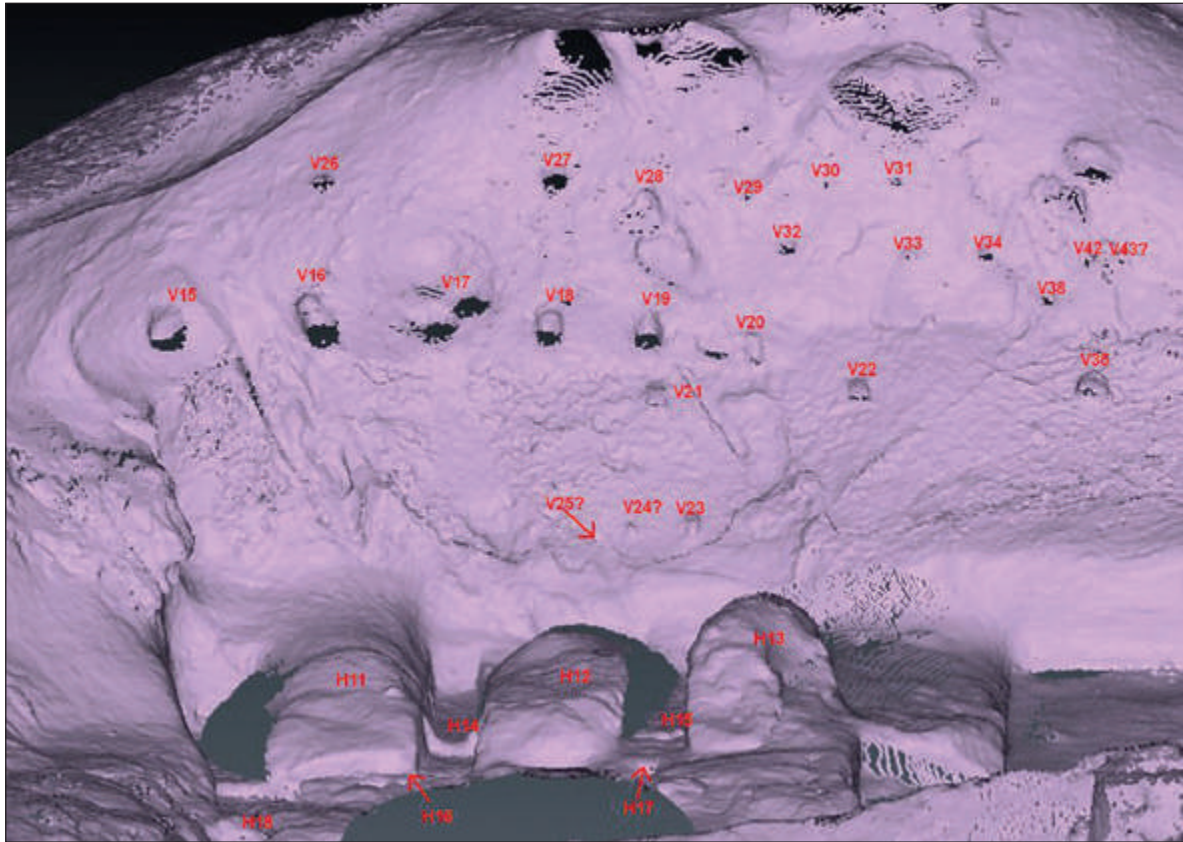


Fig. 7

The central wing contains the only fixed furniture in this interior. These are three benches or altar-like features (Fig. 7, H11-H13), spaced at equal intervals from each other and the southern wall of the cave. It looks as if the natural floor in this part of the cave was at roughly the same level as in the southern wing. The three benches were carved out from the original floor. The rock between the benches was excavated down to a depth of 60 to 70 cm. There are no signs of chiseling on their upper surfaces, which drop gently from the backwall of the cave. But nicely preserved chisel marks can be seen on the sides of the southern bench. They begin 10-15 cm below the upper surface of the bench, which suggests that these were partly natural outcrops.

The southern and the central bench (H11 and H12) are of roughly the same size. They are approximately 1.20 meters wide and their height increases from 30 cm at the frontend to almost 80 cm at the backend. They are 2.8 and 3.2 meters long, respectively. The northern bench, H13, is the least preserved one. Its northern face is badly damaged and there are visible cracks all over its surface. This bench is shaped differently from the other two. It reaches the maximum height of almost one meter in its middle section. From this point, the rough upper surface drops both towards the frontend and the backend of the bench. H13 is 1.25 meters wide and 3.20 meters long. All three benches are spaced 50 to 60 cm apart. The surface of the interval spaces was not cut level. Thin sections of the rock were left in place in the interval spaces between the benches, as if the intention was to create low partition walls (H14 and H15).

There are only a few carvings on the floor in front of the benches (**Fig. 8**). This would have been the entrance area of the shelter and it was kept clear from vertical posts. It is separated from the frontends of the benches by a 50 cm-wide trough that stops at the southern end of H12. Two postholes, H16 and H17, were cut within this furrow. Unlike all other postholes on the floor of Golema Pešt, these are nearly square in shape. Their sides measure approximately 25 cm and they are about 15 cm deep. The southern posthole, H16, is located in front of H11, the northern one, H17, in front of the interval between H12 and H13. They are carved 2.3 meters apart and probably framed an opening into the area with the benches.

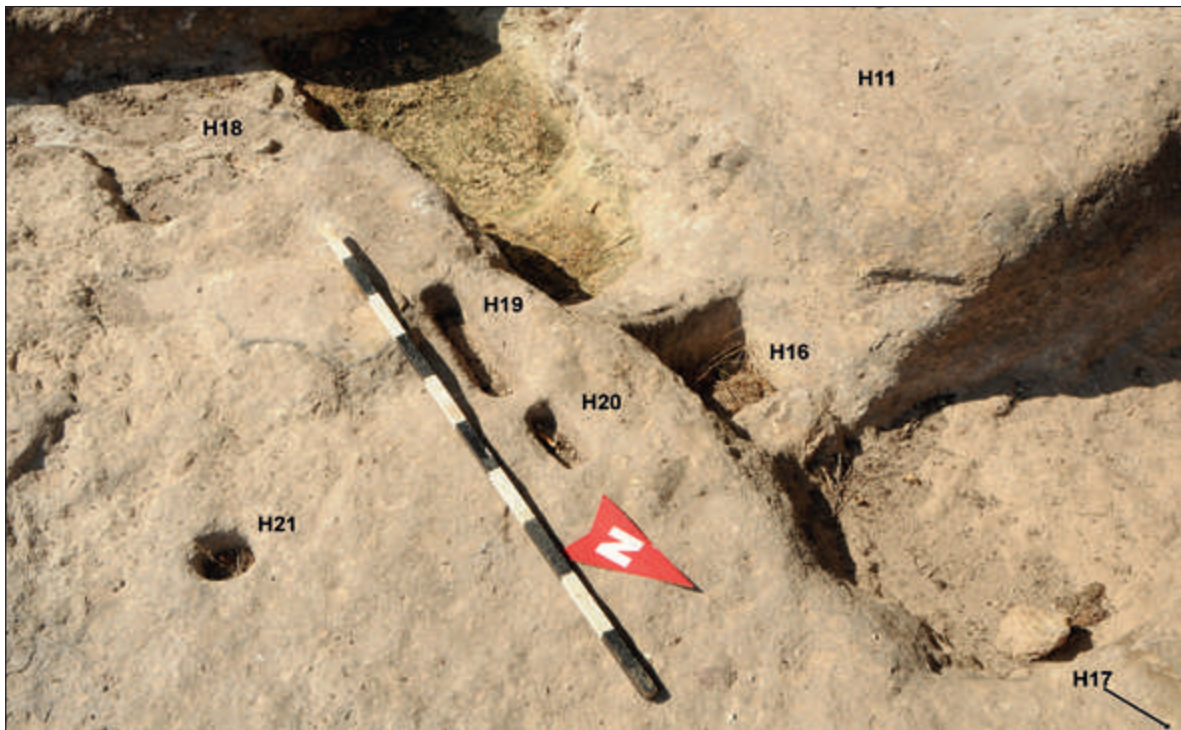


Fig. 8

Excluding the shallow rectangular step carved in the southwest corner of the entrance area, H18, there are three closely spaced carvings on the floor in this area (H19-H21, **Fig. 8**). These are not postholes. H19 and H20 are narrow, rectangular slits cut in front of the southern bench. They are aligned and the distance between the two is six centimeters. Both are seven centimeters wide, but their lengths differ. H19 is over 25 cm long and H20, 11 cm. H21, the third feature carved on the floor of the entrance area, is a perfect circular hole with a diameter of six centimeters. It is located about 60 cm to the east of H19 and H20. The small size of these carvings excludes the possibility that they had any structural function. They were likely used to fix some sort of a screen or furniture in front of the benches, or were part of the locking mechanism of the presumed entrance to the area with the benches.

The backwall of the cave slopes gently inwards up to a height of 3.2 meters, before it sharply turns outwards, ending in numerous spherical recesses in its upper section (**Fig. 7**). The outward sloping segment of the backwall was used as a ledge, on which a number of recesses were carved. These are

not limited to the central area of the shelter, but continue in rows into the northern wing. Because they are carved in an outward sloping plane, their peculiar morphology is especially pronounced. Whereas they are at least 30 cm deep at their bases, their arched upper halves are only several centimeters deep.

The recesses on the backwall in the central wing stand out by their size and depth. They are arranged in two major rows. The lower row consists of six niches with arched tops (V15-V20), half of which are double niches. They are between 30 and 35 cm deep and between 40 and 50 cm high. Most of these recesses are about 40 cm wide. V16, V17 and V20 are double niches. As in the southern wing, both varieties are present. V16 and V17 are composed of two individual niches, cut one on top of the other. The upper niche is usually the smaller. In the case of V20, the smaller niche is carved at the same level and to the right of the major niche. Alternatively, these can be seen as two separate and closely spaced niches.

There is a regular 60 cm-spacing between most of these recesses. This rhythm is broken between V15 and V16 and between V19 and V20. The distances between these pairs are 97 and 26 cm, respectively. It is unclear if this variation was related to the rugged surface of the wall or it was functional. This row of recesses was carved almost 3.5 meters above the floor in the central area of the cave. They were carved at a slightly higher level than the central row on the southern wall. It should be noted that, whereas most of these niches face eastwards, the double niches V16 and V17 face northeast and southeast, respectively.

The few recesses below the inflection line on the backwall in the central part of the cave do not reflect a clear pattern. A couple of arched niches, V21 and V22, were carved about 1.6 meters above the northern bench and 35 cm below V19. They are spaced 1.5 meters apart. These niches are smaller than those in the central row. The larger one is 15 cm deep and 30 cm high. An even smaller niche, V23, was carved approximately one meter below V21. It has the same morphology, but it is 25 cm high and only several centimeters deep. It is unclear if the two small circular holes, V24 and V25, located south of this niche and at the same level, were man-made or natural.

The group of niches above the central row do not form a neat row, which is in large part due to the hollowed surface of the backwall. The first two niches on the south, V26 and V27, are located about a meter above V16 and V18. They were carved 1.8 meters apart. These niches have a similar morphology, but they are squatter in comparison to the niches from the central row. They are still over 20 cm deep, but they are less than 25 cm high. Half a meter to the north of V27 and at a slightly lower level, there is an irregular natural recess, that was possibly shaped into a third niche, V28. It is located 70 cm above V19, the fifth niche from the central row. The next three niches from the upper row, V29 to V31, differ in shape and size from the previous niches. They are round and their diameters do not exceed 15 cm. Although carved at the same level as V26-V28, these three recesses were obviously used as sockets for lighter beams. With the exception of V26, all niches from the upper row were carved at 60 cm intervals.

The northern wing of the shelter measures approximately 10 by 6.5 meters. Its floor is nicely leveled and it is 30 to 40 cm lower than the floor in the central section (Fig. 9). The level of the natural floor in this area cannot be determined. The rock was excavated down to a depth of at least 40 cm, over the entire surface of this section. This is the bare minimum, because the differential weathering and discoloration of the inner surface of the eastern wall suggest that the natural floor of the cave stood over 60 cm higher than the present-day floor (Fig. 10). It is unclear if the eastern wall of this shelter

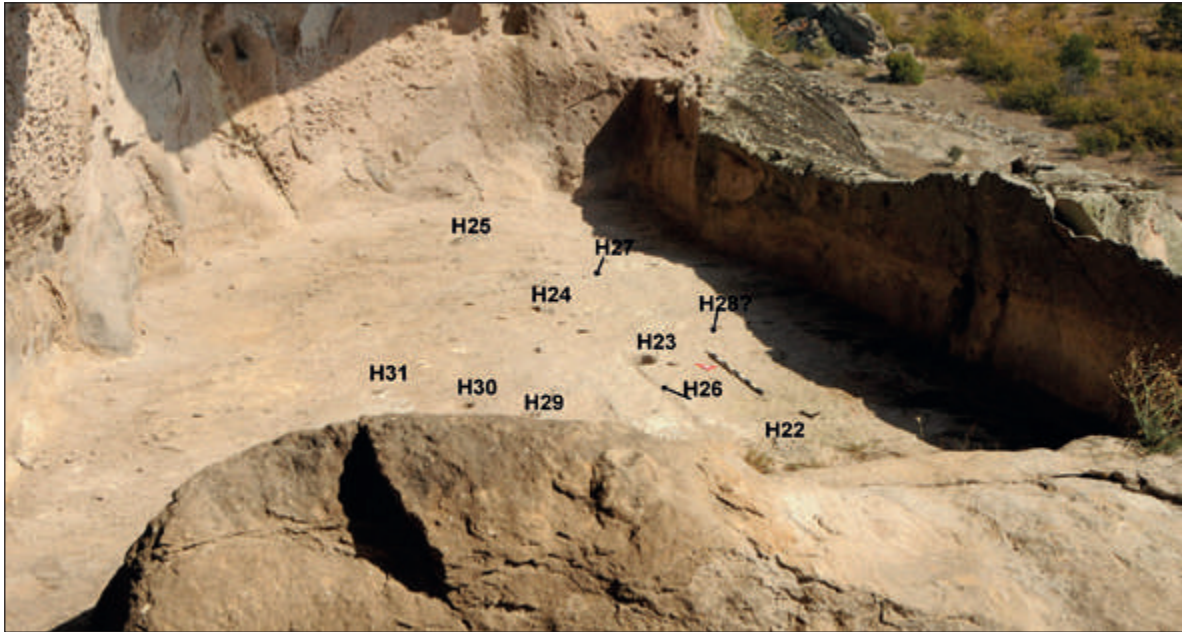


Fig. 9

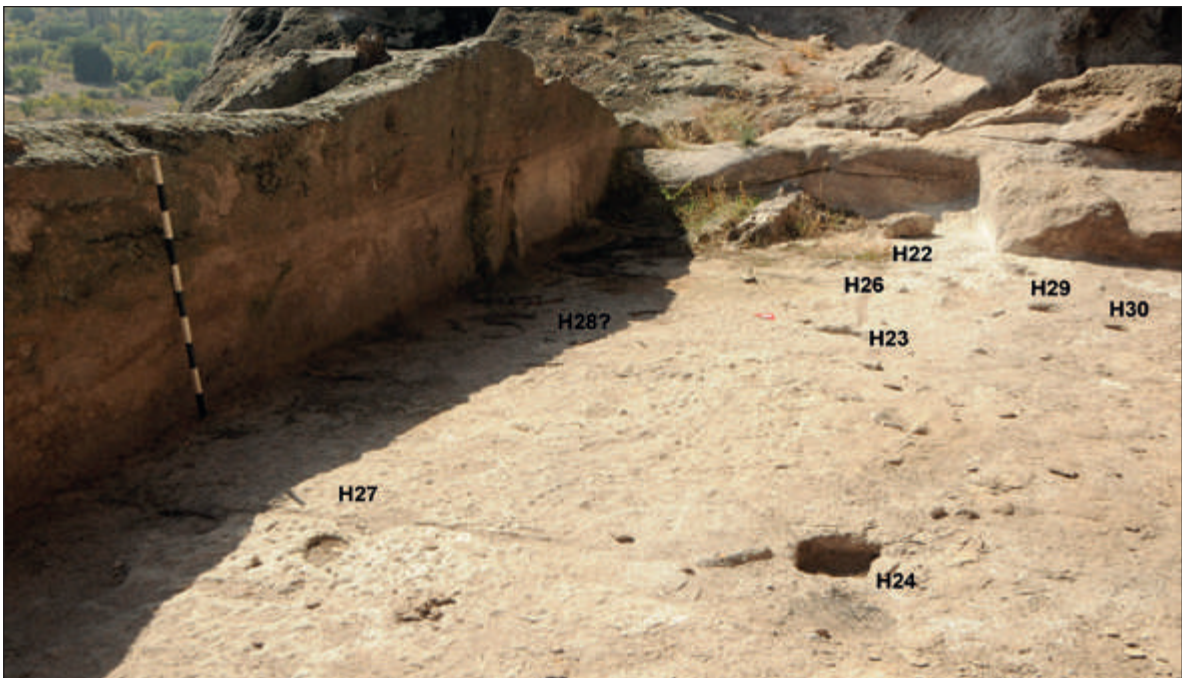


Fig. 10

was artificially created during this process of leveling of the interior or if it was partly natural. In its present form, its maximum height is 1.25 meters.

Starting from the northern edge of the central area, there are four circular postholes in the northern wing, aligned in a row oriented north-south (**Fig. 11**, H22-H25). They are spaced at regular distances, ranging between 2.3 and 2.6 meters. The last posthole, H25, is located less than two meters from the northern wall of the shelter. This line of postholes is located two meters from the outer wall and four meters from the backwall of the cave. The diameters of these postholes measure between 30 and 35 cm. They are 15 to 20 cm deep.

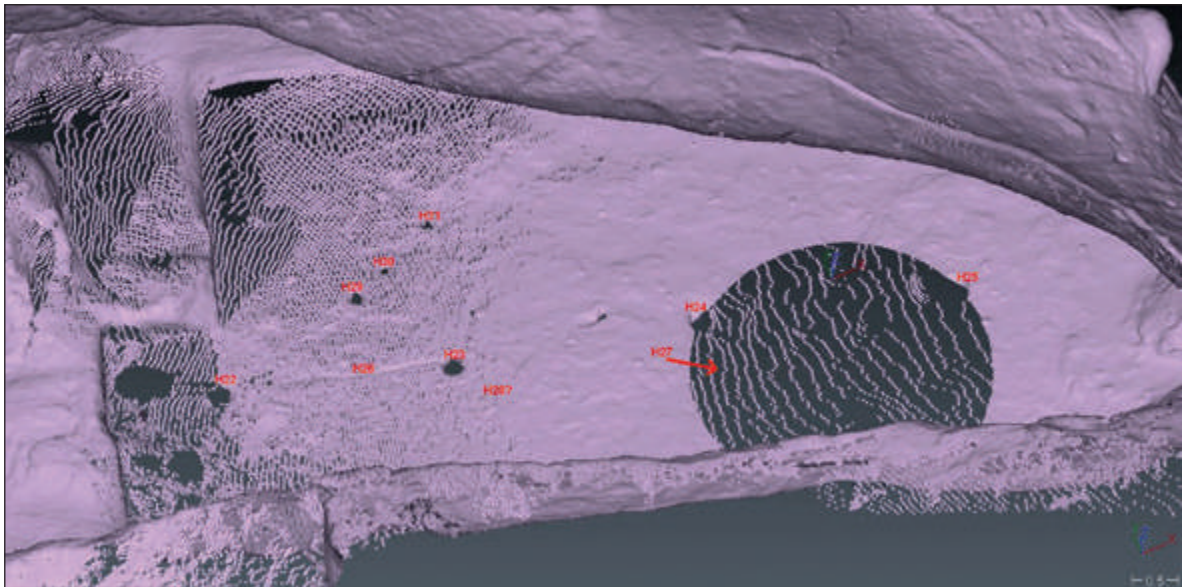


Fig. 11

H22 and H23 are connected with a straight and shallow gauge (H26). Only three centimeters wide and less than a centimeter deep, it is hardly perceptible, even on the point cloud. Similar gauges can be observed extending from H24 and possibly H23 in the direction of the outer wall (H27 and H28). The most logical explanation for these phenomena is that they are the imprints of light screen walls that enclosed and divided the interior of the northern wing.

Another row of three postholes, H29-H31, links to the row oriented north-south under an angle of 45° (**Figs. 10, 11**). It is aligned with H22. The first posthole in this group, H29, is located 1.60 meters from H22. The distance between this and the next posthole, H30, is 30 cm. The third posthole in this row, H31, was carved 60 cm from H30. These three postholes are likewise circular, with diameters of about 20 cm.

There are only two or three recesses below the inflection line on the backwall in the northern wing (**Fig. 12**, V35, V36 and possibly V37). They were carved at the same level as V21 and V22 in the central wing, and were likely the negatives of the beams that spanned the northern wing and rested on the row of four posts, H22-H25. These too are arched niches, somewhat smaller than the niches from the main row in the central part of the shelter. On average, they are 15 cm deep and 25 cm high.

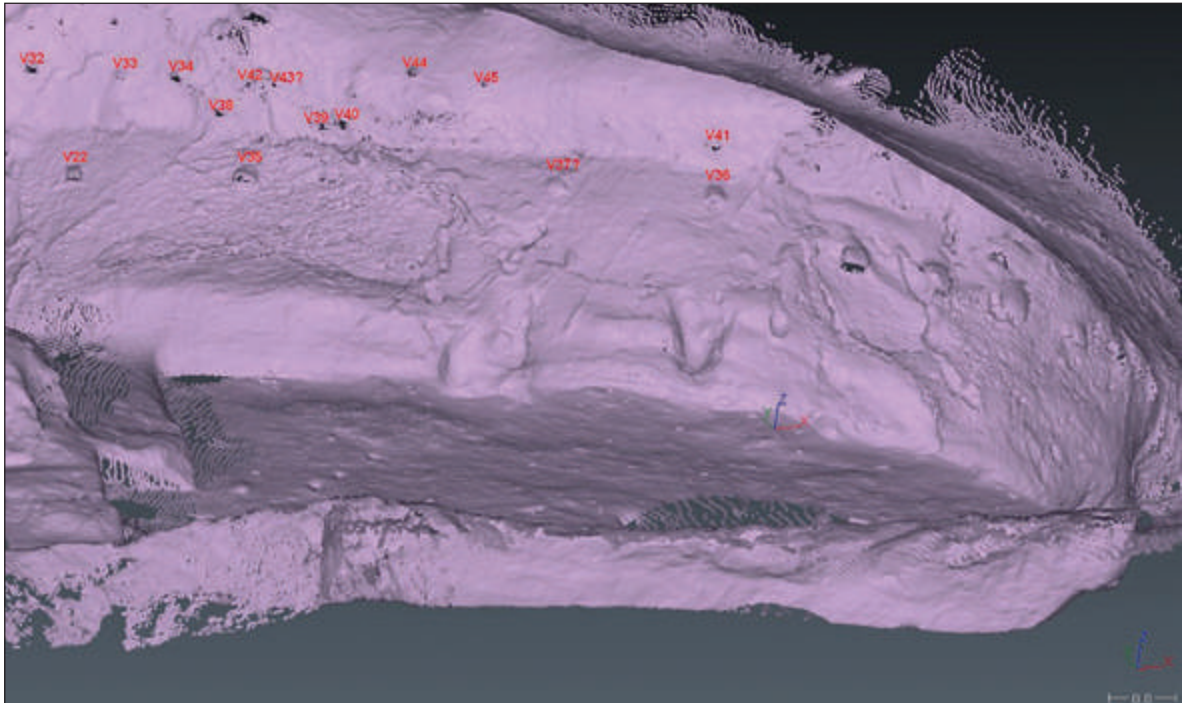


Fig. 12

Two rows of recesses can be seen above the inflection line on the backwall in the northern wing. The lower row consists of four recesses or holes carved immediately above the inflection line (V38-V41). They are spaced irregularly and their structural function, if any, can only be guessed. The distance between V38 and V39 is 1.3 meters, that between V39 and V40 only 30, whereas V40 and V41 are spaced over four meters apart. This last niche is located immediately above V36. These are small arched niches, 15 to 20 cm high and less than 10 cm deep.

The upper row of niches begins in the central part of the shelter. It consists of six or seven recesses, with similar shape and dimensions as those in the lower row. V32-V34 belong to the central part of the cave, whereas V42-V45 to the northern wing. They are carved approximately 30 cm above the previous row. Because of their small size and poorly articulated form, it is impossible to decide if V42 and V43 form a double niche or if these are two different but closely spaced niches. The spacing between these niches is likewise irregular and it ranges from 45 cm between V33 and V34, to almost 1.5 meters between V43 and V44.

The last group of carvings in the northern wing are located on the northern wall of the shelter, over two meters above the floor (**Fig. 13**). Seven of the nine niches on this wall, V45-V51 are aligned in a row that faces the central part of the cave. The distances between neighboring niches vary between 50 and 70 cm. Typically, they are 30 to 35 cm high and 15 to 20 cm deep. However, V46 and V47 are unusually shallow, with depths of only several centimeters. There are no double niches in this group.

On the east, the northern wall of the shelter ends with a natural cavity, in which the remains of three recesses are preserved, V51-V53. V51 is the last niche from the previous row, but it is visibly smaller

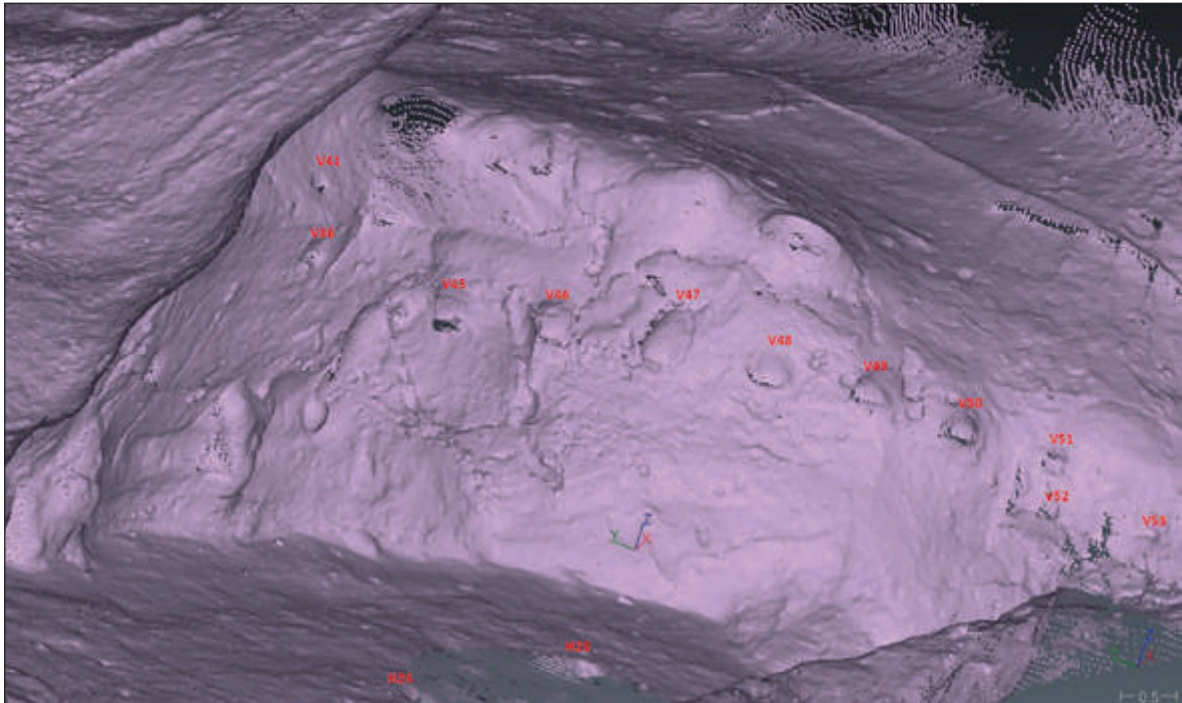


Fig. 13

than the rest and it is poorly executed or worn. About 25 cm below this niche, there is another pair of small niches, V52 and V53, spaced 75 cm apart. They have squat cross-sections with diameters of about 15 cm. These three recesses are roughly in line with the outer wall of the shelter and were possibly used to close its opening.

CONCLUSIONS: INTERPRETATION AND DATING

So far, no attempts have been made to understand the function of the carvings on the walls and floor of Golema Pešt. Informally, in the media, opinions have been voiced that, in general, the rock-cut phenomena at Cocev Kamen had a ritual or symbolic significance (See also Stankovski and Temelkovski, 52). Although, this type of explanations is often difficult to either defend or criticize, in this particular case, they are not very convincing. Not only do they fail to point to any close parallels for the rock-cut features at Cocev Kamen or relate them to any known register of symbols, they also fail to take into account the size, shape and distribution of these carvings in particular sectors of the site. In other words, they are not based on a systematic study of empirical evidence.

Far more convincing, albeit less attractive to the wider public, is to see these carvings as the negatives of a timber construction built inside this natural shelter. Most of the carvings on the floor and walls of Golema Pešt are postholes and sockets for horizontal beams or putlog holes. This is apparent from their shape, size and general layout. The great majority of these holes have identical cross-sections. The postholes are almost always circular, whereas the putlog holes are either niche-like or rounded. The so-called double niches are likely the result of secondary interventions, the goal of which was to reinforce some of the horizontal beams. Consistencies were also observed in the size of these recesses.

In this respect, they can be grouped into two principal groups: one with diameters of 10 to 20 cm, the other with diameters of 25 to 35 cm. These two groups obviously had different structural roles. But the strongest indicator of the architectural function of these phenomena is their layout. The majority of these recesses are aligned in rows, although admittedly, there is no ideal match between the recesses on the floor and the walls. There is also a system in the distribution of the recesses of various size. The group of larger recesses, both the postholes and the putlog holes, almost always belong to the central rows and were obviously meant to carry the main brunt of the construction. On the other hand, the group of smaller recesses regularly appear above, below or aside the main rows and their primary function was to provide additional support to the large posts or to create inner divisions.

This building (or buildings?) had a timber framework and its walls were constructed in the *pisée* or wattle and daub technique. The imprints of these walls are possibly preserved on the floor in the northern wing. Their small width suggests that these were light screens, probably made of twigs. There is no evidence of stone architecture at Golema Pešt. Stone rubble or architectural ceramics are absent and the surface of the rock does not show any traces of leveling for stone foundations (Cf. Snively 2014, 193-204). This was a building of light construction, made entirely of organic materials.

It is not easy to comprehend the details of the plan and the appearance of this building. Not only is large part of the evidence missing, it is also possible that the entire corpus of postholes and putlog holes was created over a long period, changing the original pattern beyond recognition. It is logical to assume that the vertical posts carried the architraves on which the outer ends of the horizontal beams from the roofs rested. This is borne out by the orientation of the rows of postholes, which are roughly normal or oblique to the matching rows of putlog holes. But this is not always the case. For example, in the northern wing, it is not entirely clear which vertical posts provided support for the horizontal beams set in the sockets on the northern wall. Because the row of four postholes in this part of the cave is roughly parallel to the orientation of the roof beams, the only possibility is that the latter rested on a horizontal beam spanning the distance between H25 and the backwall of the cave. If that was the case, the northern wing must have been covered by a gently sloping roof, because the putlog holes on the backwall of the cave are 30-40 cm higher than those on the northern wall. A similar difficulty is posed by the group of recesses in the southern wing. Most of them are facing outwards and seem disconnected from the construction in the central and northern wings. It looks as if their role was to provide a roofing for the staircase and parts of the entrance area.

It is certain that the outer wall of this building coincided with the group of four postholes, H22-H25 in the northern wing and the two square postholes, H16 and H17, in front of the benches in the central area. This row of posts oriented north-south carried the horizontal beams on which the roof over the central part of the cave rested. Note that this row of vertical posts would have been in line with the putlog holes V6 or V7 on the southern and V49 or V50 on the northern wall. It is unclear if this façade extended all the way to the northern wall of the cave or if H25 marked the northeast corner of the building. In view of the orientation of the putlog holes on the northern wall, it is plausible that both the northern and the southern wings had separate roofs that run perpendicularly to the roof over the central part of the cave. Formally, they look like annexes to the central room.

The distribution of the putlog holes on the backwall of the cave is also indicative of the existence of two structurally separate roofs over the central part of the building. Not only is the group of putlog holes over the area with the benches higher than those in the northern wing, but they are also visibly larger and the horizontal beams set in these sockets must have been of a variable size. It is thus evident that the roof over the southern half of the northern wing was lower and of a lighter construction than the roof over the area with the benches. Presumably, both roofs continued beyond the line of the outer wall of this building to provide shelter for the entrance area and the two-meter-wide corridor between the outer wall of the building and the opening of the shelter. The imprints on the floor of the northern wing suggest that this corridor was divided into a series of outward-facing rectangular rooms. We suspect that the main entrance was in the northern wing. The hypothetical opening framed by the square post-holes in front of the benches could not have served as the most convenient entrance to this building.

The large size and the close spacing of the putlog holes strongly indicate the presence of a second floor, at least over the area with the benches and possibly over the southern wing. The construction of such a heavy rooftop was absolutely unnecessary in a rock-shelter. This is further corroborated by the upper rows of putlog holes, documented on the backwall of the cave and in the southern wing. Their role is far from clear, but a possible explanation is that they were the sockets for the beams from the roof construction. If this was the case, the rooftop was essentially turned into a low attic. The height differential between the upper and the central row of putlog holes is less than one meter, which means that this space was not inhabitable, but it must have been ideal for storage.

The surface of Golema Pešt is completely barren. Even the postholes contained only a small amount of sterile infill from the disintegrating rock. Not a single datable artifact was found inside the cave or in its immediate surroundings. It is logical to conclude that at a certain point of time, all building remains and furniture had been carefully removed from this cave, after which it was never occupied permanently again. Because of the low sedimentation rates in this area, Golema Pešt, like virtually all other rock-shelters at Cocev Kamen and the neighboring sites, has remained barren to this day (Cf. Snively 2014, fig. 6).

The other possible explanation for the complete absence of sediments in a setting, which from a geoarchaeological perspective is a prime sediment-trap, is far more disconcerting and difficult to verify. Some local informants have suggested that Golema Pešt was thoroughly stripped of its contents during the “revitalization” campaign at this site, undertaken by the mentioned group of amateur archaeologists in the mid-2000s (Stankovski and Temelkovski 2018, 52). This must have been a colossal task, both in view of the large amount of material that had to be removed and the inaccessibility of the shelter for mechanical diggers. The implications are that this entire operation had to be carried out by hand-tools which, unless it is assumed that the floor had been covered with a thin infill layer, do not inspire trust in these rumors. Still less convincing are the informal remarks made by some colleagues that at least some of the rock-carvings at this site are not authentic. The great number of these carvings, their inaccessible positions and their coherent distribution coalesce against this possibility.

Be this is as it may, the lack of any deposits or artifacts that can be associated with this particular space deprives us of the possibility to discuss its character and chronology on the basis of positive evidence.



Fig. 14

Nonetheless, the evidence at hand does support a couple of observations that will hopefully narrow down the seemingly endless field for speculations about the nature of these remains.

The carvings in Golema Pešt did not belong to a residential building. This is ruled out both by its large size and complex layout, as well as by the special place of Golema Pešt within Cocev Kamen. The building reconstructed in this study has a usable area of over 120 square meters and ceilings that stood nearly three meters above the floor. This would have not only been overly pretentious for an ordinary rural dwelling, but it would have made the heating of this spacious and partly open interior impossible. The impression that this building had a special function, religious or for storage or most likely both, is further underlined by the ceremonial nature of the only access that leads to it. The long and treacherous flight of steps would not have been very convenient for the daily commuting of people and live-stock. Golema Pešt was a separate precinct that lied in close connection to the settlements on the southwest terrace of the outcrop and at its southern foot, but was not a part of it.

Notwithstanding the considerable efforts invested in the adaptation of this space, the construction technique was primitive and it would have been accessible even to the earliest, Neolithic occupants of this site (Cf. Sanev 1988, 9-30). This means that it could have been constructed in any of the periods represented in the surface and stratigraphic record of this site. C. Snively (2014, 200) has pointed to the rock-cut architecture at the neighboring site of Golemo Gradište, dated primarily to Late Antiquity, as the closest parallel for the similar remains at Cocev Kamen. But attention must also be called to the numerous similarities between the rock-carvings in Golema Pešt and those in the other sectors



Fig. 15

of Cocev Kamen. The rocky surface of this outcrop abounds with circular postholes and putlog holes that show exactly the same profile as those carved in Golema Pešt (Fig. 14). Other details, like the narrow, rectangular slits in front of the benches in the central part of the shelter have perfect replicas in a small cavity near the top of the outcrop that was apparently transformed into a water reservoir (Cf. Fig. 15 and Fig. 8). The formal similarities between these features are simply too great to be dismissed as incidental. It is therefore worth considering the possibility that the majority of these rock carvings were created during one period of occupation of this outcrop. The systematic survey of this site and the rescue excavations at its southwest terrace have so far identified three major phases of occupation on the outcrop, dating to the Eneolithic, the Late Bronze Age and Late Antiquity. It is a sensible assumption that the building in Golema Pešt together with the majority of the timber constructions that covered the surface of Cocev Kamen were built in one of these periods.

ILLUSTRATIONS

Fig. 1. Map of “Cocev Kamen” with a plan of the survey polygons and grids; inset, map of the general location of the site.

Fig. 2. Drone photograph of “Cocev Kamen”, from above.

Fig. 3. The eastern slope of “Cocev Kamen”.

Fig. 4. Point cloud of the interior of “Golema Pešt”.

Fig. 5. Point cloud of the southern wing.

Fig. 6. The central wing and the area with the “benches”.

Fig. 7. Point cloud of the central wing.

Fig. 8. The carvings on the floor in the entrance area.

Fig. 9. View at the floor of the northern wing.

Fig. 10. View at the northern wing and the outer wall of the rock-shelter.

Fig. 11. Point cloud of the floor in the northern wing.

Fig. 12. Point cloud of the backwall in the northern wing.

Fig. 13. Point cloud of the northern wall.

Fig. 14. The remains of a house on the southwest terrace.

Fig. 15. Rock-carvings in the water reservoir near the top of “Cocev Kamen”.

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Atanas Kipro*Institute for Protection of Monuments of Culture and Museum – Ohrid***Атанас Кипро***Завод за заштитата на спомениците на културата и музеј – Охрид***MATT-PAINTED POTTERY FROM OHRID:
REGIONAL CONNECTIONS IN THE LATE BRONZE AGE
(Transitional Period)¹****МАТ СЛИКАНА КЕРАМИКА ОД ОХРИД:
РЕГИОНАЛНИ ВРСКИ ВО ДОЦНОТО БРОНЗЕНО ВРЕМЕ
(транзициски период)****ABSTRACT**

This paper focuses on several phenomena that were present in Ohrid in the Late Bronze Age or, more precisely, in the Transitional Period, but mostly on the emergence of matt-painted pottery. Through the analysis of these phenomena an attempt is made to establish regional connections in the Western and Central Balkans in the Transitional Period from the Bronze Age to the Iron Age. First and foremost, connections are drawn among the regions of Ohrid, Korça and Prespa as well as the upper Aliákmon River valley and the middle and lower Vardar River valleys.

Keywords: *matt-painted pottery, Ohrid, Plaošnik, Transitional Period.*

АПСТРАКТ

Овој труд се фокусира на неколку феномени кои биле присутни во Охрид во доцното бронзено време или поточно во преодниот период, но најмногу на појавата на мат сликана керамика. Преку анализата на овие појави се прави обид да се воспостават регионални врски меѓу Западен и Централен Балкан во преодниот период од бронзеното до железното време. Прво и најважно, врските се направени меѓу регионите на Охрид, Корча и Преспа, како и долината на горниот тека на реката Алиакмон и долината на средниот и долниот тек на реката Вардар.

Клучни зборови: *мат сликана керамика, Охрид, Плаошник, транзициски период*

¹ This paper is an adaptation of the text presented in the second chapter of my master's thesis entitled: *The Ornamentation of Matt-painted Pottery from the Iron Age from Macedonia with an Emphasis on the Finds from Ohrid*, defended at the Faculty of Philosophy in Skopje on 14.07. 2023.

THE EMERGENCE OF MATT-PAINTED POTTERY IN OHRID

For a long time the Ohrid Region in the southwestern part of the R. of Macedonia² was an archaeological *terra incognita*, especially referring to prehistory. Apart from a limited knowledge of the Neolithic and Chalcolithic, the Bronze and Early Iron Ages were almost unknown. So far the earliest and not so reliable mention of pottery that can be related to the category of matt-painted pottery we find in Heurtley (1939). He mentions pottery fragments from the Ohrid Basin (in the collection of the British School at Athens) similar to the so-called Boubushti ware (Heurtley 1939, 229). With the more recent systematic archaeological researches in Ohrid, primarily, at the sites of Plaošnik and Samoil's Fortress, a lot of new data was obtained. Although the acquired knowledge and archaeological data, at least so far, have not been sufficiently and most appropriately processed and published, it gradually begins to fulfill some of the gaps and starts to clarify many of the ambiguities from the past. This especially refers to the Late Bronze Age, i.e. the Transition Period. Many fragments of monochrome and matt-painted pottery belonging to this period have been discovered at the site of Plaošnik. They have clear and direct analogies with similar or identical synchronous examples from the Korça Basin in SE Albania, Povardarie Region (middle Vardar River valley) in the central part of the R. of Macedonia and the lower Vardar (Axios) River valley (central Macedonia region) in northern Greece. In this paper we present only three matt-painted pottery fragments from Plaošnik (**Fig. 1.**), with a possible reconstruction of the vessel.³ Although extremely limited in number, judging by their shape and the way they are decorated quite clear conclusions can be made.

The first fragment belonged to a small vessel, probably an alabastron, with an irregular spherical body and horizontally arranged “tunnel” handles, decorated with solid “upright” and “pendant” triangles. This is one of the most characteristic forms for this period which represents a local imitation of a Mycenaean vessel (**Fig. 1: a, Fig. 2: a**). It has direct analogies with similar vessels from the Povardarie Region (the so-called Ulanci group) (**Fig. 3: top row**) (Mitrevski 2006, 88, Fig. 2; Видески 2006, 73, T. III и 74, T. IV). The second fragment is part of a small vessel with a spherical body and a round flat foot, decorated with horizontal lines and a full “pendant” triangle (**Fig. 1: b, Fig. 2: b**). Similar vessels on a foot, amphoriscoi, again local copies of a Mycenaean form, were found in the Ulanci group in Povardarie (Видески 2006, 74, T. IV: 5 и 6) and a monochrome example is also known from the nearby site of Sovjan in the Korça Basin in SE Albania (**Fig. 3: bottom row**) (Cabanes et al. 2001, 721, Fig. 11). Perhaps the most indicative is the third fragment which features a characteristic motif, the so-called “moving spiral” or “spiral in motion” which is thought to have been taken from the Mycenaean tradition (**Fig. 1: c**) (for comparison see: Mylonas 1966, 332, Fig. 149: c). This motif is characteristic only for the Late Bronze Age and the Transitional Period and it was not found among the matt-painted pottery of the Early Iron Age nor on the Geometric pottery of Greece (Gavela 2002, 128). Therefore it can be said that the dating of this fragment is most certain. This motif was painted

² Since 2018 officially known as (R. of) North Macedonia (The author of this paper does not recognize the name North Macedonia).

³ We emphasize that their number is far greater, but the current conditions during the processing of the pottery for the needs of my master's thesis, in the NI Institute and Museum-Ohrid, allowed the inclusion of only this limited number of fragments.



Fig. 1

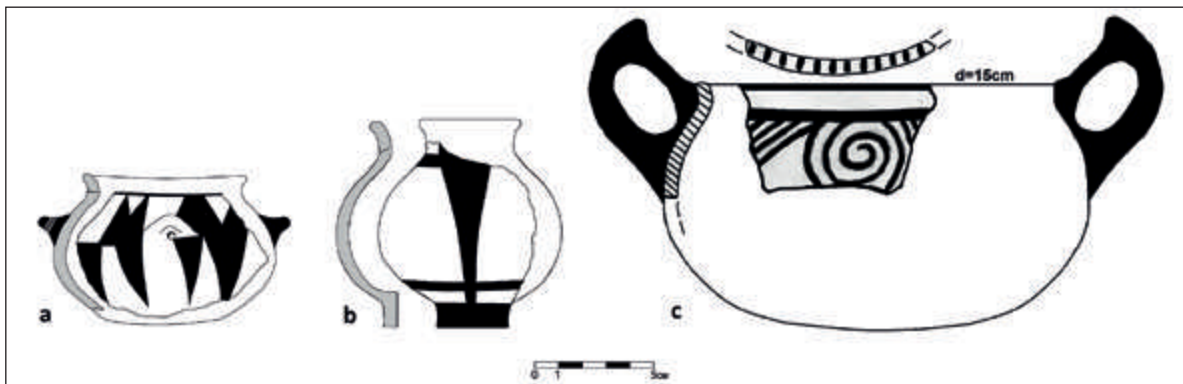


Fig. 2

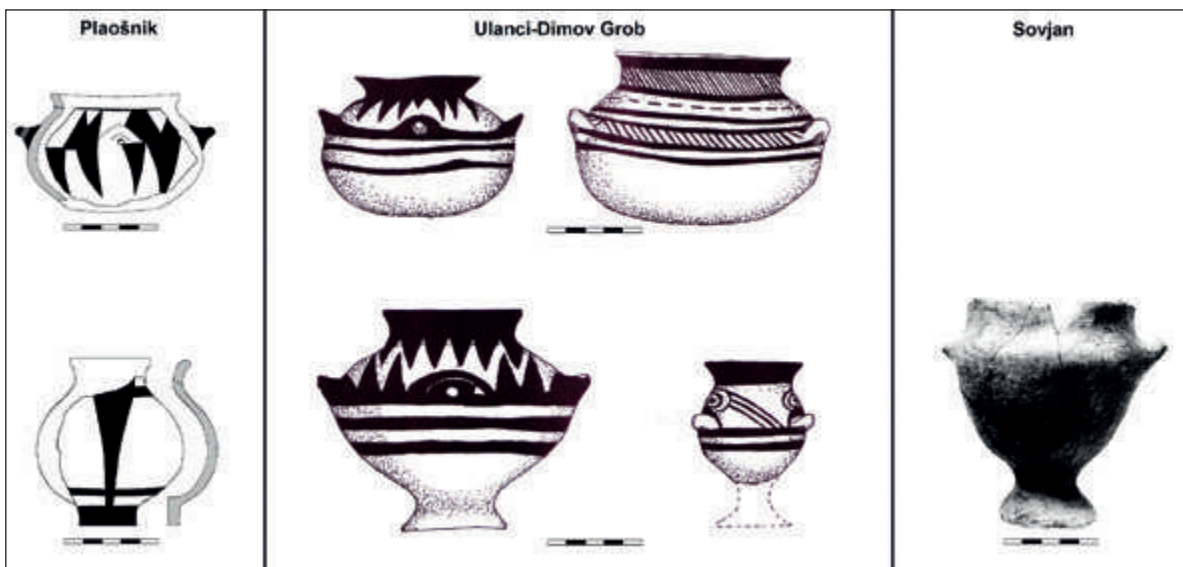


Fig. 3

on vessels of various shapes, such as alabastrons, amphoriscoi and kantharoid vessels.⁴ But, according to the preserved dimensions and the decoration on the upper surface of the rim which is characteristic for the matt-painted “kantharoi” from the middle and lower Vardar River valleys (Митревски 2021, 102), it is more likely that this fragment belonged to a kantharoid vessel (**Fig. 2: c**). Such vessels were discovered in the nearby Korça Basin (Krapf 2014, 595, Fig. 10: b) as well as in Povardarie Region (Mitrevski 2006, 88, Fig. 2; Видески 2006, 71, Т. I и 72, Т. II) and also in the Aliákmon and lower Vardar (Axios) River valleys in northern Greece (the regions west and central Macedonia) (**Fig. 4**). A very similar spiral motif was found on a pottery fragment from the site of Vardarski Rid in the Vardar River valley (Видески 2005, 100 и 110, Т. VI: 2) (**Fig. 4: compare “a” with “c”**). Also, the reconstruction is based on the fact that handles characteristic for the Late Bronze Age kantharoid vessels (both monochrome and matt-painted) were also found at the Plaošnik site (**Fig. 5**). Even more, the handle fragments have the characteristic impression on the upper surface of the handle attachments which is the basic feature of Late Bronze Age “kantharos” handles. As pointed out: “The distinct perforations/impressions on the handle attachments of unpainted kantharoi at Sovjan and Maliq were influenced by central Macedonian matt-painted vases and the matt-painted style itself...” (Krapf 2021, 665).

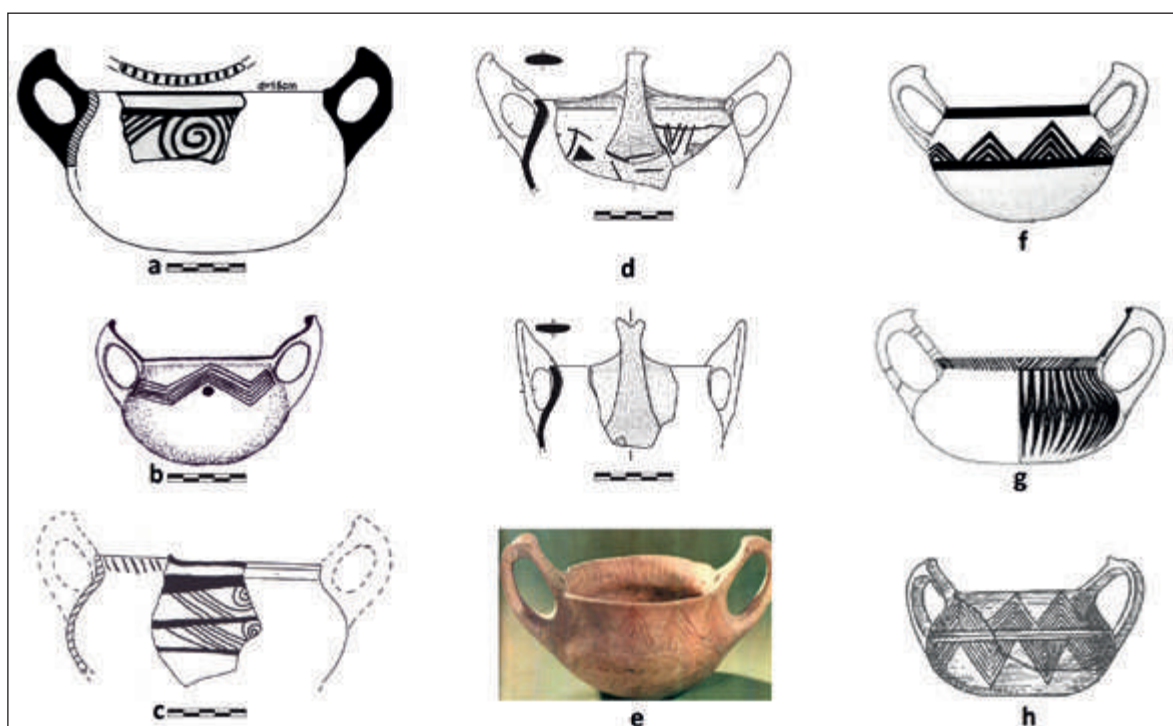


Fig. 4

The question arises about the direction of spread of matt-painted pottery in the Ohrid Region. A logical conclusion would be that this phenomenon came from the south i.e. from the production centers along the Aliákmon River and through the Korça Basin (**Fig. 6**). But as we have seen, the displayed

⁴ I prefer the term *kantharoid vessel* instead of the more common *kantharos*. Therefore, if the term *kantharos* is used in the paper, it is always done with quotation marks.

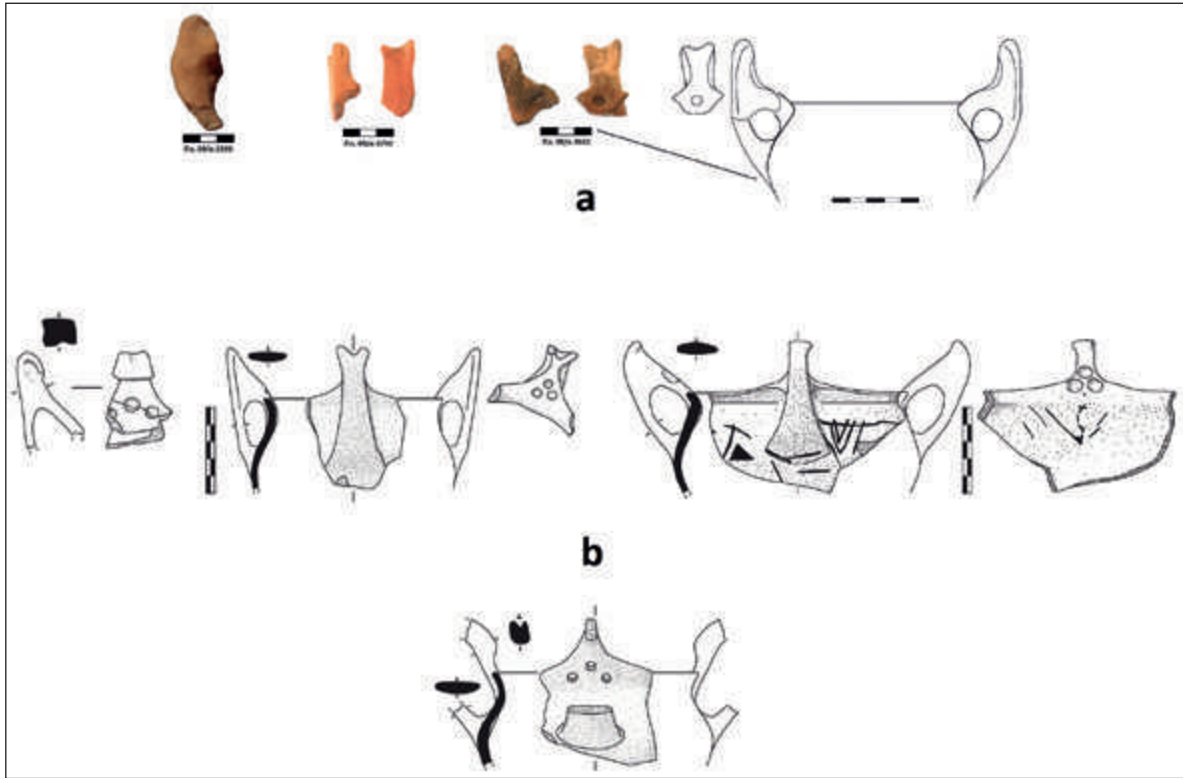


Fig. 5

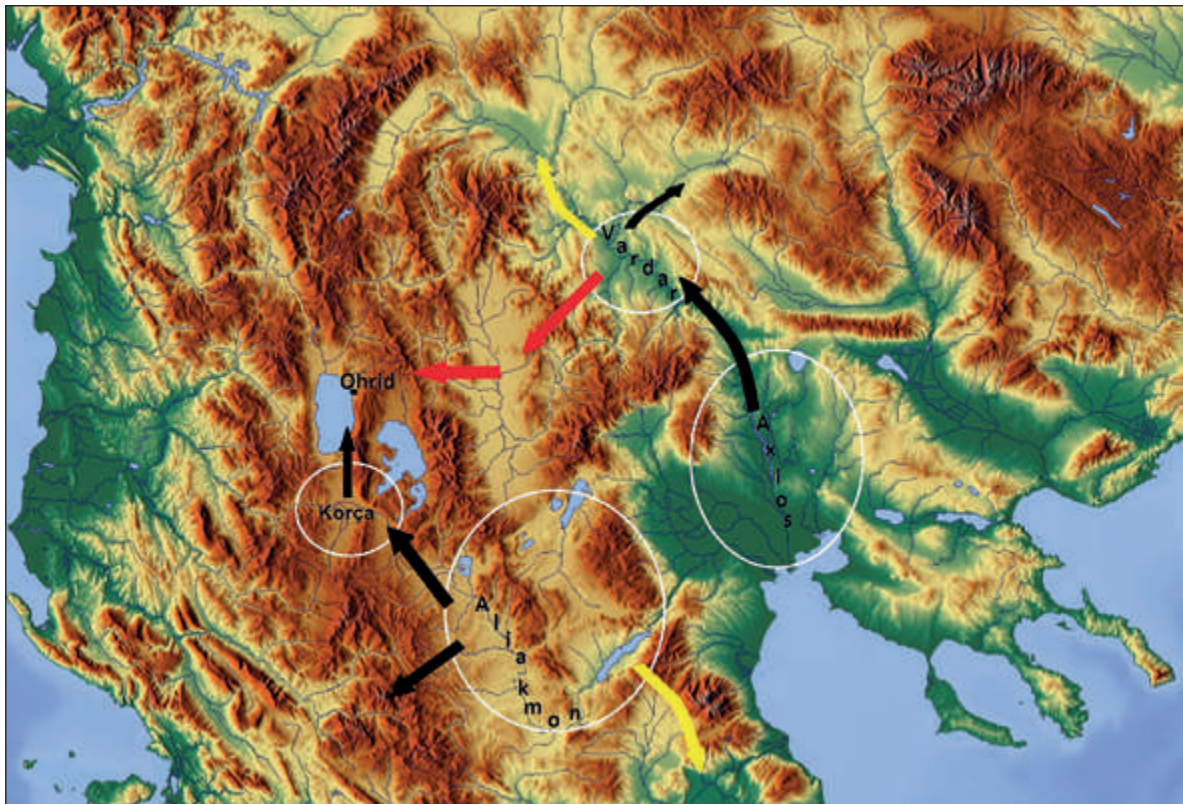


Fig. 6

fragments also show a connection with the Vardar River valley, especially with the so-called Ulanci group (Митревски 2013, 183-188, 207, Сл.62). Hence it is possible that the spread of matt-painted pottery came from two directions not only from the south, but also from the east through the plain of Pelagonia (**Fig. 6. red arrows**). In Pelagonia in the so-called “ceramic depot” discovered in Varoš, Prilep, characteristic Ulanci group vessels were found (Митревски 2013, 187; Митревски 2021, 102, Сл. 64: 8). The connections with the lower Vardar River Valley i.e. central Macedonia in present-day northern Greece were also noted in the Korça Basin. As shown, throughout the Bronze Age the region of Korça and the entire lake area of Ohrid and Prespa share a very similar ceramic typology and decoration with Macedonia and the matt-painted pottery from Korça has analogies with that of central and western Macedonia (regions in northern Greece) (Krapf 2021, 665). In this context let me mention another phenomenon that connects the Ohrid and Korça regions which according to many features, at least in the Late Bronze Age and Early Iron Age, stand out as culturally related regions. That is the use of the characteristic cooking vessel the so-called pyraunos (**Fig. 7.**), element that again connects this area with the region of central Macedonia in northern Greece (Krapf 2021, 665), but also with the entire Vardar River valley. As shown, this type of vessel has been in use since the Middle Bronze Age in the Carpathian Basin and during the Late Bronze Age it spreads to and was in full use in domestic contexts along the Danube valley and the central Balkans its southern area of distribution being the northern Aegean (Gimatidis 2017, 254 – 255; Митревски 2021, 128 – 129).

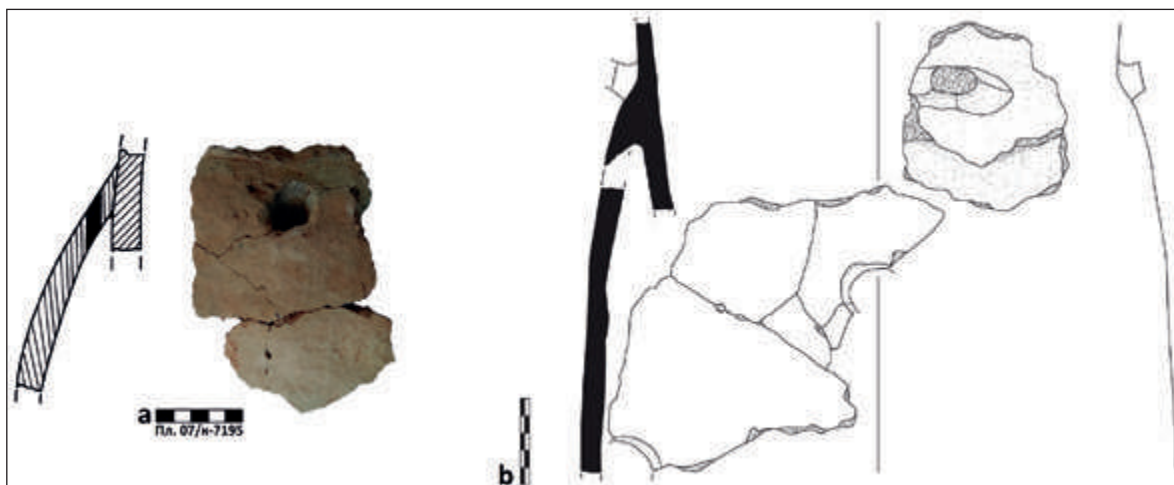


Fig. 7

Returning to the matt-painted pottery the assumption about the possible “contacts” of the Ohrid Region with the Vardar River valley via this route remains to be either confirmed or rejected in the future with possible new discoveries of Late Bronze Age or Transitional Period matt-painted pottery in Pelagonia.

According to the available data I am inclined to date the emergence of matt-painted pottery in Ohrid to the end of the 12th and the beginning of the 11th century BC, that is, the period when this pottery appears in the so-called Devoll or Korça group (Петрова 1996, 198-199; Tsonos 2018, 105) and the maximum spread of the Ulanci group (Митревски 2013, 187).

DATING THE EMERGENCE OF MATT-PAINTED POTTERY IN OHRID

The dating is the biggest problem and challenge in the processing and analysis of the matt-pottery fragments from the sites of Plaošnik and Samoil's Fortress in Ohrid. This results from the degree of preservation the fragmentary nature of the vessels from Ohrid and mainly from the fact that they were basically discovered in disturbed and insufficiently clear archaeological contexts.⁵ Another problem is that there are many different and somewhat contradictory chronologies in circulation for this type of pottery, although lately it seems that this problem is gradually being sorted out mostly by obtaining more accurate absolute dates. I have already suggested that the appearance of matt-painted pottery in Ohrid should be dated to the end of the 12th and the beginning of the 11th century BC a period in which it is also placed in the geo-morphologically similar Korça Region.

The settling of the Ohrid hill (**Fig. 8.**) is usually placed to the Late Bronze Age and Early Iron Age (Битракова Грозданова 2012, 101-102), which is clearly indicated by the finds mainly fragments of monochrome and matt-painted pottery. As pointed out, during the Transitional Period from the Bronze Age to the Iron Age (c. 1000 BC), the inhabitants of the lowland swampy lakeside part of Ohrid (in which people lived for several thousand years starting from the Neolithic) gradually began to inhabit the Ohrid hill in the area from Plaošnik to Samoil's Fortress (Кузман 2017, 151). With the

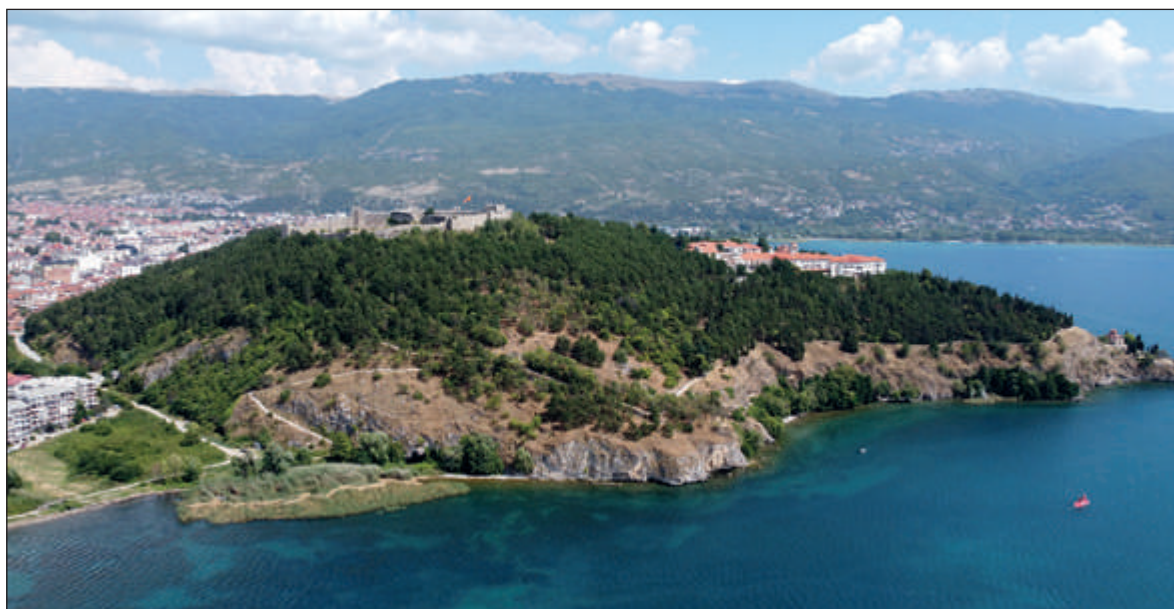


Fig. 8

latest recently published geo-archaeological research from 2019 (Hošek et al. 2021), the time when this settling took place as well as the reasons that conditioned it can be determined much more precisely. In this campaign one location was investigated along the western foot of the Ohrid hill near

⁵ Another problem was that the field documentation from the archaeological excavations of Plaošnik and Samoil's Fortress was unavailable, at least not at the moment.

the mouth of the Grašnica River in the lake, during which a deep sounding (drilling) was carried out. Based on the samples taken from this drilling, a lake sediment with a thickness of 3.5 m connected to deep water was found on macrofossils of terrestrial vegetation, processed wood and many fragments of Late Bronze Age pottery. The deep lake sediment was an indication that a catastrophic flooding occurred. Carbon analysis of the retrieved wooden stakes showed a calibrated date of 1214 BC which corresponds with the discovered pottery fragments and it was concluded that this flood occurred shortly after that. Since the Ohrid area is located in a highly seismically active zone, it has been suggested that the sudden flooding of the Ohrid plain was caused by a strong earthquake, resulting with the sinking of the tectonic fault bordering the Ohrid alluvial plain. It was further concluded that this event coincides with the period when a dramatic change in the way of life was observed in the region i.e. abandonment of the lowland settlements and settling of higher positions (Hošek et al. 2021, 1). Assumptions have been made before regarding the reason for this clear change in the Transition Period and settling in locations of at least 700 m above sea level. They suggest that this happened gradually, as a result of a rise in the lake level under the influence of frequent floods of the alluvial plain, caused by climate change. But this research showed that it was not a gradual process, on the contrary, a sudden and dramatic event caused by an earthquake (Hošek et al. 2021, 7). The researchers conclude that this earthquake occurred within the so-called “earthquake storm” in the Eastern Mediterranean, dated between 1225-1175 BC. More recently, this increased seismic activity in the Mediterranean is seen as one of the many factors that contributed to the demise of the first urban civilizations in the Aegean (Hošek et al. 2021, 1).

The emergence of matt-painted pottery on the Ohrid hill fits well with the indicated exact facts and in a certain way reinforces the assumption of a sudden change of lifestyle in this region. According to the available archaeological data from this period an opinion has been expressed that this movement of the population from the plains to the hills was accompanied by an increased interest in finding metal resources (Eftimovski 2022, 279), as well as a change in agriculture through the use of hilly pastures (Hošek et al. 2021, 7) in the wider central Balkan region.

If we accept the results of this research that would mean that the early 12th century BC should be the date when settling of the Ohrid hill occurred. This can be best illustrated by examples of Late Bronze Age monochrome pottery found at the site of Plaošnik.⁶ They are particularly close to the pottery material from the same period found at the site of Sovjan in the Korça Basin (**Fig. 9.**), which was a coastal settlement on the former lake Maliq. This site, unlike Plaošnik, has a very clear stratigraphy, so it is of great use for the dating of the material from Ohrid as well. The pottery in question from Sovjan belongs to layer 5c1 which is dated to the end of the Late Bronze Age i.e. the Transitional Period and corresponds to the layers 13 and 12 from Kastanas (Krapf 2018, 124). According to the absolute chronology for Kastanas derived from carbon dating, layer 13 corresponds to the time frame of 1170 to 1150 BC and layer 12 from 1150 to 1050 BC (Weninger and Jung 2009, 404-405, Tab. 4a and 4b). Compared to the Helladic chronology it would correspond to the Middle-advanced, Late-sub phase of LH IIIC and the Sub-My-

⁶ This material is unpublished. I singled out the fragments during the processing of the matt-painted pottery from Plaošnik for the purposes of my master's thesis in order to facilitate the dating process but also to illustrate more clearly the earliest settling of this site.



Fig. 9



Fig. 10

cenaeen period (Weninger and Jung 2009, 416, Fig. 14; Facorellis 2017, 753, Fig. 3. See left: Low absolute chronology; Gori and Krapf 2016, 98, Fig. 2). Here it would be appropriate to mention two wheel-made pottery fragments from Ohrid (one from Plaošnik, and the other from Samoil's Fortress), which stand out from the rest of the processed material from these two sites according to the way they were made and decorated. Regarding the first from Plaošnik (**Fig. 10: a**) due to the manner in which the decoration has been executed with a wavy line, most probably it belonged to a Late Mycenaean vessel (Examples of Late Mycenaean pottery decorated with a wavy line, see in: Andreou and Psaraki 2007, 414, Figure 16.; Papadopoulos 2015, 209, Fig. 12, 13). Related to this, several pottery shards from Mycenaean vessels discovered in Sovjan can be pointed out (Krapf 2021, 661-662). As for the second fragment of Samoil's Fortress (**Fig. 10: b**), with a great caution, I can say, it probably belonged to a Sub-Mycenaean vessel.⁷ If the proposed dating turns out to be correct, then the fragment from Samoil's Fortress would be among the oldest finds at this site, which would also imply that the area of Samoil's Fortress was settled for the first time at the end of the 11th c. or the beginning of the 10th c. BC, in contrast to Plaošnik, whose settling would have been somewhat earlier at the beginning of the 12th c. BC.

In all previously published papers that mention matt-painted pottery from Ohrid, it is emphasized that it is pottery from the

⁷ Regarding the dating of this fragment, I express a great doubt. It remains for the future to confirm or reject this dating through a possible insight into the original documentation and the circumstances of its discovery.

Early Iron Age (Papazovska Sanev 2007; Битракова Грозданова 2012, 102; Битракова Грозданова 2017, 18; Кузман 2017, 151-152; Hošek et al. 2021, 7). However, this research has shown that it has been present at Plaošnik since the Transitional Period which chronologically approaches the very beginnings of the settlement formed in this area. As previously said, in the nearby and related site of Sovjan, such pottery appears for the first time in layer 5c1, which corresponds to the period from 1170 to 1050 BC. It seems appropriate to place its appearance at Plaošnik in Ohrid within these frameworks.

Judging by the more recent analyses of matt-painted pottery from Devoll i.e. Korça Basin in SE Albania, a very small percentage of matt-painted pottery belonged to the Transitional Period and the more prominent dominance begins in the Early Iron Age, which means from the late 10th century BC onwards (Krapf 2018,125). According to my analyses this conclusion is also valid for the matt-painted pottery from Ohrid. During the Early Iron Age this pottery reaches the peak of its use. It can be said that the end of the use of matt-painted pottery, in the wider region, is placed broadly in the 7th century BC, noting that its disuse certainly did not happen simultaneously everywhere. The late 8th or the early 7th century BC marks the end of its use in Ohrid as well. In addition to this observation, as an indirect argument, I can mention the well-documented graves from the site of Plaošnik, which are dated to the developed Iron Age (the 7th and the beginning of the 6th century BC) in which no matt-painted pottery was found.⁸

At the end it should be pointed out that the observed regional connections in the Late Bronze Age are even more emphasized in the Early Iron Age. In particular, this applies to the Ohrid and Korça regions in a broader sense and NW Greece (the region of west Macedonia and northern Epirus), which remains to be presented in a possible future paper.

⁸ These graves and their inventory have not yet been published, so the presented position is based on my personal observations from the period when I was engaged in the excavations at the site of Plaošnik, as well as the views of several colleagues involved in the same process.

ILLUSTRATIONS

Fig. 1. Matt-painted pottery from the Transitional Period from Plaošnik (photo: Atanas Kipro).

Fig. 2. Pottery fragments from Plaošnik from the Transition Period and a possible reconstruction of the vessel (drawing and reconstruction: Atanas Kipro).

Fig. 3. Local imitations of Mycenaean vessels: Plaošnik (drawing and reconstruction: Atanas Kipro); Ulanci-Dimov Grob (after Видески, З. 2006. 74, Т. IV- 1, 2, 5, 6); Sovjan (after Cabanes, P. et al. 2001. 721, Fig. 11.).

Fig. 4. LBA Kantharoid vessels: **a-** Plaošnik (**Ohrid**) (drawing and reconstruction: Atanas Kipro); **b-**Ulanci, Dimov Grob (after Видески, З. 2006. 72, Т. II- 2) and **c-** Vardarski Rid (after Видески, З. 2005. 74, Т. VI- 2) - (**middle Vardar River valley**); **d-** Sovjan (after Krapf, T. 2014. 591, Fig. 5. – d; 595, Fig. 10. - b) and **e-** Barç (after Tsonos, A. 2018. 345, Елκ. 5. β) - (**Korça Basin**); **f-** Ano Komi, Kozani (after Tsonos, A. 2018. 96, Елκ. 5. η) - (**Aliákmon River valley**); **g-** Kastanas, layer 14b (after Horejs, B. 2007.) and **h-** Tzaousitza (after Heurtley, W. A. 1939. 220, nr. 434) - (**lower Vardar (Axios) River valley**).

Fig. 5. LBA “kantharoi” fragments: a- Plaošnik (photo and drawing: Atanas Kipro); b- Sovjan (after Krapf, T. 2014. 591, Fig. 5. – d, e, h; 595, Fig. 10. – b).

Fig. 6. Distribution of matt-painted pottery in the Late Bronze Age. The main directions are marked with black arrows; the assumed directions of spreading are marked with red arrows; with yellow arrows the peripheral phenomena, while with white circles the production cores (distribution scheme by Atanas Kipro). Map source: < <http://www.maps-for-free.com/>>

Fig. 7. Pyraunoi fragments: a- Plaošnik (photo and drawing: Atanas Kipro); b- Sovjan (Krapf, T. 2014. 587, Fig. 1. - f).

Fig. 8. Aerial photo of Ohrid hill taken from the west: the upper position is the site of Samoil's Fortress and the lower position is the site of Plaošnik. (Photo by Bojan Taneski).

Fig. 9. Comparison of LBA (Transitional Period) pottery from the sites of Sovjan (Krapf, T. 2018. 122, Fig. 8. – 2, 3, 5, 6; 123, Fig. 9.) and Plaošnik (photo: Atanas Kipro). (Note: Fragments are not to scale.)

Fig. 10. Pottery fragments: (a) Late Mycenaean vessel – Plaošnik; (b) Sub-Mycenaean? – Samoil's Fortress. (photo: Atanas Kipro).

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